

1-1-2009

# A capacity assessment and legislative review of the Clean Water Act in Ontario : past, present and future

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**A CAPACITY ASSESSMENT AND LEGISLATIVE REVIEW OF THE CLEAN  
WATER ACT IN ONTARIO: PAST, PRESENT AND FUTURE**

**By**

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Bachelor of Environmental Studies  
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June, 2001**

**A Research Project**

**Presented to Ryerson University**

**In partial fulfillment of the  
Requirements of the degree of**

**Master of Applied Science**

**In the Program of**

**Environmental Applied Science and Management**

**Toronto, Ontario, Canada, 2009**

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## **ABSTRACT**

### **A Capacity Assessment and Legislative Review of the Clean Water Act in Ontario: Past, Present and Future**

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Historically an unequal distribution of capacity existed among local Municipalities and Conservation Authorities with regards to protecting water in Ontario, as well there was no specific legislation pertaining solely to source water protection. The aim of this research project is to present and analyze through a comparative assessment, the financial capacity requirements and the technical, institutional, social and political capacity progress observed among the 19 Source Protection Regions across Ontario in terms of protecting source water following the Walkerton event and the enactment of the Clean Water Act (CWA).

The results indicate that through the enactment of the CWA, capacity building initiatives have taken place through a top-down model with the provincial governments' guidance, direction and support to local municipalities and CAs. When the provincial government takes control and provides capacity related assistance, the lower level municipal and CA governments become regulated; functioning more effectively and with a level of consistency across the province.

## **ACKNOWLEDGEMENTS**

This is a great opportunity to express my sincere thanks to my advisor Dr. Mostafa Warith for his support and guidance throughout my research project. I would also like to thank Dr. Ron Pushchak for his inspiration and enthusiasm for source water protection. As well, thank you to all the Source Protection Committees and their Source Protection Authorities for the information provided in the Terms of Reference documents analyzed as part of this research. I wish you much success as the future of source water unfolds in Ontario with support from the Ministry of the Environment.

I also want to thank my family and friends for their love and encouragement over the years, especially Robert my husband-to-be for his patience and understanding. Much love to you all.

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### List of Acronyms

AB - Ausable Bayfield	NBP - Northern Bruce Peninsula
AB-MV - Ausable Bayfield-Maitland Valley	NP - Niagara Peninsula
A&L - A&L Canada Laboratories	NRC - Natural Resources Canada
AR - Assessment Report	NV - Nottawasaga Valley
CA - Conservation Authority	ODWO - Ontario Drinking Water Objectives
CAA - Conservation Authority Act	ODWSP - Ontario Drinking Water Stewardship Program
CAR - Cataraqui Region	OPs - Official Plans
CAs - Conservation Authorities	OP - Otonabee-Peterborough
CC - Catfish Creek	OPP - Official Plan Policies
CH - Conservation Halton	OWQO - Ontario Water Quality Objectives
CLO - Central Lake Ontario	OWRA - Ontario Water Resources Act
CRV - Crowe Valley	PTTW - Permit to take Water
CV - Credit Valley	PUC - Public Utilities Commission
CVC - Credit Valley Conservation	PWQO - Provincial Water Quality Objectives
CTC - Credit Valley, Toronto and Region, Central Lake Ontario	QC - Quinte Conservation
CWA - Clean Water Act	QR - Quinte Region
CWB - Conceptual Water Budget	RA - Risk Assessment
CWSRF - Clean Water State Revolving Fund	RAP - Remedial Action Plan
DNAPL - dense non-aqueous phase liquid	RMOW - Regional Municipality of Waterloo
DWSRF - Drinking Water State Revolving Fund	RMP - Risk Management Plan
E.coli - Escherichia coli	ROPP - Regional Official Policies Plan
EC - Environment Canada	RR - Raisin Region
EBR - Environmental Bill of Rights	RV - Rideau Valley
EPA - Environmental Protection Act	SAC - Spills Action Centre
ER - Essex Region	SCR - St. Clair Region
FWPCA - Federal Water Pollution Control Act	SDWA - Safe Drinking Water Act
GAR - Ganaraska Region	SGB-LS - South Georgian Bay - Lake Simcoe
GR - Grand River	SGRA - Significant Groundwater Recharge Area
GS - Grey Sauble	S-GS-NBP - Saugeen, Grey Sauble, Northern Bruce Peninsula
GSD - Greater Sudbury District	SN - South Nation
GUDI - groundwater under the direct influence of surface water	SP - Source Protection
H - Hamilton	SPA - Source Protection Area
HH - Halton-Hamilton	SPC - Source Protection Committee
HVA - Highly Vulnerable Aquifer	SPP - Source Protection Plan
IPZ - intake protection zone	SPR - Source Protection Region
KC - Kettle Creek	SS - Severn Sound
KH - Kawartha-Haliburton	SSMR - Sault Ste Marie Region
LE - Lake Erie	SV - Saugeen Valley
LPR - Long Point Region	SW & SSA - Sustainable Water and Sewage Systems Act
LR - Lakehead Region	SWP - Source Water Protection
LSCBR - Lakes Simcoe & Couchiching -Black River	TCC - Trent Conservation Coalition
LT - Lower Trent	TOR - Terms of Reference
LTV - Lower Thames Valley	TOT - Time of Travel
MAC - Maximum Acceptable Concentrations	TR - Toronto Region
M-V - Mississippi Valley	T-SR - Thames, Sydenham & Region
MOE - Ministry of the Environment	US - United States
MOHLTC - Ministry of Health and Long Term Care	US CWA - United States Clean Water Act
MNR - Ministry of Natural Resources	US EPA - United States Environmental Protection Agency
MR - Mattagami Region	USDA - United States Department of Agriculture
M-R - Mississippi-Rideau	USGS - United States Geological Survey
MV - Maitland Valley	US SDWA - United States Safe Drinking Water Act
O.Reg - Ontario Regulation	UTR - Upper Thames River
N-BM - North Bay-Mattawa	WC - Watershed Characterization
	WHPA - Wellhead Protection Area

## 1.0 INTRODUCTION

The aim of this research project is to present and analyze through a comparative assessment, the financial capacity requirements and the technical, institutional, social and political capacity progress observed among the 19 Source Protection Regions (SPRs) across Ontario in terms of protecting source water following both the Walkerton event in May 2000 and the enactment of the *Clean Water Act* (CWA) in October 2006. Within Ontario there are 38 Conservation Authorities (CAs) and under the CWA, Ontario Regulation (O.Reg) 284/07, the CAs and their watershed boundaries have become the Source Protection Areas (SPAs) also known as the Source Protection (SP) Authorities. Across Ontario, 11 of the 38 CAs have entered into partnership agreements with two to five neighbouring CAs to form the 19 SPAs / SPRs. Each SPR has a lead SP Authority that represents the region and a Source Protection Committee (SPC) comprised of multi-stakeholders who are responsible for the development of three major deliverables with the assistance of the SP Authorities. The SP Authorities are responsible for providing administrative and technical support to the SPCs and the SP protection program (MOE<sup>4</sup>, 2007, 1). The three deliverables the SPC is responsible for include:

1. **Terms of Reference (TOR)** – A work plan that outlines the tasks to be completed for the Assessment Report (AR) and Source Protection Plan (SPP). The TOR includes the estimated costs for each task, the timelines and who the lead is to conduct each task. Based on the timelines as per O.Reg. 285/07 under the CWA the TOR documents are to be submitted to the Ministry of the Environment (MOE) fourteen months after the first chair of the SPC is appointed (Government Ontario<sup>4</sup>, s.1.(2)(a), Online). As such the TOR submission date was October 2008. An analysis of the drafted TOR documents produced by the 19 SPCs representing the SPAs / SPRs forms the basis of the comparative capacity assessment of this research project.
2. **Assessment Report (AR)** – A report that contains the technical, science-based tasks outlining the vulnerable areas which include the wellhead protection areas (WHPAs) for groundwater, intake protection zones (IPZs) for surface water, significant groundwater recharge areas (SGRAs) and highly vulnerable aquifers (HVAs). Once the AR is complete, each of these vulnerable areas will have been assessed based on

the threats present and a risk score will be scientifically determined. The risk score will represent the likelihood of a contaminant of concern to impact drinking water sources and will be classified as a significant, a moderate, a low or a negligible risk. Based on the timelines as per O.Reg. 285/07 under the CWA, the AR is to be submitted to the MOE, twelve months after the TOR documents are approved (Government Ontario<sup>4</sup>, s.2. (a), Online), which results in a due date submission to the MOE, late 2009 / early 2010.

3. **Source Protection Plan (SPP)** - The policies that have to be developed and implemented to protect source water are based on the results of the AR. For example, significant risks will require mandatory compliance with a risk reduction plan and / or best management practices to reduce their likelihood of negatively impacting drinking water sources. Monitoring programs will likely be implemented for moderate risks to allow officials to observe water quality trends and respond appropriately in the event of adverse water quality within a vulnerable area. Based on the timelines as per O.Reg. 285/07 under the CWA the SPP is to be submitted to the MOE, at the fifth anniversary of the first chair of a SPC being appointed (Government Ontario<sup>4</sup>, s.3. (a), Online). As such, the completion of the SPP is to be submitted the MOE in August of 2012.

## **1.1 Report Outline**

Presented in this chapter is the research problem, which leads to the objectives and hypothesis of this project. Chapter two presents the methodology utilized to carry out this research and chapter three is a literature review illustrating the various events leading up to and following the Walkerton event. The literature review is two-fold. First, outlining the environmental legislation relating to water protection in Canada at the Federal, Provincial and local Municipal and CA levels. The United States (US) is also discussed and some of their successes and lessons learned are recommended for Ontario. Secondly, is the capacity component, which discusses the historical unequal (mal) distribution of capacity to carry out source protection for the CAs and Municipalities, exemplifying the need for capacity development and building in Ontario. Specific CA and Municipal case studies are presented from previous research that has been conducted.

Chapter four presents the recent actions and progress in Ontario as a result of CWA (SP program) and how it has provided capacity (financial, technical, institutional, social and political) to CAs (known as SPAs / SP Authorities) and local Municipalities. Chapter four also contains the comparative capacity assessment used to examine the financial capacity requirements and the technical, institutional, social and political capacities that have emerged. The future of SP in Ontario is also discussed. Chapter five reviews the original research problem, process and outcome. A discussion and recommendations section is presented along with research limitations and assumptions. Further research is suggested for source water protection (SWP) in Ontario and the main project conclusions are acknowledged. The references section lists the documents used during this research and the bibliography lists the web sites used to obtain the land areas of the SPAs / SPRs and the TOR documents drafted by the SPCs consulted to conduct the comparative capacity assessment component of this research.

## **1.2 Research Problem**

Environmental legislation pertaining directly to SWP in Ontario is a new phenomenon. The Ontario *Clean Water Act* (CWA) received royal assent in October 2006 and was proclaimed in July 2007. The CWA was enacted as a result of the Walkerton event in which seven people died and over 2000 fell ill due to a municipal well which was contaminated with *Escherichia coli* (*E.coli*). In essence, it was the Walkerton event that sounded an alarm leading to a definitive way of protecting source water utilized by municipal drinking water systems in Ontario. The Walkerton event lead to Justice O'Connor's Two Part Inquiry that contained numerous recommendations, one of which was that source waters should be protected through a multi-barrier approach. The Canadian Council of Ministers et al (2002, 4) define the multi-barrier approach as "... an integrated system of procedures, processes and tools that collectively prevent or reduce the contamination of drinking water from source to tap in order to reduce the risks to public health". This approach begins by protecting drinking water at the source, then treating it effectively, monitoring its quality regularly and taking immediate action when problems are detected. Historically, water treatment was the first step at ensuring safe drinking water; however, an additional barrier has been added to protect water at the



source since earlier land use planning and development did not take into consideration the implications they may have on drinking water.

It may be difficult to comprehend how an advanced and developed province such as Ontario has lagged behind in protecting source waters, given that its jurisdiction contains an abundance of fresh water resources. Seeing as historically SWP has not been a top priority, numerous surface water bodies and aquifers have become deemed unsuitable for drinking purposes. If this trend continues there will be many consequences relating to water for the generations to come. In Ontario, source water consists of the Great Lakes, inland lakes, rivers and streams as well as groundwater extracted from wells within aquifers. These aquifers provide drinking water to the majority of Ontario's rural residents as well as more populated areas such as the Regional Municipality of Waterloo (RMOW).

Approximately 70 to 75% of the earth's surface is covered with water and this abundance of water makes it appear as though water is an infinite resource. This assumption is unquestionably false, as 97% of this water is saline and found within the oceans, while the remaining 3% is freshwater that can be utilized by human-kind. Of this 3%, 68.7% is locked in polar ice caps and glaciers, 30.1% is groundwater, 0.3% is surface water and the remaining 0.9% has been listed by the United States Geological Survey (USGS) to be other (United States Geological Survey<sup>1</sup>, Online). Overall, only a fraction of the water on earth is readily available for human consumption, which makes it extremely important to safeguard and manage it effectively. In Ontario, approximately 82% of the population (8.9 million people) relies on a municipal water supply system, the majority of which (66% of the 82%) comes from the Great Lakes basin (Green Ontario Provincial Strategy, Online). With respect to groundwater, approximately 23% of Ontario's population (2 million people) relies on it for their drinking water supply, as it is the only source of water for 90% of the rural population (Green Ontario Provincial Strategy, Online). Rural non-municipal domestic water well users are responsible for the protection of their own well water supply as well as ensuring that it is free of contamination by obtaining regular water samples for biological analyses. Although, the "responsibility for the quality of water in private water wells rests with the well owner, [the] Ministry of Health and Long Term

Care (MOHLTC) provides free microbiological testing of water samples from private wells” (EBRa, 2007, Online).

Source water is defined as “... the lakes, rivers, and aquifers from which “raw” drinking water is drawn” (Ivey et al, 2006, 193). It must be understood that SWP is a multi-facet and complex undertaking because of the comprehensive and extensive hydrogeological studies required during the initial phases followed by the regulatory measures (SPP) that must be implemented and enforced for long term sustainability of source water. Although SWP is viewed as a complex undertaking, the costs of protecting groundwater from contamination are more advantageous than subsequent remediation. Preventing groundwater contamination is clearly more desirable than remediation since the remedial processes of cleaning up soil and contaminated groundwater are often lengthy and expensive undertakings and seldom able to restore the aquifers to its pristine original state. As well the human health related impacts can be severe. “In the United States, the National Research Council (1994) estimated that over \$1 trillion (US) would be needed over a thirty-year period to clean up contaminated groundwater and soils” (de Loe et al, 2002, 217). Throughout Ontario, water quality problems have become persistent. “Particularly troublesome may be [the] long-term contamination of groundwater upon which a quarter of the Canadian population relies for domestic purposes” (Kreutzweiser, 1995, 280). Based on historical and existing land use patterns as well as the extensive developments continuously occurring throughout Ontario, there are numerous land use activities that pose threats and risks to both surface water and groundwater. As such the CWA comes into play, which will require Municipalities to amend their official plans (OPs) and zoning by-laws in order to comply with the SPP that are established in 2012 based on the results of the AR.

In Ontario, CAs operate on a watershed-basis, therefore they have played a major role in surface water management since they initially developed as early as 1946, when the first CA was formed which is known as the Ausable Bayfield Conservation Authority (ABCA) (Ausable Bayfield Conservation Authority, Online). During the early 1990s, CA roles began to include tasks related to groundwater management, such as data

collection, monitoring and planning. Since groundwater management is a relatively new challenge for the CAs in Ontario, their capacity for safeguarding groundwater resources is largely unknown according to Ivy et al (2002, 312). The hydrogeological connection between surface water and groundwater make it logical for CAs to take on this additional groundwater responsibility since they operate a watershed basis. "Inadequate capacity has been identified as a recurring issue preventing achievement of many national and international goals over the past two decades" (Taylor, 2002, 3). Many aspects are associated with the task of capacity building and these are not as simplistic as training and education; rather "capacity building is a continuous process reflecting society's need to respond to new ideas and technologies and changing social and political realities" (Taylor, 2002, 4). In order for SP actions to be developed, implemented and enforced there has to be a sufficient level of capacity.

In present day, important scientific and technical challenges exist in protecting drinking water; however, lack of scientific understanding cannot be used to explain the failures in providing clean water. In Part Two of Justice O'Connor's report he concluded that CAs "are the organizations best positioned to bring about effective source protection planning" (quoted by Krause et al, 2006 Presentation, 2). CAs are considered to be the ideal leaders of source water protection in Ontario because "they are a partnership of municipalities already operating on a watershed basis and they are experienced in the kind of locally-based, collaborative planning that Justice O'Connor envisioned for this process" (Krause et al, 2006 Presentation, 2). Unfortunately, the reality is that historically Municipalities and CAs have had varying levels of capacity as there has been an unequal (mal) distribution of capacity across Ontario to protect source water resources. However, with the enactment of the CWA and the Provincial governments' involvement with the MOE as the lead, it is anticipated that CA and Municipal capacities will increase; inevitably they must in order for SP to be successful.

### **1.3 Research Objectives**

The objective of this research is to communicate that a CWA is long overdue in Ontario and that with the enforcement of a multi-barrier approach to source water protection

through the CWA, as well as capacity building initiatives of the Province, source water in Ontario can be protected effectively. The likelihood of another Walkerton event taking place is considerably reduced if not eliminated, following the successful implementation of SP policies and plans. However, in order for this undertaking to be successful, the unequal (mal) distribution of capacity across the province at the CA and Municipal levels must be rectified. This research presents a detailed illustration of the CWA through presenting the Regulations that have been enacted as well as the guidance modules to assist the technical requirements of the AR. A comparative capacity assessment is conducted on the 19 SPAs / SPRs to examine their financial capacity requirements and existing technical, institutional, social and political capacity progress following the enactment of the CWA. Rather than dwelling on the past lack of source water legislation and unequal distribution of capacity and resources across the province, the time has come to protect source water resources through a multi-barrier approach using a scientific approach followed by the implementation of SP policies and plans.

In order for groundwater protection and management to be effective, sufficient capacity is required, as well as strict legislation and enforcement. de Loe and Kreutzwiser (2005, 241) state that the Walkerton tragedy reflects "serious implementation gaps in groundwater protection [and in] Ontario, many of these implementation gaps relate to shortfalls in local and provincial management capacity". This research paper outlines the recent initiatives of the Province and how they have trickled downwards to aid local Municipalities and CAs with capacity to progress forward in the development of source water planning for Ontario. The SP practices of our neighbours to the south, the US, are discussed in terms of both successes and lessons learned; some of which could be applied to assist Ontario's SP program. The main focus of this research is source water, which includes both surface water and groundwater since they are hydrogeologically connected within watersheds. It is hypothesized that through the enactment of the CWA, capacity building initiatives will take place through a top-down model, in which the provincial government provides guidance, direction, and support to the local municipalities and CAs to follow through with SP. The expectation is that when the provincial government takes control, as well as provides an appropriate amount of capacity related assistance, the lower level Municipal and CA governments not only become more regulated, they are



also provided with the ability to function more effectively and there is a level of consistency across the province. Ultimately, safe drinking water quality depends on the degree to which governments are held accountable for their protection and safety and without clear legislation; watershed-organizations such as the CAs are not fully supported and guided.

## 2.0 METHODOLOGY

The literature review in the following chapter illustrates the Walkerton event, the lack of drinking water legislation and the issues pertaining to capacity in terms of protecting source water in Ontario historically. Based on the literature review, it is evident that SP legislation in Ontario is long overdue and capacity building initiatives must be implemented in order to support the legislation and ultimately safeguard source water. The methodology utilized to investigate the past, present and future of source water legislation and capacities in Ontario was conducted through a review of existing documentation, including legislation, guidance materials, government web sites, journal articles, text books, media, news releases and a comparative analysis of the TOR documents. The TOR documents were prepared under the CWA by the SPC and used to assess the capacities (financial, technical, institutional, social and political) of the SPAs / SPRs across Ontario. The TOR documents analyzed were drafted and posted on the individual SPC web sites for public review and comment from May 2008 to September 2008. The TOR documents were due for submission to the Minister of the Environment at the end of October 2008 for approval. The analysis of the TOR documents allow for comparisons to be made of the SPAs / SPRs regarding the capacity they require, as well as the capacity they have to carry out SWP.

The comparative capacity assessment was conducted by means of a spreadsheet examination using Microsoft Excel to analyze the information and data in the TOR documents. The comparative analysis identified similarities and differences between the SPAs / SPRs and Municipalities based on their financial requirements, technical, institutional, social and political capacities. The order in which the capacities were investigated is as follows: institutional, financial, technical, political and social. The reason being is that the institutional capacity was observed province-wide by reviewing the CWA and its associated Regulations. Historically, SP activities were voluntarily conducted; however with the enactment of the CWA they are now mandatory. As such, the requirements of the Act and Regulations are presented and outlined in terms of the

structure of the SPC, the formation of the SPAs and SPRs, the timelines for completing the work, and the development and specific requirements of the TOR documents.

The financial capacity was determined by calculating the budgetary requirements of the SP program by summing up the estimated budgets proposed across the SPAs / SPRs to determine the Provincial grand total until the development of the SPP in the summer of 2012. Furthermore, the budget was broken down into each of the tasks for the AR and the SPP to determine the budget percentage requirements for the technical AR tasks and the SPP tasks. Each SPAs / SPRs total was divided into the total Provincial requirement to see percentage-wise how much each of the SPAs / SPRs requires. The distribution of the financial requirements is presented and those requiring the most financial capacity were identified along with a rationale as to the likely reasons they require the most financial support. Those with the lowest financial requests are also presented. The financial requirements are also presented based on the SP Authorities as the lead as well as the Municipalities as the lead. Lastly, the costs are assessed in terms of the budget which has been used (i.e. tasks 'completed / in progress' for the provincial fiscal 2008-2009, ending March 31, 2009) and the 'estimated' future costs required for the outstanding AR tasks and SPP development tasks until summer of 2012.

With regards to the technical project tasks, each task identified in the TOR documents was presented in the Excel spreadsheets analyzed, along with the financial requirement estimated and their timeline ('completed / in progress' versus 'estimated') in order to determine how complete the tasks were at the time of this research. The timelines presented in the TOR were used to critique the completion of the work for the 38 SPAs. The technical tasks which have been completed by the majority of SPAs / SPRs are identified as well as those tasks which have not yet been started (as of December 2008). A more in-depth analysis was conducted by calculating (percentage-wise) the costs for tasks 'completed / in progress', by dividing these costs with the total costs required for the SPA / SPR. The percentage cost requirements are calculated for the SP Authorities versus the Municipalities as the lead for both the AR and SPP tasks to determine the difference in capacity relating to the technical tasks between the SP Authorities versus the Municipalities. The final technical analytical component was to determine

percentage-wise which tasks require the most financial capacity for both the AR and the SPP.

Political capacity was observed by analyzing the partnerships among the SPAs / SPRs and the municipalities in terms of capacity to assist with the AR and SPP, as well as through identifying the roles and responsibilities of those involved as outlined by the CWA. The TOR documents identify the lead for each of the tasks listed. The greater the number of leads within a SPAs / SPRs illustrates the more likeliness of a successful program for that area / region, since there is a greater awareness and interest by others through their involvement as leads. When there are additional leads involved with the tasks, partnership agreements must be formed with the lead SP Authority. Various leads were presented in the TOR documents illustrating the lead for the project to be the SP Authorities or Municipalities. Percentage analysis of the lead SP Authorities versus the municipalities was also conducted to determine those parties most involved with the program in each SPA / SPR. The other component of political capacity is that since the Province is the ultimate leader providing the overall guidance and support for the program political capacity can be generalized, such that it applies equally to each of the SPAs / SPRs.

Social capacity includes various factors, which “include factors such as levels of citizen awareness and concern, the quantity and quality of citizen participation in groundwater [and source water] protection initiatives, and the extent to which people living in a region see themselves as members of an interacting social group” (de Loe and Kreutzweiser, 2005, 248). Social capacity was assessed by reviewing the percentage of the budget spent on undertaking communication initiatives for both the AR and SPP. As well, the CWA contains various sections that relate to open house requirements, education, outreach and consultation of the work being undertaken. Most of the social capacity assessed was also considered to be a province-wide initiative since; the requirements are outlined by the province through the CWA. As well the Ontario Drinking Water Stewardship Program (ODWSP) is discussed as it provides awareness and outreach to the public and specifically those who may qualify for financial assistance if they are situated in close proximity to a drinking water source area.

In addition to the five capacity measures outlined above, each SPA / SPR was assessed based on the following sub-components within their jurisdiction:

- the total land area (km<sup>2</sup>);
- the number of Municipalities; and
- the number of municipal drinking water systems (groundwater and surface water).

These sub-components were taken into consideration when determining the rationale of the capacity requirements as well the capacity that was observed within the SPAs / SPRs.



### **3.0 LITERATURE REVIEW**

The following chapter presents a literature review which highlights the unequal (mal) distribution of capacity and lack of SP legislation within Ontario. Various sections are contained within this chapter, including:

- The Walkerton tragedy, the events, the physical causes and immediate activities;
- The legislation governing water in Canada prior to Walkerton at the Federal, Provincial, Municipal and CA levels as well as within the US;
- The historical capacities financially, technically, institutionally, socially and politically with case studies of select CAs and Municipalities in Ontario;
- The CWA and the technical AR tasks that are currently underway across Ontario, which is the area that requires immediate capacity.

#### **3.1 The Walkerton Tragedy**

The following section outlines the events leading up to the Walkerton event.

##### **3.1.1 The Events of May 2000**

The Walkerton water system is owned by the municipality and for years it was operated by the Walkerton Public Utilities Commission (PUC) (O'Connor, 2002, 7). The PUC is governed under the *Public Utilities Act*. According to Wellington et al (2007, 2-3), "such PUCs are creatures of municipalities; the municipalities are financially responsible for the capital borrowing required, and each municipality retains ownership of the assets used by its respective PUC". Three wells supplied the Walkerton water system; Well 5, Well 6 and Well 7, while Stan Koebel was the PUCs general manager and his brother Frank Koebel was the foreman (O'Connor, 2002, 7). Stan Koebel was certified as a class 3 operator of water distribution systems; however, "there were significant gaps in this knowledge about the possible threats to the safety of water and the importance of treatment and monitoring practices" (O'Connor, 2002, 184). In 1988, when Mr. Koebel was certified as a class 2 operator, his name was submitted by his manager at the time (Mr. Ian McLeod) to the MOE as part of the 1987 voluntary grand-parenting program for

water operators. Mr. Koebel was not required to pass any tests and his certification was essentially renewed as a matter of course and in 1996 he was recertified as a class 3 operator after the Walkerton water system was reclassified as a class 3 water distribution system (O'Connor, 2002, 185). Under the OWRA, section 17 of Ontario Regulation 435/93 (later amended to O.Reg128/04 under the *Safe Drinking Water Act* (SDWA)), states that "every operator employed at a waterworks facility must receive at least 40 hours of training each year" (O'Connor, 2002, 185). Stan Koebel's training records for 1998 and 1999 indicate that 16 credit hours were documented as training, which is well below the 40 hours required and much of what was recorded as training was not focused on water safety issues. Stan Koebel's interpreted meaning of 'training' in this regulation was unreasonably broad (Connor, 2002, 186). Identically, Frank Koebel had also received his certification through the voluntary grand-parenting process and he did not complete any courses or take any exams to test his skills and knowledge (O'Connor, 2002, 187). Both Stan and Frank Koebel had never read the Ontario Drinking Water Objectives (ODWO) section pertaining to the indicators of unsafe water and neither knew what *E. coli* was, nor of its implications to human health when present in drinking water. Neither men had read the sections of the Chlorination Bulletin on the importance of maintaining a total chlorine residual of at least 0.5 mg/L and they did not understand the distinction between total chlorine and free chlorine; two important concepts in the Chlorination Bulletin, nor did they know of the requirement pertaining to notifying the MOE of adverse bacteriological results (O'Connor, 2002, 185).

During the period of May 8 to 12, 2000 approximately 134 millimetres of rain fell in Walkerton. On May 13, 2000 Frank Koebel conducted a supposed routine daily check of the operating wells in order to record the pumping rate of groundwater flows, chlorine usage and most importantly to measure the chlorine residuals in the treated water. Shockingly, O'Connor (2002, 7) states that "... for more than 20 years, it had been the practice of PUC employees not to measure the chlorine residuals on most days and to make up fictitious entries for residuals in the daily operating sheets ... Stan Koebel often participated in this practice". The May 13, 2000 inspection did not include the measurement of the chlorine residual at Well 5, had it been measured, Frank Koebel would have known that there was no residual chlorine in the water. This procedure

continued day after day and on May 15, 2000 samples were collected and labelled "Well 7 raw", Well 7 treated" and "125 Durham Street". O'Connor (2002, 8) states that "I am satisfied that these samples were not taken at the locations indicated, but rather were most likely taken at the Walkerton PUC Workshop, which is near to and down line from Well 5. It was not unusual for PUC employees to mislabel the bottles so that they did not reflect the actual locations at which water samples were taken". Stan Koebel also obtained water three water samples from a water main at a construction site for submission of microbiological testing. A&L Canada Laboratories (A&L) conducted the analysis and telephoned Stan on May 17, 2000 to advise "... him that the three samples from the construction site, which came from water pumped from the Walkerton distribution system, were positive for *E. coli* and total coliforms" (O'Connor, 2002, 8). As well, A&L reported that the Walkerton water system samples did not appear acceptable either since a membrane filtration test resulted in the plate being covered with *E. coli* and total coliforms. Essentially, three of the four samples contained *E. coli* and total coliforms as well as gross contamination based on the membrane filtration test (O'Connor, 2002, 9). The results were not forwarded by A&L to the MOE and as a result the local health unit was not informed until May 23, 2000, which was six days after it was known that the water was of poor quality, containing pathogens.

Meanwhile, on May 18, 2000 the first public indication of illness occurred when two children were admitted to the hospital because of bloody diarrhea, while numerous other children were absent from school. The following day the outbreak became more evident as more children were absent and a retirement home and long-term facility as well as many others in the community reported diarrhea and vomiting (O'Connor, 2002, 9). Stan Koebel received a telephone call from the health unit questioning the water and said that he thought the water was okay even though he knew of the adverse results of the May 15, 2000 samples. He was afraid that the health officials would then know that he operated Well 7 without a chlorinator. "Ironically, it was not the operation of Well 7 ... that caused the contamination ... the contamination entered the system through Well 5 from May 12 (or shortly there after)" (O'Connor, 2002, 10). Stan Koebel was not aware that *E. coli* was fatal; however after the call from the health unit he began flushing and super-



chlorinating the system thinking that it would destroy the contaminants in the water system.

On May 20, 2000 two additional calls from the health unit were made to Stan Koebel. Mr. Koebel informed them of the chlorine residual in the system, which led them to believe that the water was not related to the illnesses. Stan Koebel still did not reveal the adverse water quality results or that Well 7 was functioning without chlorination and his reports indicating that he was obtaining residual measurements in the distribution system put the health department at ease (O'Connor, 2002, 11). On May 21, 2000, another call from the health unit was made to Stan Koebel, who again did not reveal the adverse results; however, at this time the health unit decided to launch their own study by obtaining 20 samples from locations throughout the distribution system. Meanwhile, there were a growing number of illnesses, as the hospital received 270 calls reporting the symptoms of the previously impacted people and the first of many ill children were airlifted to London for emergency medical attention (O'Connor, 2002, 12). The following day on May 22, 2000, the health unit urged the MOE to investigate the situation. The MOE requested that the documents be forwarded to them and for the first time the adverse results from May 17, 2000 were faxed to them by A&L (O'Connor, 2002, 12). Stan Koebel provided them with the daily operating sheets for Well 5 and Well 6; however, spent a day forging the Well 7 information to conceal that it had been operating without a chlorinator and then submitting the information to the MOE the following day. On May 23, 2000, two of the water samples the Health Unit had collected tested positive for *E. coli* for samples obtained "from dead ends in the system, which explains why the contaminants were still present after Mr. Koebel's extensive flushing and chlorination over the weekend" (O'Connor, 2002, 12). When Stan Koebel was confronted of these results, he finally informed the health unit of the adverse samples from May 15, 2000. By May 24, 2000, "several patients had been transported by helicopter and ground ambulance from Walkerton to London for medical attention [and] the first person died on May 22, a second on May 23 and two more on May 24" (O'Connor, 2002, 12). In total seven people died and more than 2300 became ill.

### Section 3.1.2 Physical Causes of May 2000

The unexpected rainfall from May 8 to May 12, 2000, significantly allowed for the transportation of contaminants to enter Well 5, which was a shallow well with a casing that extended slightly less than 5 metres below the ground surface (O'Connor, 2002, 13). The water from this well was drawn from an area of highly fractured bedrock, which allows for surface bacteria to easily and quickly enter into the well. This bacterium originated from manure that had been spread on a farm near Well 5 in late April 2000, which matched the DNA typing of the material strains that were present in the humans – *E. coli* O157:H7 and *Campylobacter*. “It is important to note that the owner of this farm is not to be faulted in any way [since he] used what were widely accepted as best management practices of spreading the manure” (O'Connor, 2002, 13). Furthermore, according to Wellington et al (2007, 3), “in 1978 [the year in which well 5 was drilled], a survey of the Walkerton wells conducted by Wilson Associates indicated that well number 5 (in Walkerton) was vulnerable to surface contamination from farming activities on an adjacent farm”. However, no further action was taken as per the findings of this study.

The MOE's “*Chlorination of Potable Water Supplies*”, Bulletin 65-W-4 from March 1987 was the applicable government document that “... required a water system like Walkerton's to treat well water with sufficient chlorine residual to inactivate any contaminants in the raw water, and to sustain a chlorine residual of 0.5 mg/L of water after 15 minutes of contact time” (O'Connor, 2002, 14). Had this level of chlorine residual been maintained in Well 5, 99% of the bacteria (*E. coli* and *Campylobacter*) would have been killed and the outbreak likely would have been prevented. If the operators would have been diligently monitoring the chlorine residuals in the wells they would have known that there was not enough chlorine in the system, “at which point they should have been able to take the proper steps to protect public health” (O'Connor, 2002, 14-15). This would have been a relatively simple process for a competent water operator.

Essentially, the government of Ontario had two main policy guidelines that assisted in making decisions about drinking water protection and management at the time of the Walkerton event in May 2000. These were the ODWO, which were revised in 1994 and the Chlorination Bulletin, which was updated in March 1987. The Chlorination Bulletin 65-W-4 was first introduced in the 1970s and updated in 1987 when it was renamed the "*Chlorination of Potable Water Supplies*". O'Connor (2002, 457) describes "... this document [as] a guideline for the disinfection of potable water and distribution systems [as it] provides detailed information about various issues, including when disinfection is required, minimum chlorine residuals, chlorination equipment, and monitoring". Under the OWRA, ODWO and the Ontario Water Quality Objectives (OWQO) set standards for drinking water quality by having maximum acceptable concentrations (MAC) for bacteria, toxic chemicals and radioactive material that can cause harm to human health or interfere with the taste, odour, or appearance of drinking water. "The objectives are set with consideration of the Canadian Water Quality Guidelines" (Wellington et al, 2007, 2). The ODWO is a publication of the MOE's Water Policy Branch and was first introduced in 1964, revised numerous times and superseded by O.Reg 459/00, the Drinking Water Protection Regulation that came into effect in August 2000 under the OWRA (O'Connor, 2002, 454). O.Reg 459/00 was further superseded by O.Reg 170/03 under the *Safe Drinking Water Act* (SDWA). Under this regulation, the minimum sampling requirements are outlined and samples shall be taken from the point at which treated water enters the distribution system unless directed otherwise. For instance, for groundwater systems, samples are to be obtained and analyzed for microbiology weekly for raw water. This is because "microbiological quality is the most important aspect of drinking water quality because of its association with dangerous water borne diseases, which can strike quickly" (York Region, Online, 2003). For the remaining parameters the suggested minimum is also presented in the regulation; however, "... all public water supply systems using groundwater [shall] be sampled as set out in the Certificate of Approval ..." (O'Connor, 2002, 456). Based on these requirements, O'Connor (2002, 454) states that 13 samples should have been obtained per month for the Town of Walkerton's distribution system for microbiological testing, as well as one sample weekly based on its size. Unfortunately at the time of the tragedy neither the Chlorination Bulletin nor the ODWO was legally binding as they were guidelines with

the objective to provide guidance to ensure that water was safe to drink. Following the Walkerton event, the ODWO became O.Reg 459/00, thus becoming legally binding and later amended to O.Reg 170/03 under the SDWA. O'Connor (2002, 457) states that there were two ways in which the ODWO and the Chlorination Bulletin could have been legally enforceable at the time of the Walkerton tragedy; "first, the MOE could have made compliance with the ODWO a condition of the Certificate of Approval. Second, the ODWO or portions of them could have been made the subject of a Field Order (provincial officer's order) or a Director's Order under the OWRA and the [Environmental Protection Act] EPA". Both regulations (O.Reg 128/04 and O.Reg 170/03) are under the SDWA and following each amendment became stricter through mandatory requirements pertaining to the certification of drinking water operators and drinking water systems testing, respectively. If adverse conditions (as defined by O.Reg 170/03) are detected within the samples, the laboratory is required to immediately notify the MOE's district office, who then immediately notifies the Medical Officer of Health and the operating authority so that additional samples can be obtained as soon as possible and/or corrective action can be initiated. Correction action includes disinfection or flushing of the system until the parameter(s) is no longer in exceedance of the standards (O'Connor, 2002, 455). It is the duty of the local Medical Officer of Health to issue a boil water advisory if the circumstances warrant such actions.

### **Section 3.1.3 Immediate Activities Following Walkerton**

Following the Walkerton tragedy, the provincial government of Ontario "pledged to do whatever was necessary to help the people of Walkerton [and the] Premier and several Cabinet Ministers visited Walkerton to learn firsthand about the community's needs" (Smith, 2000, 1). Some of these actions within the following 15 months of the tragedy included the Government's comprehensive support for additional public health resources, the provision of bottled water, emergency funds and financial compensation for residents of Walkerton, immediate and long term assistance to businesses, remediation of the Walkerton waterworks, and financial aid to the municipality (Smith, 2000, 1). In terms of restoring the public's confidence in Ontario's drinking water, the most significant step was the establishment of the Public Inquiry conducted by the Honorable Mr. Justice



Dennis R. O'Connor as Commissioner to investigate why the Walkerton tragedy happened and to offer recommendations to prevent another tragedy such as this from taking place in the future and to ensure the safety of Ontario's drinking water. (Smith, 2000, 1). Another initiative of the government to restore the public's confidence in Ontario's drinking water included launching Operation Clean Water in August 2000, which, provided \$240 million to help smaller municipalities and rural areas upgrade their waterworks (Smith, 2000, 1). "A key aspect of Operation Clean Water was the enactment of the Drinking Water Protection Regulation under the OWRA which establishes strict and mandatory requirements for waterworks operators" (Smith, 2000, 1) as previously discussed.

In addition, the Walkerton Inquiry has also led to the enactment of various other Acts including the *Sustainable Water and Sewage Systems Act* (SW & SSA), 2002, SDWA, 2002 and various years later the CWA, 2006. The *Sustainable Water and Sewage Systems Act*, (SWSSA) 2002 helps ensure clean, safe drinking water for Ontario residents by making it mandatory for municipalities to assess and cost-recover the full amount of water and sewer services (MOE<sup>5</sup>, Online, 2008). A major concern that has been raised is the pricing practice of waterworks utilities and the fact that they are not accounting for all of their costs when they are charging consumers. Under the SWSSA, providers of water and wastewater must provide two plans for government approval. "The first inventories the utility's infrastructure and documents its full costs of service including source protection, operating, financing, renewal and replacement and improvement". The second is a cost recovery plan that sets out how the utility will earn the revenues needed to cover full costs" (Renzetti, 2004, 1). Municipalities can raise revenue from several sources: taxation on property assessment, payment in lieu of taxes, developing charges, user fees, licence fees, fines, and transfers from the provincial and federal governments (O'Connor, 2002, 426-427). The challenge with the full cost recovery program is that it is difficult to charge consumers with the non purchased inputs of raw water and the absorptive capacity on the environment. "If all inputs were priced according to their respective opportunity costs and if both agencies set output price at the marginal cost of production, then consumers would pay the full cost and would be fully informed of the costs of their consumption decisions, which in turn, would lead to an efficient allocation

of resources” (Renzetti, 2004, 4). Renzetti (2004, 8) concludes that if consumers were paying the full costs associated with water, there would be an increase by anywhere from 16% to 55%. This case study was based on data for the Niagara Region. City News reported that there will be a 9% increase in water, which calculates to an average increase of \$47 per household (2008, News Cast). This is still well below the full-cost recovery dollar amount.

In the Part Two Report of the Walkerton Inquiry, Commissioner Dennis O'Connor recommended that the Ontario government enact the SDWA to deal with matters relating to the treatment and distribution of drinking water. This Act expands on existing policy and practice and introduces new features to protect drinking water in Ontario with the purpose of protecting human health through the control and regulation of drinking-water systems and drinking-water testing (O.Reg 170/03) (MOE<sup>5</sup>, Online, 2008). Since the CWA comprises a major component of this research paper it has been devoted an entire chapter as it represents political capacity herein.

### **3.2 Legislation Governing Water in Canada and Ontario Prior to Walkerton**

Regardless of the importance of water within Canada's economic and social development, the provincial and particularly federal governments were historically not very active in water management until the 1950s and early 1960s. During this time, the government's main involvement was project oriented and aimed at achieving economically efficient solutions to local floods and/or water supply problems (Kreutzwiser, 269, 1995). As water quality problems continued to emerge during the 1960s, the 1970s marked a decade of considerable provincial activity directed towards regulating water pollution (Kreutzwiser, 269, 1995). At this time, government efforts were initiated to repair the environmental damages caused by post-war industrial activities. The enactment of environmental protection legislature was brought about to abate existing pollution and reducing discharges of contaminants to water (Estrin and Swaigen, 1993, 519). Efforts to protect and sustain Canada's water resources do subsist; however, legislation centered strictly upon SWP are more recent, with the enactment of the CWA in 2006 as an outcome of the Walkerton event.

In Canada the responsibilities of groundwater management are divided among several levels of government (de Loe and Kreutzwiser, 2005, 248). Environmental legislation has been enacted to protect and manage resources, such as water; however, historically Estrin and Swaigen (1993, 519), state that the primary purpose of the majority of statutes that were passed was to facilitate economic development rather than protect the environment. The following subsections below summarize the various pieces of legislation governing water and the responsibilities of the federal government of Canada, the provincial government of Ontario and its' municipal and CA governments.

### **3.2.1 Federal Water Legislation and Responsibility**

The *Constitution Act* enacted in 1867, allocates powers to the federal and provincial levels of government. The *Constitution Act* is responsible for the shared jurisdiction between Canada and Ontario over water, environmental protection and public health. The "federal government has focused primarily on its constitutional responsibility for fisheries and navigation, and for waters that lie on or across international borders, while Ontario has assumed the primary responsibility for water management and drinking water safety" (Canadian Environmental Law Association, Online, 2004). From Confederation to the mid-1950s, the Canadian federal and provincial governments passed legislation to prevent activities that interfered with navigation or the use of waterways to transport logs and to protect fisheries, i.e. the *Fisheries Act* enacted in 1868 (Estrin and Swaigen 1993, 519).

The *Navigable Waters Protection Act* is another federal piece of environmental legislation that deals with water and prohibits any development that is built or placed in, on, over, under, through or across navigable water, unless the work site and plans have been approved by the Minister of Fisheries and Oceans (Department of Justice Canada<sup>1</sup>, Online). Furthermore, the *Canada Water Act* manages water resources through conducting research, planning and implementing programs relating to the conservation, development and utilization of water resources (Department of Justice Canada<sup>2</sup>, Online).

Another act is the *Canadian Environmental Protection Act*, which contributes to sustainable development through pollution prevention through ecologically efficient uses of natural, social and economic resources (Department of Justice Canada<sup>3</sup>, Online). This act is relatively young, enacted in 1988 by consolidating several existing statutes, including Part III of the *Canada Water Act*, the *Ocean Dumping Control Act*, the *Clean Air Act* and the *Environmental Contaminates Act* to create an ecosystem based approach to regulate the releases of toxic contaminants into the environment, which includes water, air and land pollution collectively as opposed to separately (Estrin and Swaigen, 1993, 526). With respect to a federal lead for groundwater protection, the Natural Resources Canada (NRC) is responsible for groundwater quantity and Environment Canada (EC) is responsible for protecting groundwater quality and freshwater (Rivera, 2005, 17). This involvement is considered to be limited.

“In Canada, no federal source water protection legislation exists ... [resulting in] enormous variability from province-to-province regarding provincial and municipal institutional arrangements for source protection” (Ivey and Kreutzwiser, 2006, 195). Although Guidelines for Canadian Drinking Water have been established jointly by a Federal-Provincial Advisory Committee on drinking water, they serve as recommendations as opposed to legally binding standards. “The Guidelines contain standards for microbiological, chemical/physical and radiological parameters, and specify maximum acceptable concentrations (MACs) for contaminants” (Legislative Assembly of British Columbia, 2000, 9). Ontario has further developed its own Provincial Water Quality Objectives (PWQO) for surface water based upon the Federal guideline. The Provincial guideline is more stringent and therefore supersedes the use of the Federal guidelines.

### **3.2.2 Provincial Water Legislation and Responsibility**

In Canada, the *British North America Act* of 1867 and the *Constitution Act* of 1982, grants the ownership of water flowing in or through jurisdictions to the provinces (Kreutzwiser, 268, 1995). Since the federal governments' involvement with watersheds is limited the provinces are left with the majority of the water-related responsibilities. de



Loe et al (2002, 217), state that ultimately groundwater protection takes place at the local level involving local government, however, "across North America there is considerable variation in the level of support for groundwater protection activities that local governments and agencies receive from senior governments". The MOE and Ministry of Natural Resources (MNR) are the most important Ontario government departments that focus in the areas of conservation and protection of the environment (Estrin and Swaigen, 1993, 37).

Likely the most widely known legislation in Ontario is the *Environmental Protection Act* (EPA) developed in 1972, which defines the "environment" in a broad sense to include "air, land and water, or any combination or part thereof, of the Province of Ontario" (Government Ontario<sup>1</sup>, s.1, Online). "In practice the *Environmental Protection Act* and the *Ontario Resources Act* (OWRA) have been used interchangeably by the ministry in abating water pollution through preventive or clean-up orders and prosecuting pollution offences" (Estrin and Swaigen, 1993, 529). The EPA is administered by the MOE and contains various general provisions that can be used to protect surface water and groundwater against contamination (Canadian Environmental Law Association, Online, 2004). The OWRA has also "been used when issuing approvals to potential sources of water pollution and to create a framework for the establishment and operation of a system of water supply and treatment facilities and municipal and industrial sewage treatment facilities" (Estrin and Swaigen, 1993, 529). The OWRA was enacted in 1956, and granted the provincial government the power to regulate water use and water quality (Wellington et al, 2007, 1). Prior to the OWRA, between 1884 to 1956, the *Public Health Act* was responsible for addressing matters related to water supply, sewage works, private septic systems, and the discharge or deposit of material into watercourses (Estrin and Swaigen, 1993, 530). The *Public Health Act* was administered by the municipalities with assistance from the provincial Department of Health; however, with continuous population growth, and industrial activity in Southern Ontario in the 1940s and 1950s, the province had to step in and further assist the municipalities with sewage treatment and disposal practices (Estrin and Swaigen, 1993, 530). The OWRA "in its present form, includes a general prohibition against the discharge into water of polluting material that may impair the quality of the water" (Estrin and Swaigen, 1993, 531). Water is defined

as any well, lake, river, pond, spring, stream, reservoir, artificial watercourse, intermittent watercourse, ground water or other water or watercourse (Government Ontario<sup>8</sup>, Online). Overall, the OWRA "has been the Ontario government's principal legislative instrument for the control of water pollution and the management of water resources; [however], several sections of the [EPA] are also applicable to water" (Estrin and Swaigen, 1993, 532).

Groundwater protection is just as important as surface water in terms of protection. There are few laws, policies and programs developed to protect groundwater quality and quantity. According to Estrin and Swaigen, (1993, 535) the "protection of groundwater has largely been ignored in land-use planning, largely because it is invisible, and because the people of Ontario do not rely on it for drinking water to the same extent as in other provinces". Ultimately surface water and groundwater are often hydrologically connected, thus ensuring that one is contaminate free, protects the other. Furthermore, as populations increase and developments extend into rural areas, groundwater reliance for domestic supplies is increasing. Unfortunately, such groundwater supplies are being found contaminated as a result of leaking underground storage tanks, waste disposal sites, chemical spills, malfunctioning of septic systems, pesticides, fertilizers and manure (Estrin and Swaigen, 1993, 535), all of which are considered to be threats to source water. It is interesting to note that in 1991 the first extensive survey to determine the quality of Ontario's groundwater was done and revealed that approximately 37 percent of rural wells were contaminated with farm chemicals and bacteria above the provincial drinking water objectives (Estrin and Swaigen, 1993, 535). It is likely that it was quite evident that there were drinking water concerns; however, it was unclear as to how to rectify the situation, especially as a result of the financial difficulties throughout the 1990s.

In terms of protecting the quantity of water, the OWRA also governs water takings. Under section 34 of the OWRA (Government Ontario<sup>8</sup>, Online), "a person shall not take more than 50,000 litres of water on any day by any means except in accordance with a permit issued..." This permit is known as a permit to take water (PTTW) and applies to both groundwater and surface water takings. "A permit may be subject to terms and

conditions ... [which] are intended to prevent the taking of water from causing environmental degradation or undue interference with neighbours, or require the permittee to pay compensation for any harm resulting from the taking the water” (Estrin and Swaigen, 1993, 537). Water takings can have an impact upon source water in terms of water quantity and depleting the resource.

Another regulation under the OWRA is with regards to well construction (O.Reg 903 formerly O.Reg 128/03) pertaining to wells. This regulation “... sets out minimum standards for the construction and proper decommissioning of all types of wells; for example water wells for public, private, municipal, rural, agricultural, commercial and industrial uses, as well as test holes, dewatering wells, and monitoring wells” (EBRa, 2007, Online). O.Reg 903, attempts to ensure that wells are properly installed and documented under the MOE water well database system. Well drillers must possess a valid drilling licence, which is obtained following an exam that is administered by the Director (Government Ontario<sup>9</sup>, s.8 (1), Online). Furthermore, O.Reg 903 outlines “the minimum standards [relating to] well siting, construction, disinfection, tagging, reporting, maintaining and proper abandonment” (EBRa, 2007, Online). If wells are not properly constructed and/or decommissioned they pose a threat because they act as a conduit for contamination migration.

### **3.2.3 Municipal Water Legislation and Responsibility**

Identical to many other Canadian provinces, the responsibility of ensuring and providing safe drinking water is shared by many municipalities who are responsible for obtaining, treating, storing and distributing drinking water. Local medical health officers must ensure that the public is protected from any health hazards relating to drinking water, while the government sets the policies and standards for the delivery of safe drinking water (Smith, 2000, 4). Estrin and Swaigen (1993, 37) state that “the structure of local governments is even more complex than that of federal and provincial government departments and agencies [and there] are over 800 municipalities in Ontario, each which has power under provincial legislation to pass bylaws regulating certain matters within its boundaries”. Municipalities range in size from small rural villages to large cities like

Metropolitan Toronto with categories such as towns, separated towns, townships, districts, villages, counties, regional municipalities and cities, all of which have different powers (Estrin and Swaigen (1993, 37). In northern Ontario, there are lands that are not governed under a municipality, referred to as public lands, which are administered by the MNR, while southern Ontario lands are typically a part of a municipality as part of a two-tier government system; upper-tier and lower-tier (Estrin and Swaigen, 1993, 37). The lower-tier is situated within the upper-tier referred to as counties, districts or regional municipalities.

In Ontario, the powers of the municipalities are granted through “the *Municipal Act* which contains over 500 sections, is one of Ontario’s oldest and longest statutes, [it] has been amended many times since the 1890s [and] is confusing” (Estrin and Swaigen, 1993, 39). The *Municipal Act* “... permits municipal councils to construct and operate municipal sewer and water systems ... [as well they] are empowered to enact bylaws to control or prohibit industrial waste water discharges into their sewer systems” (Estrin and Swaigen, 1993, 539). A discharge of hazardous industrial wastes into the municipal supply system causes serious problems for the treatment facilities because they are designed to treat organic wastes and some industrial wastes pass through the treatment process untreated and are discharged into the receiving water bodies. These receiving water bodies are often source waters utilized for potable consumption.

According to Ivey et al (2002, 311), “in Canada and the United States, local organizations, especially municipalities and special purpose water management districts, have long been key players in water management”. Their roles have been increasing particularly in the context of groundwater management. At the municipal level, the municipalities govern with major responsibility, water within the built environment (i.e. sewers and public water supply). The municipalities have the authority to enact by-laws to control or prohibit industrial wastewater discharges into their sewer systems (Estrin and Swaigen, 1993, 539). Furthermore, “land use planning is proving to be an especially important avenue for municipal involvement in groundwater protection [because] land use activities significantly influence groundwater quality, and local governments will be most familiar with those activities” (Ivey et al, 2002, 311-312). “Within the realm of



land-use planning, source protection has been furthered by the inclusion of water-related policies in comprehensive municipal plans; watershed-scale planning; zoning of sensitive water supply areas (e.g., wellfields, buffers around reservoirs) ..." (Ivey and Kreutzwiser, 2006, 195 as stated by Greenberg, Mayer, Miller, Hordon, & Knee, 2003; Gullstrnad et al., 2003; Tedrow, 1997; Yanggen & Webendorfer, 1991). Other municipal attempts of SWP have been operational, relating to infrastructure, such as monitoring water quality, upgrading wastewater treatment plants, implementing best management practices for certain activities such as road salting and repairing sanitary sewer over flows (Ivey and Kreutzwiser, 2006, 195 as stated by Granlund, Nysten, & Rintala, 1994; Gullstrand et al., 2003, National Research Council, 2000). It is clearly evident that municipal governments have numerous responsibilities and additional tasks such as source protection further stretches their resources.

#### **3.2.4 Conservation Authority Water Legislation and Responsibility**

In 1946, the *Conservation Authorities Act* (CAA) was enacted. The Act was developed as a "... response to the concern by agricultural, naturalist and sportsmen's groups, that the renewable natural resources of the province were in an unhealthy state" (Toronto and Region Conservation, Online). Conservation authorities are bound by the CAA to consider the impacts of water takings on the watershed (Canadian Environmental Law Association, 2004, Online). Across Ontario there are 38 Conservation Authorities, who "are local, watershed management agencies that deliver services and programs that protect and manage water and other natural resources in partnership with government, landowners and other organizations" (Conservation Ontario<sup>2</sup>, 2005, Online). Approximately 90 percent of Ontario's population (10.5 million people in over 250 municipalities) are located within a CA's jurisdiction, which is where the populated areas of Ontario are located, as well as where resource conflicts and degradation are the greatest, thus where provincial investment is most required (Conservation Ontario<sup>1</sup>, 2004, Presentation).

The responsibility of managing natural resources is in the hands of the province; however, issues such as erosion and water problems were in need of a different approach



and following various municipal councils in agreement to become involved, the CAA was enacted (Canadian Environmental Law Association, 2004, Online). The Canadian Environmental Law Association (2004, Online) also discusses that following hurricane hazel in 1954, the provincial government amended the CAA to enable CAs to acquire lands for recreation and conservation purposes as well as to regulate those lands for the safety of the community.

Furthermore, "CAs were created as a form of partnership between the municipalities and the Province of Ontario, to manage the quality and quantity of surface waters in particular, and natural resources in general" (Ivey et al, 2002, 314). The primary purpose of the CAA was to manage resources on a watershed basis (Jones and Plewes, 1997). CAs have played a major role in surface water management for over five decades and in the past decade, they have assumed tasks related to groundwater management, such as data collection, monitoring and planning (Ivy et al, 2002, 312). "CAs face many challenges, including a complex institutional environment, fluctuating senior government support, reduced funding, and concerns relating to communication and accountability" (Ivy et al, 2002, 312 extracted from Thomson and Powell, 1992; Shrubsole, 1996). With the additional responsibility of groundwater management, CAs historically struggled to varying degrees and there were concerns relating to their capacities. The world of groundwater is considered relatively new to CAs as overtime, "[they] have become involved in a wide range of activities and responsibilities, depending on the environmental concerns of local residents, member municipalities and the province. Each conservation authority's watershed management program is geared to its local needs and, therefore, the authority may or may not implement all programs" (Canadian Environmental Law Association, 2004, Online). As a result, there have been inconsistencies within the CAs across the Province with regards to the programs being implemented as well as the ways they performed their duties (i.e. some CAs have been more involved with SWP than others); however this is changing as per the CWA.

According to Nelson (1995, 398), CAs, are considered to be the major watershed coordinating agencies that could lead the development of a conservation or sustainable strategy. There should be strategies developed to safeguard groundwater, especially in

the settled central and southern regions where there is a mix of industrial, agricultural, recreational, and other land use activities that make demanding pressures upon source water. Additionally, Nelson (1995, 398) states that watersheds are often large enough to contain several urban areas and economic activities, which have impacts upon the environment, thus should be planned in an integrated manner. The National Research Council indicates that watershed management usually enables a more consistent environmental planning process across municipal boundaries (Ivy et al, 2002, 313). As a result, it is logical to have watershed agencies (i.e. CAs) roles expand to accommodate for SWP. According to Ivey et al (2002, 314) CAs have the power to:

- Undertake research;
- Acquire land;
- Raise municipal levies;
- Construct works;
- Control surface water flows;
- Create regulations;
- Prescribe fees and permits;
- Regulate the use of lands they own; and
- Enter into agreements with other parties to manage the lands they do not own.

Furthermore Ivey et al (2002, 314) state that “these powers provide sufficient scope for CAs to participate in many aspects of groundwater management”. This has resulted in the CAs taking the lead of SWP, as is further discussed herein.

### **3.2.5 United States Water Legislation**

As presented above, in Canada with respect to environmental legislation relating to water there, has been a prominent issue and debate regarding the appropriate role of the federal government in terms of setting national standards. Hill (2004) states that:

...concerned citizens and environmental organizations such as the Sierra Legal Defense Fund have called on the Canadian federal government to issue national standards pointing to the American Safe Drinking Water Act as a benchmark. The centralized American system wherein the federal government effectively regulates states through coercive legal and financial threats is in sharp contrast to the Canadian decentralized model of each province setting its own standards.

The changes enacted through the US SDWA have granted the states additional powers as long as they are at least as stringent as the federal requirements, while the opposite is the

case in Canada, where the federal standards are less stringent than the provincial Ontario standards.

In the US, groundwater is considered to be the nation's most important natural resources. Approximately, 40% of the water utilized for public supply and 97% of the water used by the rural population consists of groundwater, while 30 to 40 % of the water used in the US agricultural industry comes from groundwater (United States Geological Survey<sup>2</sup>, Online). Overall, groundwater withdrawals continue to rise as populations increase and surface water reservoirs become more limited, as such legislation and protective measures are critical to manage groundwater resources for long term sustainability within the US. Across the US, groundwater protection takes place at all three (Federal, State and local) levels involving various agencies. The three federal agencies that are the most involved in groundwater policy and programs include;

- the US Environmental Protection Agency (US EPA) – whose overall goal is to “prevent adverse effects to human health and the environment, and to protect the environmental integrity of the nation's groundwater resources” (United States Environmental Protection Agency<sup>1</sup>, Online);
- the United States Geological Survey (USGS) – limits functions to resource assessment programs that enable detection; and
- the United States Department of Agriculture (USDA) – focuses on agricultural programs to prevent groundwater contamination (United States Environmental Protection Agency<sup>2</sup>, Online).

Under the USDA is the Natural Resources Conservation Services Program, which focuses on “watershed protection and on improving water management on farms, in rural areas and in small communities through voluntary efforts supported largely by financial incentives” (United Nations, 2003, 149).

The US EPA is relatively young, “established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection” (United States Environmental Protection Agency<sup>3</sup>,

Online). Overall the US EPA plays a very important role in protecting the environment through the development of groundwater prevention programs that involve Federal-State partnerships where the US EPA sets technical standards and the States take on the responsibility of their administration and enforcement (United States Environmental Protection Agency<sup>2</sup>, Online). One such example is the national drinking water standards which all states must meet.

The two main federal Acts governing water in the US are the *Clean Water Act* (US CWA) and the *Safe Drinking Water Act* (US SDWA). The history leading up to these Acts was the *Federal Water Pollution Control Act* (FWPCA) enacted in 1948. "During the Great Depression of the 1930s, federal grants were made available to improve local pollution abatement facilities, but efforts to establish a federal role other than the protection of public health were unsuccessful [and in] many instances, industrial wastes were discharged into rivers and underground without any treatment" (Deason et al, 2001, 185). Growing public awareness and concern in the early 1970s, led to amendments to the FWPCA in 1972 to declare that the nation's water resources are to be restored through the use of permits for discharge of any broadly defined pollutants and by mandating identical technological treatment standards for municipal and industrial wastes. The timelines for implementing these changes in the 1972 amendments as presented by Deason et al (2001, 185) were as follows:

- best practical control technology for industrial wastes secondary treatment for all publicly owned sewage treatment works by July 1, 1977;
- best available treatment economically achievable by July 1, 1983; and
- the elimination of all discharges of pollution by 1985.

"On the basis of recommendations made by the National Commission on Water Quality, legislation was enacted in 1977 that relaxed these deadlines and eliminated the zero discharge goal, calling for more recycling and reuse of resources through the use of alternative and innovative technologies for achieving the stated goals" (Deason et al, 2001, 185). The 1977 amendments transformed the FWPCA into the CWA, which "established the basic structure for regulating discharges of pollutants into the waters of the United States [and it provided the] US EPA [with] the authority to implement



pollution control programs such as setting wastewater standards for industry” (United States Environmental Protection Agency<sup>4</sup>, Online). The US CWA also continued to set water quality standards for all contaminants in surface waters, and unless a permit was obtained, the Act made it unlawful to discharge any pollutants from a point source into navigable waters. The waters to which this Act refers to are largely surface waters, not groundwater, which is covered under the US SDWA. Every two years, state wide reports are published as “an overall assessment of the water quality in the US, providing an objective measure of the success or failure of water quality policies of the nation” (Deason et al, 2001, 186). In 2000, the US EPA reported to Congress that there has been significant improvements in water quality in the years that the US CWA has been in place, which Deason et al (2001, 186) states to be a reflection of the success of both the US CWA and US SDWA.

In 1974, the US SDWA was developed to protect the quality of drinking water in the US with regards to all water that is intended for potable purposes including both surface and groundwater resources (United States Environmental Protection Agency<sup>5</sup>, Online). Amendments to the SDWA were conducted in 1986, which

... authorized the USEPA to set maximum levels of contaminants allowable in drinking water, to regulate underground injection wells, to oversee development of Wellhead Protection programs, to designate areas that rely on a single aquifer for their water supply ..., and to establish a nationwide program that encourages states to develop programs to protect public water supply wells (United States Environmental Protection Agency<sup>2</sup>, Online).

The USEPA regulates drinking water through the US SDWA. The 1996 amendments to the US SDWA also require that the states complete source water assessments for their public water systems. According to Ainsworth and Jehn (2005, 45), these assessments have four components which include:

- Delineating source water protection areas;
- Identifying sources of contamination that may affect the delineated areas;
- Determining the susceptibility of public water systems to these sources; and
- Providing the results of the assessment to the public.



Under the US SDWA, states are permitted to establish and “enforce their own drinking water standards as long as they are at least as protective as the federal standards” (Legislative Assembly of British Columbia, 2000, 9).

If state governments demonstrate that their drinking water regulations are at least as stringent as the federal ones, keep records and report information in accordance with the EPA requirements, provide variances and exemptions in a manner at least as stringent as required at the federal level and adopt and implement a plan for the provision of safe drinking water in the times of emergency, then they are entitled to “primacy” (Deason et al, 2001, 187).

At the time of Deason et al’s (2001, 187) report, all 57 states and territories in the US had received primacy status, which under the 1996 amendments to the SDWA allowed for the establishment of a multi-billion dollar state revolving fund to assist the states and territories with water system improvements. “Under the Drinking Water State Revolving Fund (DWSRF), and the Clean Water State Revolving Fund (CWSRF), the federal government provides annual capitalization grants to states that agree to match the grants by at least 20 percent and allocate those federal/state dollars as below-market interest loans to local communities” (Ernst and Hart, 2005, 19). As part of the application process, states must approve a source of loan repayment, for example developer fees, recreational fees, drinking water fees, dedicated local tax revenues, and non-profit donations (Ernst and Hart, 2005, 19). de Loe et al (2002, 222), state that “the US experience clearly shows that external funding from sources such as the Safe Drinking Water Act’s State Revolving Fund may be the impetus for activities that might not otherwise take place”. As well, federal rules allow the state revolving funds to be used for a variety of projects. For instance, the DWSRF allows states to make loans to water systems to acquire critical lands and implement protection measures. The CWSRF provides assistance to communities, water systems, as well as projects relating to source protection and improving water quality (Ernst and Hart, 2005, 19). “The 1996 US Safe Drinking Water Act amendments established significant incentives for capacity development in water systems” (de Loe et al, 2002, 230). Many states have developed innovative funding strategies to allow for maximized protection of land contributing to source water, so that potential pollution impacts are minimized. Some examples as presented by Ernst and Hart (2005, 19) include:

- California has allowed private borrowing and maximizing protection dollars. For instance, non-profit land trusts can leverage additional private resources for water quality improvement. One of the largest land acquisitions ever funded by the CWSRF was the Nature Conservancy of California who purchased 12,362 acres of Howard Ranch and Sacramento, California. The California State Water Resources Control Board and the US EPA assisted with the \$8 million dollar low interest loan the Conservancy required to complete their \$13.6 million fundraising target.
- Maryland has flexible interest rates and linked deposit plans that allow the state to enter into partnerships with community lending institutions that assist with simple and convenient ways borrowers can access non-point source capital improvement dollars.
- Wisconsin has connected source protection with brownfields remediation when such abandoned sites are contaminating drinking water. The state has a strong successful history of remediating sites with CWSRF funds. In the early 1990s, the state enacted legislation which offers incentives and regulatory flexibility for site clean-up.
- New Jersey has created a priority ranking system to determine where funds should be spent based on threats identified that can potential lead to degraded water quality. This was done by integrating the CWSRF and DWSRF, which illustrates the flexibility among the funding programs.
- Ohio has developed incentives for non-point source protection programs though the EPA who offers reduced loan rates to utilities and local governments responsible for wastewater treatment if they support a watershed protection or restoration program.

### **3.3 Capacity for Source Water Protection in Ontario**

Various authors have conducted research on groundwater protection and management capacities in Ontario. Much of this research was conducted prior to the enactment of the CWA and pertains to groundwater protection in terms of 'capacity' to effectively manage water resources. "In the water field, the concepts of "capacity" and "capacity building" have received considerable attention since the early 1990s" (de Loe and Kreutzwiser,

2005, 245). In the majority of these studies capacity is the ability to protect groundwater in terms of the following five indicators:

- Financial;
- Technical;
- Institutional
- Social; and
- Political.

The US EPA defines “water system capacity as the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial. Adequate capability in all three areas is necessary for a system to have “capacity”” (United States Environmental Protection Agency<sup>1</sup>, 1998, 9). Capacity building cannot be done without the support of the province of Ontario. The following five subsections present a literature review on each of the five capacities (financial, technical, institutional, social and political). Much of the capacity literature review presented below focused on groundwater protection; however, there is a strong correlation with source water, such that the underlying principals of capacity are identical when referring to groundwater protection or SWP. The capacity of CAs and / or municipalities to conduct SWP related activities will be variable and depend on the following factors outlined by Ivey and Kreutzwiser (2006, 195), including the legal authority they hold to manage activities that threaten source water and the level of social and political support they have. Furthermore, it is the amount of knowledge they have as well as resources such as leadership, financial availability, data and skilled staff.

### **3.3.1 Financial Capacity**

Until the mid-1990s, the majority of CAs revenues came from general purpose provincial transfers and municipal levies, which came from property taxes, thus are reflective of the municipal populations within the borders of the CAs. Since the mid-1990s, CAs have obtained an increasing amount of their income from their own fund raising activities, and from a wider range of targeted federal and provincial grants (Ivey et al, 2002, 315-316). In Shrubsole et al’s 1996 study outlined by Ivey et al (2002, 315), it was stated that the provincial government was only funding projects that involved core provincial interest,

which included those that related to flood control and support for taxes on provincially designated or environmentally significant lands. "Programs not funded by the provincial government, which many authorities consider core, include the development of watershed strategies, environmental education, outdoor recreation, soil conservation, environmental land use planning, habitat protection and restoration, rural landowner assistance, and wetland management" (Ivey et al, 2002, 315). Secure and sufficient financial resources are obvious assets for SWP and management; however Ivey et al (2002, 317) state that "... a review of CA audited financial statements revealed that financial resources are not a stand-alone indicator [of] CA involvement in groundwater management". In 1998, the total annual revenues of the 10 CAs most involved with groundwater management ranged from under US\$800,000 to over US\$30 million, with median revenues of US\$1,239,091 (Ivey et al, 2002, 317). "Only half of the 10 CAs with the highest annual revenues ranked among the 10 CAs most active in groundwater management, [thus], capacity-related factors other than the financial resources of the CA clearly figure in its ability to become involved with groundwater management" (Ivey et al, 2002, 317).

Not only have the CAs struggled with lack of financial capacity, the MOE in 1992 to 1995 experienced budget cuts after the new government was elected in 1995. By 1999, additional budget reductions occurred in amounts greater than \$200 million, which meant a reduction of 30% of staff (equal to 750 employees) (O'Connor, 2002, 34). Prior to these budget cuts between 1985 and 1991, there was an increase of 184% in the MOE's budget, which was an increase in 48% of the funded MOE positions (Smith, 2000, 13). According to Smith (2000, 3), "the MOE did not discover Stan Koebel's improper practices in the years from 1985 to 1991 when its budget increased by 184%. His ability to escape detection had nothing to do with budget reductions". This statement contradicts O'Connor's beliefs, which states that "before the decision was made to significantly reduce the MOE's budget in 1996, senior government officials, ministers, and the Cabinet received numerous warnings that the impacts could result in increased risks to the environment and human health". These risks included those resulting from reducing the number of proactive inspections – risks that turned out to be relevant to the events in Walkerton (O'Connor, 2002, 34-35). Furthermore, Smith (2000, 3) states that frontline services were cut the least when the MOE budgets were reduced and the number of



environmental officers remained the same at the MOE office in Owen Sound (responsible for Walkerton). "Senior public servants within the MOE, in consultation with the responsible Cabinet Ministers, carefully considered the proposed budget reductions and concluded that they could be implemented without creating any unmanageable risks to public health or the environment. The budget reductions had nothing to do with the events in Walkerton in May 2000" (Smith 2000, 3). Regardless, it is evident that there were various failures in the Walkerton event, including the failure to properly monitor and maintain the chlorine residual by Walkerton's PUC staff, the failure to report the adverse results to the Ministry of Health and the MOE by the lab and the Koebel's, the failure of the Ministry of the Health to issue a boil water advisory and the failure of the MOE to follow up with actions to correct the deficiencies of their well inspection (West, 2008). Perhaps if one of these failures did not take place the Walkerton event could have been prevented. Nonetheless, Walkerton is changing the ways in which source water is protected in Ontario and if anything, it is lesson learned for all government bodies and the public.

The budget cuts at the provincial level had a trickle down effect upon the CAs, who also had experienced significant reductions in funding from the province throughout the early 1990s and into the early 2000s. As a result, "CAs through their on-going commitment to watershed management, have absorbed the shortfall in provincial funding but at the expense of local priorities (Conservation Ontario<sup>1</sup>, 2004, Presentation). For obvious reasons, this had to cease. Ultimately, CAs accomplish their goals through partnerships and historically, municipal and provincial governments have supported the CAs through a sharing costs program, where "every dollar invested by the municipalities was matched by the province" (Conservation Ontario<sup>1</sup>, 2004, Presentation). In 1997, the province through the CA Policies and Procedures Manual committed to a 50% funding partnership for eligible programs; however "based on a review of the 2002 audited financial statements of the CAs, this funding commitment has not been met" (Conservation Ontario<sup>1</sup>, 2004, Presentation).

The main sources of revenue for CAs are mainly self-generated through activities, such as fees for municipal plan input, review of zoning by-laws, draft plans of subdivisions



and condominiums, consents, variance, site applications, land rentals and gate fees, to name a few. Self generated revenues represented approximately 47% of CAs total revenue in the early 2000s (Conservation Ontario<sup>1</sup>, 2004, Presentation). Since 1992, CAs have seen transfer payments cut by 87%, which equalled approximately \$58.9 million per that year, and from 2000 through 2003 cuts have been approximately \$7.5 million per year (Conservation Ontario<sup>1</sup>, 2004, Presentation). As a result of the funding cuts to the CAs, municipal contributions have had to increase from their average contributions which equaled approximately 40% of CAs total revenues. In many cases, municipal levies to the CAs have reached their limit (Conservation Ontario<sup>1</sup>, 2004, Presentation). Fair, equitable and sustainable funding should be allocated; however, based on "... a review of the 2002 Audited Financial Statements of the CAs ... the total expenditures for activities eligible for 50% funding was almost \$34 million" (Conservation Ontario<sup>1</sup>, 2004, Presentation). This translates to \$16 million which should have been transferred; however, only \$7.6 million was actually allocated to the CAs through a provincial transfer payment, which is approximately \$9 million short. The province had not been maintaining their commitment.

de Loe and Kreutzwiser (2005, 247) state that "groundwater protection can be an expensive, long term activity that is difficult to undertake effectively using ad hoc funding through occasional grants or one-time commitments of funds". Larger municipalities generally have deeper and more stable bases to support groundwater protection efforts, while smaller communities may be more reliant on one-time grants (de Loe and Kreutzwiser, 2005, 247). An example to illustrate how costly source water protection studies are is presented by Murray (1995) in de Loe et al's (2002, 221) study, stating that "the delineation of the capture zone around a single wellfield in the Regional Municipality of Waterloo cost approximately \$325,000, while an important hydrogeological reconnaissance study in this community can cost more than \$950,000" (Canadian dollars). "These costs likely are independent of the size of the municipality, as they normally have more to do with the hydrogeological complexity of the aquifer on which the community relies than with the number of people dependant on the resource" (de Loe et al, 2002, 221-222). One factor that determines how much money can be spent on groundwater protection is the size of the municipalities' budget as well as the level of

reliance on external funding. For obviously reasons lack of financial capacity can seriously impact a municipality's ability to carry out important services and programs, such as SWP.

Ivy et al (2002, 324) indicated that "while levels of interest vary from watershed to watershed, 83% of the authorities canvassed [during their study] claimed that they are interested in becoming more involved in groundwater management, subject to availability of funding and staffing resources". CAs require adequate funding, technical and staff resources in order to take on the responsibilities of SWP. The drastic funding cuts by the provincial government in 1995 illustrates that between 1993 and 1998, average total revenues decreased by 11% and some CAs experienced decreases in total revenues by more than 50% based on an analysis of audited financial statements (Ivy et al, 2002, 324). This is considered to be a significant amount of financial resources lost, which would unquestionably minimize or even halt groundwater protection activities for being actively conducted, not to mention SWP activities.

### **3.3.2 Technical Capacity**

In Ivey et al's (2002, 316) study regarding the CAs in Ontario, the findings concluded that groundwater-related management activities across the CAs is highly variable. "Groundwater protection can be a complex and highly technical activity [and] the extent to which a municipality is able to undertake these activities is an important measure of its capacity" (de Loe and Kreutzwiser, 2005, 246). In order to simplify the technical SWP tasks and to allow for consistencies in the way in which they are conducted across the province, a standard set of procedures in the form Draft Guidance Modules was published in October 2006 by MOE. Further details pertaining to these guidance modules are discussed herein. "While documentation of groundwater management activities of selected CAs is available, little documentation exists regarding the full range of involvement of conservation authorities in groundwater management across Ontario (Ivey et al, 2002, 316). During the summer of 1999, all the CAs throughout Ontario were canvassed over the telephone to gather data "... related to the nature and extent of authority involvement in a predetermined list of groundwater management activities,

grouped generally into information management, watershed studies, groundwater quality protection, groundwater quantity management, and public education and involvement” (Ivey et al, 2002, 316). Only 25% of the CAs reported to having conducted short-term groundwater monitoring, while less than a 25% of the CAs had undertaken long-term groundwater monitoring programs. Between 1990 and 1995, 93% of CAs participated in the 87 watershed and sub-watershed studies that were conducted. Of the 87 studies conducted, 51% of the CAs listed groundwater quality and 45% listed groundwater quantity as study issues (Ivey et al, 2002, 316). Ivey et al (2002, 316) further state that “in most CAs groundwater management is not seen as a core activity, but for some its importance is increasing”. According to Ivey et al, (2002, 317), there are various other CA activities within watersheds that relate to groundwater quality and quantity management and some of the most commonly reported programs were:

- designed to reduce the release of groundwater contaminants (e.g. stormwater management, reported by 94 % of the CAs);
- review of municipal planning documents and decisions ( reported by 86% of the CAs); and
- encouragement of taking on best management practices by landlords (reported by 78% of CAs).

de Loe and Kreutzwiser (2005, 246) state that (as quoted by Jaffer, 1987, 127) that “the hydrogeological analyses required to undertake local groundwater protection planning are simply beyond the technical abilities of most local planning staff”. Fortunately, “it may not be necessary to have highly specialized experts on staff as long as people in key organizations have skills and training to allow them to identify and understand problems, implement solutions and work with external experts, such as consultants, or senior government officials” (de Loe and Kreutzwiser, 2005, 246). There are many other factors that effect technical capacity, such as the availability of data and the level in which the local organization is able to extract the resources of the other organizations. As well, “smaller communities are often less able to recruit and retain trained staff than larger, better financed communities” (de Loe et al, 2002, 221). Therefore, such smaller communities are often more reliant on external staff to conduct the technical work. An

important consideration in such cases is whether or not there is internal staff that can interpret and use the technical work provided.

### **3.3.3 Institutional Capacity**

de Loe and Kreutzwiser (2005, 247) state that “the quality of institutional arrangements (laws, regulations, policies, plans, organizational structures) can be a significant determinant of local capacity for groundwater protection”. Overlapping organizational responsibilities of staff as well as weak or inappropriate legislation can significantly diminish the capacity of an organization (de Loe et al, 2002, 222). Various researchers, such as Libby declared by de Loe and Kreutzwiser (2005, 247) “...have claimed that institutional weaknesses are the most serious barrier to effective groundwater protection”. Both local organizations and senior level governments are important, since local organizations such as Municipalities can create institutional arrangements that strengthen their groundwater protection capabilities through:

- Land use planning instruments such as Municipal official plans, zoning ordinances or by-laws, storm water management policies, and subdivision controls;
- Source control measures, including sewer use ordinances and inspections;
- Measures designed to prevent pollution, including land acquisition; and
- Private land stewardship including incentive programs; and conservation easements.

“Senior government institutional arrangements that influence local capacity for groundwater protection include legislation relating to municipal responsibilities and powers, water allocation, and pollution control; planning and groundwater protection policies and financial and technical support programs” (de Loe and Kreutzwiser, 2005, 247). Municipalities have the potential to create stronger foundations for groundwater protection, which in turn would increase capacity through the development of clear official plan policies (OPP) that are supported by zoning by-laws, subdivision controls, and landowner education programs. “Given that municipalities in Ontario are under the supervision of the provincial government, the second important institutional



consideration is the institutional environment in which they must operate” (de Loe et al, 2002, 222). Essentially, governments are interconnected and the actions of one level have an effect upon the other.

### **3.3.4 Social Capacity**

During Ivey et al’s (2002, 317) study of CA capacities for groundwater management, it was stated that efforts have been made by CAs to communicate with the watershed residents about groundwater. However, only half of the CAs stated having developed or distributed groundwater related education information, while even fewer CAs demonstrated to have circulated promotional materials regarding the activities being conducted by the CAs to manage groundwater (Ivey et al, 2002, 317). It is through effective communication with the public that interest and concern towards groundwater protection and management is promoted. “Even though many of the aspects of groundwater protection are highly technical, and will be undertaken by municipal staff and consultants, members of the community can play extremely important roles” (de Loe, 2002, 223). Enabling the public to play a role in the decision making process allows for a more transparent program as well as compliance from the community since various interests are being taken into consideration, ultimately leading to a more successful program. de Loe (2002, 223) states that “...to some extent a municipality’s capacity for groundwater protection is contingent on the relationship that exists between it and the community, and the roles that community members play”. A list of measures that can be used to determine the level of community awareness as presented by de Loe et al (2002, 223) are:

- Public education and outreach programs;
- Public recognition programs for voluntary land stewardship;
- Identification of levels of community awareness and support;
- Identification of pertinent interest groups;
- Public liaison committees to facilitate ongoing public consultation; and
- Public meetings and open houses to provide information and address questions.

Ultimately, “efforts to manage water resources in a watershed context are significantly enhanced if people living within the watershed see themselves as part of the watershed



community” (de Loe and Kreutzwiser, 2005, 248). Education and awareness takes time and must be continuously conducted in order to get the messages across clearly.

### **3.3.5 Political Capacity**

Leadership is an important element of capacity in public sector organizations and needs to be present so that direction and guidance can be provided. “The extent to which local political leaders demonstrate support for groundwater protection through promoting the technical activities ... and by creating appropriate institutional arrangements, is one important measure of political capacity” (de Loe et al, 2002, 222). It is important that senior level governments are in favour of the local-level groundwater protection and provide enabling legislation, clear direction, and support through other agencies. Political capacity takes time to be acquired successfully (in terms of legislation) since there are procedures that must be followed when enacting laws (i.e. Bills going through three readings prior to be passed). de Loe et al, (2002, 222) states that “weaknesses in senior government institutional arrangements can constrain even the most committed local governments”. As well, the ability in which senior governments are willing and able to create horizontal and vertical linkages with other organizations is important. de Loe et al (2002, 222-223) define horizontal linkages as those that are created with external organizations at the local level, such as among municipalities, CAs, and non-governmental organizations. Vertical linkages on the other hand, are those linkages among senior level governments, such as Ontario provincial ministries, including the MOE and the MNR. “Linkages and partnerships can lead to sharing of data, equipment, staff, and the costs of studies, and can help municipalities overcome key institutional problems, such as the fact that their jurisdiction ends at their boundaries, but aquifers may not” (de Loe and Kreutzwiser, 2005, 248). For this reason, SWP can be extremely challenging because drinking water sources often do cross municipal boundaries. Decisions related to water use and land use activities in one community have the potential to affect the quantity and quality of water in downstream communities (Ivey et al, 2006, 196). Ultimately, “social and political support can be developed and maintained through clearly defined roles and responsibilities for source protection, identification of source protection leaders, promoting the understanding of the impact of land use activities on

water quality, and encouraging stakeholder participation in land- and water-related decision making” (Ivey et al, 2006, 196).

### **3.4 Case Study of Historical Conservation Authorities Capacities**

Due to the nature and watershed boundary existence of CAs throughout Ontario, they can be considered key partners in water management. “Conservation authorities promote watershed and subwatershed planning, which can provide a critical source of data on water resources to municipalities” (de Loe et al, 2002, 223). There are various factors that influence individual CAs level of involvement in active groundwater management. Ivey et al (2002, 317) indicate that “... the level of reliance of watershed populations on groundwater, and the capacity of the conservation authority” play a significant role on how active a CA is. “Capacity-related concerns include a number of interrelated factors, such as financial and human resources, community support, and institutional arrangements” (Ivey et al, 2002, 317), that are considered to be a prominent concern for SWP and management in Ontario. The following section presents specific CA capacities based on past research to protect groundwater and to a limited extent source water since it is a relatively new phenomenon on Ontario.

According to Ivey et al (2002, 316) the Grand River Conservation Authority (GRCA) is responsible for implementing a large surface and groundwater SP program for the RMOW , as such they are leading the way for CAs in a range of groundwater-related activities. “Following the contamination of the water supply of the Town of Elmira by N-nitroso dimethylamine, the RMOW developed a remarkable Water Resources Protection Strategy to limit risks imposed by historical, existing and future land use activities (de Loe et al, 2002, 219). Unfortunately many other communities across the province of Ontario have not been able to develop and implement such programs, until now that the CWA has been enacted and the activities are mandatory and not voluntary as they were in the past.

In Ivy et al’s (2002, 319) study, two case studies were conducted for an in depth analysis. The case studies were conducted on the Upper Thames River Conservation Authority

(UTR CA) and the Ganaraska Region Conservation Authority [GAR CA]. Only the CAs that demonstrated an interest in groundwater management during the telephone survey were considered for this study after having canvassed all 38 CAs in 1999. Both of these CAs were amongst the 10 CAs that exhibited the most involvement in groundwater related activities and staff from both CAs stated that they were interested in increasing their involvement with groundwater management. As well, these two CAs represent a small (GARCA) and a medium (UTRCA) sized CA in southern Ontario. Ivy et al (2002, 320) state that it is the small to medium sized CAs that are most in need of capacity building for groundwater management. "CA capacity to manage groundwater resources depends, in part, on the nature and degree of groundwater related interactions among watershed residents, municipal staff, political officials, industry, CA staff and board members" (Ivey et al, 2002, 318). Ivey et al's study (2002, 326) concluded that both the UTR CA and GAR CA have a moderate level of capacity to manage groundwater resource within their watersheds. "The UTRCA's organizational capacity and community environments contribute favourably to its capacity" (Ivey et al, 2002, 326). UTR CA has exhibited a strong interest in protecting groundwater resources by the public and both municipal and CA staff and past and present water quality issues relating to activities have been well communicated to the public through education and outreach materials (Ivey et al, 2002, 326). Actions that have limited UTR CAs capacity to manage groundwater resources were related to the urban population's reliance on the Great Lakes for drinking water, which at the time of study was approximately 400,000 people, 75% of which reside in the City of London (Ivey et al, 2002, 320). Furthermore, "... industry's limited involvement in groundwater management activities, the authority's largely unrecognized role in groundwater management in the watershed, the lack of co-ordination among local agencies in the watershed, and human and financial inadequacies" (Ivey et al, 2002, 326).

On the other hand, the GAR CAs strengths include a high level of commitment to groundwater management by municipalities, authority staff, board members, municipal support for the CAs role in groundwater management, effective communication and co-ordination among key members within the watershed. Capacity related weaknesses were linked to the financial resources available and limited public concern about groundwater

issues (Ivey et al, 2002, 326). GAR CAs population was approximately 80,000 at the time of the study with 50% reliance on groundwater for potable purposes. This research clearly illustrates “that CA capacity depends on a great extent on the support they receive from municipalities, watershed residents, and senior government [and] it is unlikely that sufficient in house technical and financial resources for groundwater management can be acquired by most CAs” (Ivey et al, 2002, 326). Ivy et al’s (2002, 323) comparative research on the UTR CA and GAR CA illustrated that “the extent to which a community is supportive of conservation authority involvement in groundwater management varied from location to location”. For instance, UTR CA was slightly more supportive of groundwater management than GAR CA as well they expressed more concern about groundwater issues, such as contamination from intensive livestock operations and low water levels than those residents situated in GAR CA, who felt that groundwater was not a ‘hot’ issue since a portion of their watershed lies within the Oak Ridges Moraine, which is already largely protected (Ivy et al, 2002, 323). Although there is variation from CA to CA, none of the CAs exhibited sufficient capacity in all five indicators.

### **3.5 Case Study of Historical Municipalities Capacities**

de Loe et al’s (2002, 224) study examined the following three communities: the City of Guelph, the Town of Orangeville and the Town of Erin through a comparative approach to determine the different dimensions of capacity and interactions among them. All three communities are dependent upon groundwater for their drinking supply. The Town of Erin is the smallest municipality of the three in terms of land area and population. The Town of Erin had a population of approximately 11,000 at the time of the study, with no communal sanitary sewer system, which is a concern and potential contaminate threat upon the groundwater resources (de Loe et al, 2002, 224). The Town of Orangeville is larger than the Town of Erin and had a population of approximately 22,188 in 1997 with a growth rate of 3.59% from 1991 to 1995. The communities’ treated wastewater is disposed directly in the Credit River, which has potential water quality implications downstream. The City of Guelph was the largest and final municipality in the study with a population of approximately 93,400 in 1997, with a growing population, estimated to reach approximately 115,000 by 2011. The greater majority of the City of Guelph’s



residents depend on groundwater as their source of municipal supply and because “of the impacts of urbanization on groundwater quality and quantity, groundwater-related issues are an important consideration for this community” (de Loe et al, 2002, 224).

The findings of the study determined that the City of Guelph had the strongest overall capacity for groundwater protection, followed by the Town of Orangeville and lastly the Town of Erin. “Both Guelph and Orangeville spent a large proportion of their revenue fund on “environmental services”: 26% for Orangeville and 25.2% for Guelph”, while Erin spent 16%, which reflects that much of the Towns population is rural (de Loe et al, 2002, 224-225). It is through land use planning activities that funds are spent towards groundwater protection and the amount in which all three communities spent was relatively small in comparison to the allowable budget. Guelph spend the most; for instance, on detailed hydrogeological studies, which does align with the fact that larger communities are more likely to be able to afford such technical studies (de Loe et al, 2002, 225). It was concluded that Guelph had the most technical activities completed as of early 1999; having “completed basic studies aimed at defining its water resources; identified contaminant sources; assessed and monitored groundwater quality; launched activities aimed at managing water quality concerns in both urban and rural area; instituted data management systems; and developed pollution contingency planning measures” (de Loe et al, 2002, 225). Orangeville had the next most technical works completed, including having defined their water resources, contaminant sources, water quality management and data management. Erin had completed the least amount of technical work, having only completed defining their water resources. “To a large extent, a municipality’s technical capacity is a function of its staff capabilities” (de Loe et al, 2002, 226). All three communities relied heavily upon consultants to conduct the technical work since it was determined that it was not cost effective to have groundwater experts on staff (de Loe et al, 2002, 226). “Links with other agencies and with community members have a significant impact on Guelph’s technical capacity ... [as well] Guelph worked closely with its local conservation authority and with members of the community” (de Loe et al, 2002, 226).



With regards to institutional capacity, Guelph had the most, followed by Orangeville and then Erin. The institutional arrangements were based on the following activities that were taking place, as outlined by de Loe et al (2002, 227);

- Official plan policy statements that promote the maintenance or enhancement of groundwater quality;
- Designated sensitive areas for protection;
- Performance standards;
- Storm water management and groundwater policies;
- Zoning by-laws prohibiting certain land use on sensitive lands;
- Subdivision development controls;
- Sewer use by-laws;
- Reporting environmental performance;
- Conservation easements and land acquisition;
- Inspections; and
- Incentive programs for best management practices.

Guelph was involved with all of the above listed institutional arrangements, while Orangeville was involved with all but two and Erin was involved with only half of them. Social related capacity was also the strongest in Guelph, while Orangeville and Erin were identical. The Town of Erin believed that there was some awareness and concern for groundwater since the Town was involved with a subwatershed study led by Credit Valley Conservation (CVC); however, once the study ended so did the education and outreach to the public (de Loe et al, 2002, 228). Orangeville believed that the awareness was quite low as the "... town's director of public works believed that many community members did not even realize that their municipal supply was drawn from groundwater, believing instead that it came from the nearby Orangeville Reservoir, a water control facility" (de Loe et al, 2002, 229). Guelph had the strongest social capacity through the creation of two important groups, which promoted groundwater protection. "Outside of participation in these organized groups, there have been numerous opportunities for citizens to express their concerns, for instance, through public meetings relating to subwatershed studies" (de Loe et al, 2002, 227). Also during the study, Guelph was involved in various public education initiatives, such as school tours, participation in Children's Groundwater Festival, and the development of an environmental stewardship manual (de Loe et al, 2002, 229). Combined, these measures have enhanced the city's groundwater protection

The final capacity discussed in de Loe et al's (2002, 229) study was political, and again Guelph exhibited the strongest level, while Erin had some support through measures such as OP statements. Erin's town council did not endorse the subwatershed study or incorporate it into its OP and few attempts were made to foster external linkages with CVC relating to groundwater protection (de Loe et al, 2002, 227). Orangeville's councillors demonstrated growing support for the groundwater protection and had strong relations with CVC, which was evident based on data sharing, monitoring and subwatershed studies. Horizontal linkages with other municipalities were less evident. However, while it was indicated in the OP that partnerships were to be developed, there was no clear indication that this was going to be followed through. "For instance, Orangeville tended to share information with surrounding municipalities only if approached, rather than actively doing so" (de Loe et al, 2002, 229).

The final conclusions were that the size of the city/town does have an effect on their capacities to protect groundwater. Guelph's larger size permitted the financial resources to staff technical experts, which were financially unavailable to smaller communities. In addition, Guelph also demonstrated higher capacity in areas that have less to do with the size of a community, such as political commitment, citizen involvement, linkages with external agencies and institutional arrangements (de Loe et al, 2002, 230).

A municipality in Ontario that is very well resourced is the RMOW with regards to technical water related information, financial resources, staff, partnerships with the GRCA and consultants. The "RMOW and GRCA have actively monitored and modeled water resources, collected data, and conducted research related to water supplies for more than a decade, and as a result are much better off in terms of knowledge and technical resources than most Ontario municipalities" (Ivey et al, 2006, 203). The RMOW is one of the strongest examples of source protection in Canada.

Obviously financial resources have accounted for a notable reason as to why source protection has lagged behind. "Recognizing the importance of this resource, the Ontario government has invested \$19.3 million in 97 groundwater studies since 1998 [with] these studies ... being conducted by partnerships of municipalities and conservation

authorities” (MOE<sup>6</sup>, 2008, Online). Beginning in 1998, \$4.3 million was invested by the MOE to conduct 34 groundwater studies across Ontario, to promote the development of local groundwater protection strategies. With contributions from municipalities, the total investment in these studies was valued at \$6.6 million (MOE<sup>6</sup>, 2008, Online). In 2001-2002, an additional 31 municipal groundwater studies were funded costing the Province \$10 million. The balance of the \$19.3 million was \$5 million in 2002-2003 to achieve the goal of mapping WHPAs in all communities that rely on groundwater and mapping sensitive groundwater areas across all of southern Ontario. These studies are often referred to as the 2002 Municipal Groundwater Studies. In total, 32 study areas were approved for funding in 2002-2003 (MOE<sup>6</sup>, 2008, Online). As such, Ontario has become a leader with its funding and “by the end of 2004, over 95% of Ontario communities that rely on groundwater [had] a common base of information on their groundwater resources” (MOE<sup>6</sup>, 2008, Online). On February 12, 2004, the MOE announced that a new law would be introduced, requiring the development and implementation of SPPs for every watershed in the province (MOE<sup>6</sup>, 2008, Online). This piece of legislation is known as the CWA and is further discussed in detail below.

### **3.6 Clean Water Act**

Prior to the enactment of the CWA, “source water protection planning [was] undertaken on a voluntary basis by municipalities and conservation authorities [which led] to inconsistencies across the province [and] without a comprehensive source water protection program, public health [remained] at risk” (MOE<sup>1</sup>, 2004, 2). The CWA (formerly known as Bill 43) received royal assent in October 2006 and was proclaimed law on July 3, 2007, also when its’ first five associated regulations came into effect. These regulations include the Source Protection Areas and Regions, Source Protection Committees, Terms of Reference, Time Limits, and Miscellaneous Regulations. The intent of this legislation is to ensure that communities are able to protect their municipal drinking water supplies now and in the future from overuse and contamination, protecting both the quality and quantity of source waters. The CWA will protect “... municipal drinking water supplies through developing collaborative, locally driven, science-based protection plans” (MOE<sup>3</sup>, 2008). The SPPs are to be developed following the completion

of the technical ARs, which describe both groundwater and surface water vulnerable areas (i.e. WHPAs, IPZs, HVAs and SGRAs). As well, land use activities that are determined to be a threat will be mapped and scored based on their vulnerability to contaminate drinking water sources. The scoring will determine the level of risk that each particular threat has in terms of being a negligible, a low, a moderate or a significant risk to drinking water. The SPPs will then contain mandatory risk reduction strategies to be implemented and enforced for the threats that are significant risks, while moderate risks will likely be required to following a monitoring program. The technical AR tasks are further discussed below as immediate capacity is required in these areas since the tasks are currently underway.

### **3.6.1 Technical Assessment Report Components**

The technical projects conducted as part of the AR are crucial components of the SPP. "The information and analysis generated by these studies will support the development of local and regional groundwater strategies [and the] information from these studies is vital in that it will also provide data to support the development of a province-wide watershed-based source water protection framework" (MOE<sup>6</sup>, 2008, Online). The layout and structure of the completed ARs across the 19 SPAs / SPRs will be determined by the partner groups involved. Essentially, the major components of the AR as stated by the Lake Erie (LE) SPC in the Grand River (GR) SPA Terms of Reference (TOR) (2008, 4) are outlined below:

- Watershed Characterization (WC);
- Groundwater Vulnerability Analysis;
- Surface Water Vulnerability Analysis;
- Issues Evaluation, Threats Inventory;
- Water Quality Risk Assessment (RA); and
- Water Budget and Water Quantity Risk Assessment (RA).

An explanation of each of the main technical tasks listed above is presented in further detail below as it ties into the comparative assessment component of this research. In October 2006, the MOE provided draft guidance modules to assist with each of the



technical tasks outlined above. These are used to describe the activities that will make up each of the technical projects forming the AR.

### **3.6.2 Watershed Characterization**

The Watershed Characterization report will document descriptions of natural features, population size and distribution, land use and human-made influences, water quality (surface and groundwater), and water use throughout the watershed. "A preliminary list of land use activities that are known to pose a threat to the quality or quantity of drinking water and a summary of the issues and concerns that exist in the watershed" (Lake Erie SPC, 2008, 4). As well, this preliminary information will relate to the physical, sociological, and economic characteristics of the watershed (MOE<sup>7</sup>, 2006, 5). "A 'watershed' is the entire area of land that is drained by a river and its tributaries" (MOE<sup>7</sup>, 2006, 5). The Watershed Characterization report is likely the first technical document to be completed since it is essentially an overview and somewhat broad introduction to the watershed and is further narrowed within other technical projects.

### **3.6.3 Groundwater Vulnerability Analysis**

The groundwater vulnerability analysis will involve the delineation of the WHPAs around municipal drinking water supply wells, HVAs, SGRAs and future municipal supply areas. The relative vulnerability within each of these areas will be characterized as high, medium or low. The categorization is intended to reflect the susceptibility of the aquifer(s) in the vulnerable areas to surface (or near surface) sources of contamination. Vulnerable areas will be delineated and given vulnerability scores and the level of uncertainty associated with each score, as required for the Water Quality RA process (Lake Erie SPC, 2008, 4-5). Key sources of information that will assist with the groundwater vulnerability analysis, as outlined in the draft guidance module (MOE<sup>8</sup>, 2006, 8) include:

- Water well records and other borehole records and mapping;
- Quaternary geology and bedrock geology mapping;
- Aquifer and aquitard mapping or thickness mapping (where available);
- Aquifer parameters;



- Depth to water table and piezometric surface water mapping;
- Overburden thickness mapping;
- Geological cross-sections; and
- Topographical surface and surface water feature mapping.

It is important to note that not all SPAs / SPRs will have all of the information available to them, as such these data gaps will need to be determined to identify ongoing and future needs so that eventually the gaps can be filled in appropriately. “The ‘gap analysis’ will consider factors such as the availability, quality and coverage of existing data and existing groundwater studies” (MOE<sup>8</sup>, 2006, 9). As stated earlier, at “the end of 2004, over 95% of Ontario communities that rely on groundwater [had] a common base of information on their groundwater resources” (MOE<sup>6</sup>, 2008, Online). Much of this earlier work will be utilized to avoid the duplication of efforts and funding for the technical requirements of the CWA.

The delineation of WHPAs will illustrate the subsurface area that supplies water to a well’s capture zones at various time of travel (TOT) rates. As presented by the MOE<sup>8</sup> (2006, 10) in draft guidance module 3, each WHPA must be sub-divided into the following four zones:

- Zone A – pathogen security / prohibition zone with a 100 metre radius;
- Zone B – pathogen management zone with a 2 year TOT capture zone;
- Zone C – dense non-aqueous phase liquid (DNAPL) / contaminant protection zone with a 5 year TOT capture zone; and
- Zone D – secondary protection zone with a 25 year TOT capture zone.

These zones are used to identify the varying levels of potential risks to the well from both pathogens and chemical contaminants and these zones will assist in the prioritization of the risk management plans (RMPs) that will manage these particular threats.

### **3.6.4 Surface Water Vulnerability Analysis**

The purpose of the surface water vulnerability analysis is to identify the IPZs surrounding a surface water municipal drinking water intake. There are three IPZs that are to be delineated and these include:

- IPZ-1 which is a one kilometre radius for Great Lake intakes and 200 metres for river intakes. This zone is the most vulnerable as it is the closest to the intake;
- IPZ-2 consists of at least a two hour TOT, which at minimum would allow the water treatment operator to implement appropriate emergency actions to take place in the event of a spill requiring the intake to be closed off; and
- IPZ-3 is the area that contributes water to the intake under specified conditions such as varying storm events. For Great Lakes intakes this zone does not need to be delineated because it includes a significantly large portion of land.

Once each of the IPZs is delineated a vulnerability score for each of the zones is assigned. This score refers to the comparative likelihood of a contaminant of concern reaching the intake, also taking into consideration the potential human-made pathways that may allow contaminants of concern to enter the water directly, such as storm sewers, sanitary sewers, combined sewers, cooling water discharge sewers, and open drainage ditches (Lake Erie SPC, 2008, 5).

As presented in the MOE<sup>9</sup> (2006, 6), draft guidance module 4, the information that will be used to characterize the municipal surface water drinking intakes includes:

- The technical characteristics of the intake such as the geographical location of the intake crib, its depth and the length of the pipe extend from shore into the surface water body;
- Interviews with the water treatment plant operators regarding response time to shut down the plant in the event of an emergency;
- Review of existing documentation, such as engineering reports, studies, assessments, etcetera that could provide useful information about the intake and surrounding hydrodynamic and hydrologic conditions;
- Bathymetry of the water body near area lake bed showing the intake crib and pipe;
- Limnology of the surface water body structure and behaviour in the intake area;
- Local and regional current, flow, drift patterns of the water;
- Prevailing wind direction and intensity;

- Long and seasonal weather patterns as they influence wave formation, magnitude and direction;
- Local and regional erosion and scouring patterns by currents, wave and ice;
- Sediment and substrate characteristics at the intake and local lakebed;
- Raw water quality profile at the intake;
- Local watershed influences;
- Local and regional shipping routes and patterns; and
- Local recreational uses, historical shoreline, modifications, engineering works and historical land uses.

The IPZs will be delineated and assigned vulnerability scores, obtained by multiplying the zone vulnerability factor with the source vulnerability factor (MOE<sup>9</sup>, 2006, 17). The zone vulnerability factor is associated with factors such as runoff generation, transport pathways, and distance of threat(s) to the watercourse, while the source vulnerability factor is associated with specific factors relating to the intake such as its depth from the top of the water surface, the length of the intake pipe from shore and historical water records of past incidences exceeding water quality standards (MOE<sup>9</sup>, 2006, 18-19). The IPZs will be considered as vulnerable areas in the Water Quality RA, and the vulnerability scoring will be used to rank threats to drinking water in the surface water quality RA (Lake Erie SPC, 2008, 5).

### **3.6.5 Issues Evaluation, Threats Inventory, Water Quality Risk Assessment**

The objective of this module is to identify and evaluate threats and issues as they relate to the quality of drinking water in each vulnerable area. As defined in the MOE<sup>10</sup> (2006, 3) draft module 5, “issues are problems that currently exist in the source water, or that can be reasonably predicted to be a problem ... if rising trends continue [and] threats are activities on the landscape that, if managed improperly, may cause an issue to occur in the future”. Typically issues are associated with threats (i.e. land use activities – past, present or future), but also issues can be a result of natural occurrences (MOE<sup>10</sup>, 2006, 5). The threats and issues will be determined and mapped around each drinking water intake,

WHPA, HVA, SGRA and future municipal supply. Each contaminant of concern associated with the drinking water threats will be assigned a hazard rating, which “is a scientifically based value which represents the relative potential for a contaminant of concern to impact drinking water sources at concentrations significant enough to cause human illness” (MOE<sup>10</sup>, 2006, 4). There are five major components of this module, which include:

- Drinking water issues inventory;
- Drinking water threats inventory;
- Prioritizing and evaluation of issues and threats;
- Application of a hazard rating to each contaminant of concern associated with a drinking water threat; and
- Constructed transport pathways identification and inventory.

“Threats on the landscape ... may not currently be impacting source water but may pose a risk to sources of drinking water [and a] fundamental goal of the Source Water Protection process is to ensure that this risk is reduced” (MOE<sup>10</sup>, 2006, 5). The MOE is in the process of finalizing their database which contains over 3,000 different chemical based threats that have been assigned specific values in order to calculate their respective hazard rating to be used in the risk assessment stage of the technical work. The hazard ratings are either chemical or pathogenic and will be used to further assist with the water quality RA.

### **3.6.6 Water Quality Risk Assessment**

The risks of specific threats (past, present or future identified in the previous module) within a vulnerable area of a municipal drinking water system will be determined in this module. The risk associated with the threat will be assessed based on two factors: its hazard to human health, and the vulnerability of the drinking water source. This initial RA will place the threat in one of four categories: significant risk, moderate risk, low risk, or negligible risk (MOE<sup>11</sup>, 2006, 2). If the risk is negligible then no further action will be required. “Threats that fall into the other categories may be passed on to the risk management component of source water protection planning or may be re-assessed, depending on the quality of information available to undertake the initial RA (MOE<sup>11</sup>, 2006, 2). The risk is determined by numerical scores that represent the threats (obtained



through the hazard score that was determined in previous module) and the vulnerability (obtained through the groundwater vulnerability analysis or the surface water vulnerability analysis). Thus, the risk is determined by multiplying the hazard rating by the vulnerability score, which provides a product that is categorized as a significant risk, a moderate risk, a low risk, or a negligible risk based on the following values as presented in the draft guidance module 6 (MOE<sup>11</sup>, 2006, 9-10):

- Significant Risk is a score in the range of 80 to 100, which implies that both the hazard and vulnerability is high, so action is required to mitigate the existing risk(s) as well as prevent new risk(s) from arising. If it is not possible to eliminate existing, potentially significant threats then stringent measures are required to manage the risk posed by the threats and effective, timely contingency plans must be developed and implemented through the SPPs.
- Moderate Risk is a score in the range of 60 to 79, which implies the combination of either a high hazard and a lower vulnerability or vice versa, so action is required to develop a SPP to manage and monitor the risks posed upon the source water.
- Low Risk is a score in the range of 40 to 59, which implies the combination of moderate or low level hazards with a relatively lower vulnerability ranking, so minimal controls and some level of monitoring are required to ensure effective continued protection upon source water.
- Negligible Risk is a score in the range of less than 40, which implies the combination of very low level hazards with low vulnerability rankings, so no further action is required.

### **3.6.7 Water Budget and Water Quantity Risk Assessment**

“The objective of a water budget analysis is to provide a technically sound methodology for managing the quantity of existing and future sources of drinking water” (MOE<sup>12</sup>, 2006, 7). As presented in the Grand River (GR) SPA TOR by the Lake Erie (LE) SPC (2008, 5), the Water Budget and Water Quantity RA process will:

- Estimate the quantity of water flowing through a watershed;
- Describe the pertinent processes and pathways water follows; and



- Assess the reliability and availability of current and future water supply sources from a quantity perspective.

“A water budget is an understanding and accounting of the movement of water and the uses of water over time, on, through, and below the surface of the earth” (MOE<sup>12</sup>, 2006,

7). The water budget takes into account the following questions:

1. where is the water in terms of the various watershed hydrologic elements (e.g. soils, aquifers, streams, lakes)?;
2. how does the water move between these elements (i.e., what are the pathways through which the water travels)?; and
3. what and where are the stresses on the water (i.e., where are the water takings?) and what are the trends (i.e., are levels declining, increasing, or remaining constant over time)?

This work will be completed in various stages, beginning with a conceptual water budget, which will then proceed to a more detailed water budget analysis consisting of a Tier 1, 2, and/or 3 studies. The Tier 1 water budget consists of “a simple approach that estimates the various elements of the hydrologic cycle including precipitation, evapotranspiration, recharge, and runoff” (MOE<sup>12</sup>, 2006, 30). Water takings, known as PTTW regulated under the OWRA will be used to determine the amount of water being removed from the hydrological system. The data is analyzed using a simple excel assessment to determine which watersheds are experiencing stress. “Those areas experiencing a moderate to significant level of stress will be subject to further water budget evaluation under Tier 2, provided that the subwatershed contains a municipal water supply system” (MOE<sup>12</sup>, 2006, 38). “For Tier 1 and Tier 2, the water reserve should be calculated as 10% of the groundwater discharge within a subwatershed. It is noted that the thresholds defined for groundwater are already set to assign a ‘moderate’ stress level to subwatersheds where water demand is more than 10% of its recharge” (MOE<sup>12</sup>, 2006, 110). This threshold is based on existing ‘rules of thumb’ that suggest that water demands less than 10% will not result in observable changes to the hydrologic system (MOE<sup>12</sup>, 2006, 110). The Tier 2 and 3 Stress Assessment will refine the water use estimates by utilizing local surveys of the actual water used (MOE<sup>12</sup>, 2006, 36). “The goal of the Tier 2 assessment is to confirm or negate the stress assignment completed in Tier 1 using a more detailed approach that includes complex numerical modeling for groundwater systems and a detailed time-continuous modeling for surface water systems” (MOE<sup>12</sup>, 2006, 45). “The

role of the Tier 2 assessment is to refine the estimation of water budget components to facilitate a more reliable stress assessment and allow subwatersheds with marginal stress levels to avoid the detailed local assessments in Tier 3", which are not expected to be required in most jurisdictions (MOE<sup>12</sup>, 2006, 45). The areas that repeatedly exhibit stress will require that appropriate risk management activities be completed in order to sustain the long term availability of water within that subwatershed.

### **3.7 Summary of Literature Review**

The literature review conducted as part of this research illustrates that historically an unequal (mal) distribution of capacity existed among local Municipalities and CAs with regards to protecting water in Ontario. As well, there was no specific legislation pertaining solely to SWP. Essentially, this capacity issue and lack of legislation prevented effective SWP in many areas throughout the Province of Ontario. Rather than protecting water at the source, the protection measure was through the treatment of water. In terms of the US they are considered to be more environmental progressive when it comes to protecting source waters since they appear to have a more comprehensive SWP program when compared to Ontario. All US states are required to develop and implement a Source Water Assessment and Protection Plan. The majority of responsibility for SWP is placed into the hands of state and local governments; however, the federal government does play an extremely important role through the CWA and the SDWA via incentives, regulations and programs that are associated with these statutes. The opposite is the case in Canada, such that the federal government does not play as an important role, since no federal acts protecting source water have been enacted. As a result, the way in which source water is regulated varies from province to province and the standards are not consistent. These inconsistencies are further evident within the province of Ontario as historically there were great capacity variations amongst local municipalities and CAs. The following capacity comparative assessment chapter analyzes the changes that have taken place across Ontario following the enactment of the CWA to illustrate the present situation as well anticipate the future of the SWP in Ontario along with some of the inevitable challenges.

#### 4.0 COMPARATIVE CAPACITY ASSESSMENT OF THE SPAs AND SPRs

The following sections comprise the comparative capacity assessment of the research conducted. To recap, the literature review presented herein has illustrated that historically an unequal (mal) distribution of capacity existed throughout Ontario to protect water – institutionally, financially, technically, socially, and politically at the CA and Municipal levels. As well, various case studies have shown that there is variation in the capacities of CAs and municipalities, and typically larger organizations are more likely to have greater capacity. “The Provincial Government has committed to pay 100% of the costs to develop Assessment Reports and Source Protection Plans to protect sources of municipal drinking water [which] covers both work plans presented in [the] Terms of Reference” (Essex Region SPC, 2008, 9). This comparative capacity assessment examines the activities occurring throughout the province during the initial stages of the CWA through analyzing the TOR documents that have been drafted by the 19 SPCs across the province. The findings are presented below for the five capacity indicators as they currently exist during the preparation of the AR. Institutional capacity is presented first in order to provide the reader with the information to understand the structure of the CWA through its associated regulations. The financial capacity requirements are discussed next, followed by the technical, social and political capacities.

The TOR sources used to conduct the comparative analysis are presented in the Bibliography of this report, rather than being referenced after each statement since the data has been adapted from the TOR documents through calculations. Initially, summary tables of all 38 SPAs were compiled using the TOR documents, which present the AR tasks, the estimated budgets (for tasks ‘completed / in progress’ and ‘estimated’), the timelines for completion and the lead for each task. These tables are presented in **Appendix B, Tables 1B through 38B**. A prescreening of these 38 tables revealed that there is consistency among the SPAs that have joined into partnership agreements with neighbouring SPAs to form SPRs, with the exception of the financial capacity requirement, which had some variation among the SPAs within the same SPR. This makes sense logically as it is the same SPC that is representing all the SPAs within that

SPR. Therefore it was decided that the comparative capacity assessment would be narrowed to focus on the 11 SPRs (comprised of multiple SPAs) and the eight stand-alone SPAs, rather than assessing all 38 SPAs individually. Details pertaining to the 19 SPAs / SPRs are presented in **Appendix A, Tables 1A through 19A**. Conducting the assessment using this rationale was also logical from a data management perspective.

In summary, as presented on **Table 1**, one to five SPAs make up an SPR. **Map 1** illustrates the location of the 19 SPAs / SPRs in northern and southern Ontario. Each SPR has a lead SPAs which is illustrated by bold in **Table 1**. The largest SPR contains five SPAs, which is the Trent Conservation Coalition (TCC) SPR. The second largest is the Lake Erie (LE) SPR and Quinte Region (QR) SPR, both of which are comprised of four SPAs.

There are four SPRs that are comprised of three SPAs, which include:

- the Thames, Sydenham & Region (T-SR) SPR;
- the Saugeen, Grey Sauble, Northern Bruce Peninsula (S-GS-NBP) SPR;
- the South Georgian Bay – Lake Simcoe (SGB-LS) SPR; and
- the Credit Valley, Toronto and Region, Central Lake Ontario (CTC) SPR.

There are four SPRs, which are comprised of two SPAs and these include:

- Ausable Bayfield Maitland Valley (AB-MV) SPR;
- Halton-Hamilton (HH) SPR;
- Mississippi-Rideau (M-R) SPR; and
- Raisin Region South Nation (RR-SN) SPR.

The remaining SPAs represent the eight stand-alone areas and include:

- Essex Region (ER) SPA;
- Niagara Peninsula (NP) SPA;
- Cataraqui Region (CAR) SPA;
- Lakehead Region (LH) SPA;
- Sault Ste. Marie Region (SSMR) SPA;
- Mattagami Region (MR) SPA;
- Greater Sudbury District (GSD) SPA; and
- North Bay-Mattawa (NB-M) SPA.



The land area that the SPAs / SPRs cover is presented in **Table 2** and ranges from approximately 215 km<sup>2</sup> (stated by Ivy et al, 2002, 314) (SSMR SPA) to 11,342 km<sup>2</sup> (SGB-LS SPR), representing 0.2% to 9.9% of the total land area regulated under the CWA, respectively. **Graph 1**, illustrates the percentage of land area that each of the SPAs / SPRs cover. As presented the five largest SPAs / SPRs are:

- SGB-LS SPR with a total land area of 11,342 km<sup>2</sup>;
- MR SPA with a total land area of 11,000 km<sup>2</sup>;
- T-SR SPR with a total land area of 10,857 km<sup>2</sup>;
- LE SPR with a total land area of 10,710 km<sup>2</sup>; and
- TCC SPR with a total land area of 9,570 km<sup>2</sup>.

It is interesting to note that of the top five largest SPAs / SPRs; all but one of them is a stand-alone SPA, situated in northern Ontario (MR SPA). The remaining four are SPRs located in southern Ontario. Conversely, the three smallest SPAs / SPRs land wise are SSMR SPA (215 km<sup>2</sup>), HH SPR (of 1,512 km<sup>2</sup>) and ER SPA (1,600 km<sup>2</sup>).

With regards to the number of municipalities within each SPA / SPR, there are four SPRs that have 60 or more municipalities within their region. These four SPRs are the same SPRs which contain the most land area and include:

- TCC SPR with 70 municipalities (13% of the municipalities);
- SGB-LS SPR with 65 municipalities (12.1% of the municipalities);
- LE SPR with 65 municipalities (12.1% of the municipalities); and
- T-SR SPR with 60 municipalities (11.2% of the municipalities).

The percentage distribution of these SPRs with respect to municipalities ranges from 11.2% to 13.0%, while the remaining SPAs / SPRs have anywhere from 0.2% (MR SPA) to 7.1% (M-R SPR). For instance, this means that of the total number of municipalities (537) governed under the CWA in Ontario, these percentages are found within those SPAs / SPRs. MR SPA on the other hand, which is the second largest in terms of land area, contains the least number of municipalities, which is one or 0.2% of the 537 municipalities. **Table 3** and **Graph 2** illustrate the number of municipalities and percentage distribution across the SPAs / SPRs.



In terms of the number of municipal groundwater drinking water systems, the three SPAs / SPRs with the most are:

- SGB-LS SPR with 98 groundwater systems (approximately 301 wells), representing 28.9% of the municipal groundwater systems;
- LE SPR with 53 groundwater systems (unknown number of wells), representing 15.6% of the municipal groundwater systems; and
- TCC SPR with 36 groundwater systems (approximately 82 wells), representing 10.6% of the municipal groundwater systems.

These three SPRs represent 55.1% of the municipal groundwater drinking systems in Ontario. There are three SPAs that do not contain any municipal groundwater systems. These are: MR SPA, ER SPA, and NP SPA, all of which are stand-alone SPAs. Overall, the number of municipal groundwater drinking systems range from 1 in the LR SPA and SSMR SPA to 98 in SGB-LS SPR. The SPAs in northern Ontario contain fewer municipal groundwater drinking systems than the SPAs / SPRs in southern Ontario (i.e. higher populations require more wells). **Table 4** and **Graph 3** illustrate these findings.

The majority of the municipal surface water drinking systems are located in:

- TCC SPR with 19 surface systems (approximately 21 intakes), representing 14.8% of the municipal surface systems;
- SGB-LS SPR with 15 surface systems (approximately 15 intakes), representing 11.7% of the municipal surface systems;
- RR-SN SPR with 14 surface systems (unknown number of intakes), representing 10.9% of the municipal surface systems; and
- CTC SPR with 10 surface systems (approximately 10 intakes), representing 7.8% of the municipal surface systems.

These four SPRs represent 45.2% of the municipal surface water drinking systems in Ontario. These values are illustrated in **Table 5** and **Graph 4**. The five SPAs in northern Ontario contain the fewest municipal surface water systems with one to three systems in each of the five northern SPAs, representing 0.8% to 2.3% of the surface water systems regulated under the CWA in Ontario. This is reasonable since the northern areas contain

fewer populations and one surface water intake has the capacity to provide numerous residents with drinking water.

#### **4.1 Institutional Capacity Assessment**

Institutionally, the CWA and its associated regulations put into place a legislative framework for the SPP process. At the time of conducting this research, five regulations had been enacted under the CWA, while the AR regulation had been drafted, posted on the Environmental Bill of Rights (EBR) web site for public review and comment; however are not yet finalized. The five existing regulations under the CWA include the following and form the basis of the institutional capacity assessment for SP in Ontario:

1. O.Reg 284/07 – Source Protection Areas and Regions;
2. O.Reg 285/07 – Time Limits;
3. O.Reg 286/07 – Miscellaneous;
4. O.Reg 287/07 – Terms of Reference; and
5. O.Reg 288/07 – Source Protection Committees.

A summary of each of the regulations is presented below.

The first regulation is O.Reg 284/07 relating to the Source Protection Areas and Regions. **Table 1**, presents a list of the 38 CAs, which have become the SPAs as regulated in O.Reg 284/07, Part I, Table 1 under the CWA (Government Ontario<sup>3</sup>, Online). Two CAs, Moira River Conservation Authority and Napanee Region Conservation Authority presented in O.Reg 284/07 are within the jurisdiction of Quinte Region, thus are not presented individually in **Table 1**. As well, O.Reg 284/07, Part 1, Table 2 presents two additional organizations which have formed to be SPAs. These include the Severn Sound Environmental Association formed to be the Seven Sound Source Protection Area and the Municipality of Northern Bruce Peninsula formed to be the Northern Bruce Peninsula SPA (Government Ontario<sup>3</sup>, Online) for a total of 40 organizations functioning as SP authorities making up the SPAs / SPRs. **Map 1** illustrates the 19 SPAs / SPRs that have been formed through partnership agreements between various SP Authorities. **Table 1** presents the SPAs / SPRs and their respective SP Authorities. **Table 3** lists the number of municipalities within that specific SPA / SPR. It is important to note that the number of

municipalities within the SPAs in O.Reg 284/07 is different that the number of municipalities in **Table 3** because these were totaled from each of the TOR documents and it is evident that the various lower tier municipalities that exist within the upper tier municipalities were included, accounting for the difference in numbers. While this difference may imply that the list in O.Reg 284/07 is incorrect, it is simply the case that the TORs are more detailed. The final table in O.Reg 284/07 under Part II, Table 3 presents the SPRs that have formed by the merging of SP Authorities (Government Ontario<sup>3</sup>, Online). In total there are 11 SPRs that contain multiple SPAs with one of the SP Authorities appointed to be the lead SP Authority. The remaining eight SPRs that are not presented in O.Reg 284/07 are stand-alone SPAs, containing only one CA. For instance, all of the CAs in Northern Ontario are stand-alone SPAs and include the following CAs:

- Lakehead Region (LR) CA;
- Sault Ste. Marie (SSMR) CA;
- Mattagami (MR) CA;
- Nickel District CA (Greater Sudbury District (GSD)); and
- North Bay-Mattawa (NB-M) CA.

In southern Ontario there are three single CAs that form stand-alone SPAs and these include:

- Essex Region (ER) CA;
- Niagara Peninsula (NP) CA; and
- Cataraqui Region (CAR) CA.

The second regulation is O.Reg 285/07 – Time Limits outline the due dates for the three major reports to be completed. These include the TOR, the AR and the SPP. Essentially, the due dates are set based upon the date in which the first chair of an SPC was appointed (Government, Ontario<sup>4</sup>, Online). Based on the time of this research, these due dates are established to be as follows:

- TOR – October 2008;
- AR – Fall 2009 through Winter 2010;
- SPP – Summer 2012.

The third regulation, O.Reg 286/07 Miscellaneous discusses various items such as amendments to agreements made among the SPAs which have joined to form an SPR, drinking water systems that cannot be included in the TOR, Great Lakes-St. Lawrence River basin agreements and exemptions (Government Ontario<sup>5</sup>, Online). For the purpose of this regulation, since it does not directly tie-into the research of this paper, no further discussion will be made.

The fourth regulation is O.Reg 287/07 Terms of Reference (TOR), which is the first major submission requirement that the SPCs need to fulfill and submit to the MOE. The TOR shall contain the following information as per the regulation (Government Ontario<sup>6</sup>, Online):

- A map illustrating the boundaries of the SP Authorities and municipalities within the SPA. If the SPA is part of a SPR (multiple SPAs) then a map of the SPR shall be presented as well;
- A list of all the municipalities in the SPA(s);
- A copy of all the municipal resolutions passed by councils of municipalities;
- A table presenting the following information for each of the planned and existing drinking water systems:
  - The drinking water systems (DWIS) number, if assigned;
  - The name of the drinking water system;
  - The owner of the drinking water system;
  - The operating authority of the drinking water system; and
  - Whether the drinking water system obtains its water from groundwater or surface water.
- A list of matters that require consultation (during the AR preparation) with neighbouring SPCs based on cross boundary issues;
- A work plan that identifies all of the major tasks that are to be completed as per the AR and SPP which includes the following information:
  - The lead organization responsible for performing the task;
  - The estimated timeline of when the task is to be conducted; and
  - The estimated costs that are expected to be incurred to complete the task.



All of this information was organized and input into a Microsoft Access database tool provided by the MOE. The purpose of using this software tool was to allow for consistency across the province, as well as to allow for ease in updating the information as necessary. The TOR, which were drafted throughout May to September 2008, were posted on the individual SPC (drinking water source protection) web sites for a public review and comment period, which was at least 35 days as per the TOR O.Reg 287/07. At a minimum at least one public open house must have been held at a location within the SPA to allow for the public to attend to gain additional information relating to the TOR as well as the SP program. As per the regulation (Government Ontario<sup>6</sup>, Online), "... a draft of the proposed terms of reference [shall be] published on the Internet and [made] available for inspection by the public at one or more locations that, in the opinion of the source protection committee, are sufficiently accessible to give the public in the source protection area a reasonable opportunity to inspect the draft". As well, a copy of the TOR must be given to the clerk of each municipality in the SPA, the chief of the band of a First Nations reserve in the SPA, the chair of every SPC listed as having a matter that requires consultation and every person or body that is established pursuant to the Great Lakes Water Quality Agreement of 1978 and is involved in the development or implementation of a remedial action plan (RAP) or lake-wide management plan (Government Ontario<sup>6</sup>, Online).

The final regulation discussed is O.Reg 288/07 Source Protection Committees, which outlines the 19 SPCs that represent the 19 SPAs / SPRs as well as the number of members on each committee. The SPC member numbers range from 10 to 22 (Government Ontario<sup>7</sup>, Online). The five SPAs in the north have 10 members. The five largest SPRs, which include CTC SPR, LE SPR, SGB-LS SPR, T-SR SPR and TCC SPR, have 22 members, while the remaining SPAs / SPRs have 16 members (Government Ontario<sup>7</sup>, Online). The SPC is responsible for completing, approving and submitting the TOR, AR and SPPs with the assistance of the SP authorities. The SPCs is comprised of multi-stakeholders with varying backgrounds and the following rules apply with regards to the formation of the committees as per (Government Ontario<sup>7</sup>, Online):

- One-third of the members must be persons appointed to reflect the interests of the municipalities that are located within the SPAs / SPR;



- One-third of the members must be persons appointed to reflect the interests of the agricultural, commercial, or industrial sectors of the SPAs / SPRs economy; and
- One-third of the members must be persons appointed to reflect the interests other than the interests referred to the two above, in particular, environmental, health and other interests of the general public.

The SPC works closely with the municipalities, CAs, and provincial agencies, while leading the development of the three major documents that comprise the SP planning process (TOR, AR and the SPP). “The committee will do this by following the Act, its regulations, Director’s rules (in respect of assessment reports), and guidance material created by the ministry, while working collaboratively with municipalities and source protection authorities” (MOE<sup>4</sup>, 2007, Online). The draft Director’s Rules outlining the technical requirements of the AR was posted for public comment and review on the environmental registry in June 2008; however, has not yet been finalized and re-published for use. This is not to say that the technical work has been halted, but rather the work is underway following the draft versions and may require changes as the final AR regulations are finalized.

#### **4.2 Financial Capacity Assessment**

The McGuinty government has committed approximately \$120 million to fund source protection planning costs from 2004 through 2008, in order to help local communities determine accurate information relating to their municipal water supply, how it replenishes itself and what threats exist upon the quality of the water so that actions can be implemented to reduce or eliminate these threats (MOE<sup>13</sup>, 2007, Online). “The provincial funding includes \$32 million provided by the [MOE] to municipalities and [CAs] for technical studies, and \$66 million provided by the [MNR] for capacity-building and water budget work at the CAs. The capacity funding helped CAs boost their staffing and expertise by an average of 10 per cent” (West, 2008, 13). Funding was provided to CAs to hire staff and develop other resources to work with local communities towards developing SPPs. Grants were also provided to both the CAs and municipalities to

undertake technical studies relating to vulnerability zones and threats evaluations (MOE<sup>13</sup>, 2007, Online). Through the development of the spreadsheet analysis using Microsoft Excel to summarize the 38 TORs documents completed by the 19 SPCs, it was calculated that approximately \$230,875,710 (\$231 million) is the estimated required dollar amount to complete both the AR and SPP. This total and its breakdown is presented in **Table 12**.

Of the \$231 million, \$81.2 million has been spent on the AR tasks 'completed / in progress' until the end of the 2008-2009 provincial fiscal year (March, 31, 2009). This leaves an estimated \$92.7 million for the remaining AR tasks for a total of \$179.9 million to conduct the AR reports. Thus, 35.2% of the total budget is 'completed / in progress' for the ARs, 40.2% is 'estimated' for the remaining AR tasks and 24.7% is for the completion of the SPP. The estimated SPP costs make up the balance of \$56.9 million. This cost distribution reveals that over 75% of the costs related to the SP program are for the technical science based AR work. It is anticipated that additional funds will be required for the implementation and enforcement of the SPPs since they are not presented in the TOR. **Table 15** presents the breakdown of these costs and percentages. It should be noted that some of the SPCs did not provide dollar amounts to complete the SPP since the regulations and guidance materials have not yet been drafted, nor have the AR tasks been completed, which will likely affect the costs required for the SPP. **Table 6**, presents the costs associated with completing the AR and **Table 9** presents the costs for completing the SPP. These tables also present the budget requirements for the AR and SPP with SPAs / SPRs as the lead as well as the municipalities as the lead, which is further assessed in the political capacity assessment section.

An analysis of the AR SPA / SPR budgets as presented on **Table 7** illustrates that of the total \$134.5 million required, the SPRs requiring the highest budgets with the SP Authority as the lead are as follows:

- TCC SPR - \$29.2 million (21.5% of the total SPR AR budget);
- LE SPR - \$12.1 million (8.9% of the total SPR AR budget);
- T-SR SPR - \$10.4 million (7.7% of the total SPR AR budget);
- SGB-LS SPR - \$9.2 million (6.8% of the total SPR AR budget); and

- RR-SN SPR - \$8.6 million (6.3% of the total SPR AR budget).

The municipal lead AR budget observations presented on **Table 8** exhibit that of the total \$39.4 million requirement, the municipal SPRs requiring the highest AR budgets are as follows:

- TCC SPR - \$17.4 million (45.7% of the total SPR municipal AR budget);
- LE SPR - \$6.8 million (17.8% of the total SPR municipal AR budget);
- SGB-LS SPR - \$4.9 million (12.9% of the total SPR municipal AR budget);
- CTC SPR - of \$4.1 million (10.6% of the total SPR municipal AR budget); and
- S-GS-NBP SPR - \$2.5 million (6.6% of the total SPR municipal AR budget).

As shown in **Table 6**, the five SPRs requiring the greatest budget when combining the SP Authority lead and municipal leads AR task total includes:

- TCC SPR at \$46.7 million (26.8% of the total AR budget). Of this total, \$24.9 million has been 'completed / in progress', accounting for 30.7% of the 'completed / in progress' AR budget;
- LE SPR at \$19 million (10.9% of the total AR budget). Of this total, \$10.5 million has been 'completed / in progress', accounting for 12.9% of the 'completed / in progress' AR budget;
- SGB-LS SPR at \$14.1 million (8.1% of the total AR budget). Of this total, \$5.9 million has been 'completed / in progress', accounting for 7.2% of the 'completed / in progress' AR budget;
- CTC SPR at \$11.6 million (6.7% of the total AR budget). Of this total, \$9.1 million has been 'completed / in progress', accounting for 11.3% of the 'completed / in progress' AR budget; and
- T-SR SPR at \$11 million (6.3% of the total AR budget). Of this total, \$5.3 million has been 'completed / in progress', accounting for 6.6% of the 'completed / in progress' AR budget;

When taking into consideration the SP Authority and municipal AR budgets separately, the TCC SPR and TCC municipalities are in need of the most financial capacity. LE was

second, for both the SP Authority as the lead and the LE municipalities as the lead for the second most financial capacity required. T-SR SPR was the third lead when taking into consideration only the SP Authority as the lead for the AR financial capacity required, while the SGB-LS was the third lead when taking into consideration the municipal lead for the AR budget requirement.

The TCC combined AR budget is the highest of all AR budgets and can be attributed to the fact that this SPR contains the most number of SPAs and municipalities, which is five and 70, respectively. As well the TCC contains the most number of surface water intakes. These observations correlate well with the fact that the LE SPR contains the second most number of municipal groundwater systems, thus is in second for the financial capacity requirement when combining the leads. SGB-LS SPR on the other hand, contains the highest number of municipal groundwater systems and second highest number of surface water systems, while exhibiting the third largest AR budgetary requirement when combining the SP Authority and Municipal lead dollar values required for the AR tasks.

The combined SPA and municipal AR budgets were most identical to the SPA / SPR budgets, such that four of the five SPRs were the same (TCC SPR, LE SPR, SGB-LS SPR and CTC SPR). Thus, these four SPRs require the most financial capacity to conduct the AR tasks. The remaining combined AR budgetary requirements gradually decrease from \$8.6 million (RR-SN SPR) to \$2.7 million (NB-M SPA). The five northern SPAs are situated within the six lowest combined SPAs / SPRs and municipal AR budgets, accounting for 2.4% or lower requirements of the total AR budget which is \$4.2 million down (SSMR SPA) to \$2.7 million (NB-M SPA). Again, there are fewer municipal drinking water systems in northern Ontario; thus less financial capacity is required as observed.

An analysis of the SPP budgets with the SP Authorities as the lead is presented in **Table 10**. As illustrated of the total \$54 million required, the SPRs requiring the highest budgets are as follows:

- TCC SPR - \$11.6 million (21.5% of the total SPR SPP budget);



- ER SPR - \$4.6 million (8.5% of the total SPR SPP budget);
- LE SPR - \$4.5 million (8.3% of the total SPR SPP budget);
- SGB-LS SPR - \$4.3 million (8.0% of the total SPR SPP budget); and
- T-SR SPR - \$4.3 million (8.0% of the total SPR SPP budget).

The SPP budget with municipalities as the lead is presented on **Table 11** and exhibited that of the total \$3.0 million, the Municipal SPRs SPP budgets are as followings:

- LE SPR with an SPP municipal budget requirement of \$1.7 million (57.3% of the total SPR municipal SPP budget);
- NP SPA with an SPP municipal budget requirement of \$720,000 (24.1% of the total SPR municipal SPP budget);
- GSD SPA with an SPP municipal budget requirement of \$300,000 (10.1% of the total SPR municipal SPP budget);
- TCC SPR with an SPP municipal budget requirement of \$195,000 (6.5% of the total SPR municipal SPP budget); and
- CTC SPR with an SPP municipal budget requirement of \$60,000 (2.0% of the total SPR municipal SPP budget).

No other SPAs / SPRs municipalities other than those listed directly above exhibited an interest in being the lead for the development of the SPP. This is somewhat concerning since it is the municipalities that will likely be responsible for implementing and enforcing the SPPs. It is advised that they become a part of the process sooner rather than later. The SGB-LS SPC in their TOR for SGB-LS SPR (2008, 32) stated that “policy development will be co-managed by the South Georgian Bay-Lake Simcoe Source Protection Region and a planning working group comprised of municipal staff, South Georgian Bay-Lake Simcoe staff and SPC members. This task will involve establishing and maintaining a municipal working group to provide input to the policy development tasks above”. This means that the funds for completing this work have not been separate out and allocated to the municipalities since the development of the SPPs is not for another few years. As a result, the estimated costs separated out for the SPAs /



SPRs as the lead may not be the most accurate, thus an analysis was also completed merging the total costs of the SPAs / SPRs together with that of the municipal SPP financial requirements.

The SPP budgetary requirements, to develop the SPP as presented in **Table 9** is estimated at \$56.9 million, the five SPRs requiring the greatest budget when combining the SP Authority and Municipal lead totals include:

- TCC SPR at \$11.8 million (20.7% of the total SPP budget);
- LE SPR at \$6.1 million (10.9% of the total SPP budget);
- ER SPA at \$4.6 million (8.1% of the total SPP budget);
- SGB-LS SPR at \$4.3 million (7.6% of the total SPP budget); and
- T-SR SPR at \$4.3 million (7.5% of the total SPP budget).

Identical conclusions can be drawn upon these observations, such that the TCC SPR contains the most number of SPAs and Municipalities, therefore will require extensive consultation while developing the SPP. LE SPR, again contains numerous municipal groundwater systems and municipalities. It is surprising to observe that the ER SPA is amongst the top five for its SPP budgetary requirements. SGB-LS SPR and T-SR SPR are inline with the expected findings and observations since SGB-LS SPR has been in the top rankings for all financial requirements, while T-SR SPR has been in most of the top financial requirements. Thus, the top five SPRs requiring the most financial capacity are TCC, LE, SGB-LS, CTC and T-SR.

With regards to the ER SPA, the ER SPC has outlined varying concerns that they have (2008, 9). They state the following with regards to funding and that to-date the Province has not committed funding to pay for:

- The inclusion of "other" drinking water systems in the SPP process by municipal councils as further discussed below, or
- Implementing SPP, which could be a municipal, CA and/or MOE responsibility (all can potentially be assigned some implementation tasks in SPPs, although the CWA

specifies the municipalities will be responsible for matters such as resulting OP policies, and RMP requirements for significant risks.)

“Implementation costs cannot be estimated until it is determined how many local drinking water risks there are and what types of policies will be used to address them (policy development is not scheduled to begin until 2010)” (ER SPC, 2008, 9). The ER SPA, along with various other participants “through-out the Province, have advised the MOE that municipalities are very concerned about potential implementation costs they may incur and will continue to raise this issue at the Provincial level” (ER SPC, 2008, 9). As such is it likely that the ER SPA has over estimated its’ financial capacity requirement for the SPP since there is some concern regarding future implementation and enforcement.

#### **4.3 Technical Capacity Assessment**

During the pre-screening phase of this research, **Table 1B through 38B in Appendix B** were assessed and it was observed that for the most part all of the SPAs / SPRs are at an identical stage in terms of completing the following tasks; ‘Watershed Characterization (WC) reports’, ‘Conceptual Water Budgets (CWB)’ and ‘Tier 1 Water Quantity Risk Assessment (RA)’ as of the end of 2008, with the exception of the following:

- LE SPR completed CWB only;
- CTC SPR has not completed the WC report;
- NP SPA has not completed the WC report;
- M-R SPR has completion dates of December 2009 for all of their AR tasks, as such it is presumed that the WC report, CWB and Tier 1 Water Quantity RA are not completed; and
- NB-M SPA; also has forecasted completion dates (October 2009) for all of their AR tasks, as such it is presumed that the WC report, CWB and Tier 1 Water Quantity RA are not completed.

The WC, CWB and Tier 1 Water Quantity RA are the initial documents being conducted as per the AR under the CWA as they are broader in scope and allow for the collection of detailed background information which will later be refined. The other components of the technical work which has largely been completed, relates to the 2002 Municipal Groundwater Studies. These studies included the delineation of the various WHPAs based on TOT. The following SPC TOR documents have indicated that these are complete:

- RR-SN SPR for both groundwater (WHPAs) and surface water (IPZs);
- QR SPR for the majority of municipal systems;
- SGB-LS SPR for a majority of the municipal systems the WHPAs and IPZs have been delineated; however the vulnerability scoring is underway, as such the dates have been forecasted for completion;
- LE SPR has completed the WHPAs for the Regional Municipality of Waterloo drinking water systems;
- CTC SPR has completed the delineation of the IPZ-1 and IPZ-2 for the Lake Ontario municipal surface water drinking systems; and
- NP SPA has completed the IPZ delineations for the municipal surface water intakes supplying the Regional Municipality of Niagara.

With regards to the other technical tasks as part of the AR, it was observed that the majority of the projects have been started prior to December 2008. Below is a list of the SPA / SPR and the tasks that have not yet begun, excluding consultation on the overall AR since none of the SPAs / SPRs are at that stage:

- ER SPA – tasks associated with HVAs, SGRAs, identifying risks in the IPZ;
- T-SR SPR – tasks associated with determining risks in the HVAs and SGRAs;
- AB-MV SPR – delineating and applying vulnerability scores to HVAs and a pilot study on non-municipal drinking water systems;
- S-GS-NBP SPR – Tier 3 Water Quantity RA, assessing risks in HVAs and SGRAs;
- LE SPR – peer review and assess risks in WHPAs / IPZs of the Six Nations of Grand River;

- SGB-LS SPR – new planned system work, peer reviews and Tier 3 Water Quantity RA;
- CTC SPR – assessing risks in IPZs;
- TCC SPR – tasks associated with HVAs and SGRAs;
- M-R SPR – assessing risks in WHPAs / IPZs;
- CAR SPR – additional Tier 2 Water Quantity RA research; and
- GSD SPA – Tier 3 Water Quantity RA;

The following SPAs / SPRs have started all the AR tasks except the consultation and compilation of the AR:

- NP SPA;
- QR SPR;
- RR-SN SPR;
- LR SPA; and
- SSMR SPA.

Three of the SPAs / SPRs did not include their start dates for beginning tasks. These included:

- HH SPR;
- NB-M SPA; and
- MR SPA.

Following the pre-screening assessment of the 38 SPAs, a more narrow review was conducted on the 19 SPAs / SPRs with regards to the percentage of AR tasks completed with the SP Authorities and municipalities as the lead. This was conducted by observing the financial requirements of the AR in terms of whether they were presented in the TOR as 'Completed / In Progress' or as "Estimated" costs. The dollar amounts were converted into percentage values to determine how complete the technical tasks are as of the end of December 2008. These values are presented in **Table 13**. As shown this analysis exhibits that anywhere from 0% (NB-M SPA) of the AR tasks has been completed to 81.2% (GSD SPA) as the SP Authorities being the technical lead for the work. This is not to say that none of the AR tasks have been started, but that since all of the budget estimates were presented as 'estimated' costs rather than being separated out to illustrate

the costs 'completed / in progress' versus those that are 'estimated' for the future, which was the case for the NB-M SPA TOR. For the most part the remaining 18 SPRs did separate their costs into those 'completed / in progress' and those 'estimated'. This illustrates a relatively staggered percentage distribution of the costs 'completed / in progress' with approximately half (nine of the 19 SPAs / SPRs) having at least 50% of their technical work 'completed / in progress' with the remaining to be completed throughout 2009. Another key piece of information is that not all of the SPAs / SPRs have municipalities assisting with the work, such as GSD SPA who is leading the work themselves. These nine SPAs / SPRs and their percentage of AR completion is as follows:

- GSD – 81.2%;
- CTC – 76.7%;
- S-GS-NBP – 71.8%;
- LE – 63.7%;
- QR – 61.8%;
- M-R – 61.1%;
- TCC – 52.6%;
- NP – 52.4%; and
- SGB-LS – 50.3%.

In terms of the technical tasks being lead by the Municipalities, **Table 13** shows that 25.5% (SGB-LS SPR) to 100% (HH SPR) of the AR tasks have been completed with seven of the 11 SPRs representing 50% or greater completion. SGB-LS contains the most number of groundwater wells than any other SPA / SPR, which is likely why they are slightly behind in the technical tasks. The fact that the tasks with the Municipalities as the lead have a greater percentage of 'completed / in progress' allows one to conclude that technical tasks were underway voluntarily prior to the CWA as per the 2002 Municipal Groundwater Studies. Varying levels of technical capacity are evident since the percentage 'completed / in progress' vary (i.e. are not identical). As well, not SPAs / SPRs have municipalities which are taking on a lead role. The SPAs / SPRs with municipalities as leads have the following percentage completion rates:

- HH – 100% (based on no starting timeline in TOR);
- S-GS-NBP – 85.7%;
- CTC – 82.9%;
- M-R – 75.0%;



- QR – 68.9%;
- NP – 56.0%;
- TCC – 54.7%;
- MR – 52.4% (based on no starting timeline in TOR);
- T-SR – 46.3%;
- LE – 40.0%;
- SGB-LS – 25.5%

Based on the summary tables presented in **Table 14** and **Graphs 5 through 23**, which display the percentage of the total funds spent on the AR and SPP tasks, (broken down as the SP Authorities and the municipalities as the lead), it is evident that there is great variation in the financial expenditures for the AR and SPP across the SPRs. In terms of the AR with the SP Authorities as the lead, the costs range from 48.3% (LE SPR) to 98.1% (SSMR SPA) of the total costs being spent on the AR. A summary of the percentage range distribution is as follows:

- 48% to 49.9%, inclusive includes three SPAs / SPRs;
- 50% to 59.9%, inclusive includes four SPAs / SPRs;
- 60% to 69.9% inclusive, includes seven SPAs / SPRs;
- 70% to 79.9% inclusive, includes two SPAs / SPRs;
- 80% to 89.9% inclusive, includes one SPR; and
- 90% to 99.9% inclusive, includes two SPAs SPRs.

Based on this distribution the majority (14 of the 19) of the SPAs / SPRs are spending 48% to 69.9% their budgets on the AR, which is clearly depicted in the graphs. It is presumed that since the Director's Rules for the SPP have not yet been drafted many of the SPCs when drafting their TOR did not complete the dollar requirements for the SPP. The SPP budget percentages are all below 50% with the highest budget required being 46.8% (ER SPA) to a low of 1.9% (SSMR SPA). Since the AR findings have not yet been determined it is difficult, next to impossible to determine accurately what the costs will be to develop the SPP.

The municipal lead AR task percentages are much lower than those of the SP Authorities as the lead. The municipal lead percentages ranged from 0.4% (GSD SPA) to 29.9%

(TCC SPR). This is due to a large extent because there are a lot less municipal leads for the AR than there are SP Authorities as leads. Again, the case is true with respect to the SPP percentages with the municipalities as the lead. These percentages ranged from 0.3% (TCC SPR) to 12.3% (NP SPA). These are also likely low for the same reason as the SP Authorities lead SPP percentages, which is because it is difficult / impossible to determine the costs of SPP development without the technical information readily available. This will require further refinement as the technical work becomes published and finalized.

The final analytical component of the technical comparative analysis was that of determining where the majority of the budget (percentage-wise) was being spent for both the AR and the SPP. Beginning with the AR technical tasks, it was observed (as per **Tables 1A through 19A**), that the majority of the funds for the AR are being spent on the coordinating and supporting projects tasks for the AR. The percentages of the dollar values spent on these tasks ranged from 16.3% (HH SPR) to 76.8% (QR SPR). This task includes the salaries of CA / SPA / SPC staff and members, which explains why it accounts for the highest percentage of cost. It was observed that the five northern SPAs all exhibited large budget percentages for the coordinating and supporting projects task. These three largest percentages were associated with the following tasks:

- GSD SPA - 47.8% for coordinating and supporting projects, 12.2% for information management and 9.6% for delineating and applying vulnerability scores to WHPAs;
- NB-M SPA – 50.3% for coordinating and supporting projects, 9.6% for information management and 8.6% for undertaking communications;
- Lakehead Region (LR) SPA – 65.2% for coordinating and supporting projects, 9.2% for information management and 4.6% for delineating and applying vulnerability scores to WHPAs or IPZs;
- MR SPA – 76.4% for coordinating and supporting projects; 16.9%, for information management and 2.2% for undertaking communications; and
- SSMR SPA - 76.0% for coordinating and supporting projects; 5.1%, for information management and 4.6% for applying vulnerability scores to SGRAs.

These highest percentages were observed within the northern SPAs. Although there are fewer municipal drinking water systems in northern Ontario, this illustrates that coordinating and supporting projects and information management is a significant component of the AR. With regards to information management it will be important to ensure the accuracy of the delineated drinking water protection areas and a comprehensive approach will be required by the SPAs for information management, such that the maps and policies produced be defensible and reproducible (RR-SN SPC, 2008, 16). Also due to the enormous amount of data required to fulfill the legislated requirements, it is important to involve neighbouring SPCs as well as discuss information management approaches and ways to achieve similar standards and protocols for sharing information (RR-SN SPC, 2008, 16).

In terms of actual technical tasks, there were four SPRs that had a significant portion of their budget allocated to conducting Tier 3 Water Quantity RA. These SPRs included the following, along with the percentages:

- LE SPR – decided that it would be financially wiser to skip the Tier 1 and conduct the necessary Tier 2 and 3 Water Quantity RA. These two tasks accounted for the second and third most demanding in terms of the actual percentage of the total AR budget, with that of 10.6% and 36.2%, respectively. Of the municipal AR budget, a significant portion (46.4% of the municipal AR budget) was spent on identifying issues and inventorying threats;
- SGB-LS SPR – exhibited 48.7% of the municipal AR budget to be towards a Tier 3 Water Quantity RA with the majority of this budget going to York Region and a portion to the City of Barrie;
- CTC SPR – presented 27.8% of the municipal AR budget to be towards a Tier 3 Water Quantity RA; and
- HH SPR – illustrated 27.8% of the municipal AR budget to be towards a Tier 3 Water Quantity RA.

Overall, for the most part aside from a large portion of the funds going towards supporting and coordinating projects and a Tier 3 Water Quantity RA, the next costly

technical task was observed to be delineating and applying vulnerability scores to WHPAs and IPZs, followed by identifying issues and inventorying threats. These specific percentages are presented in **Tables 1A through 19A**.

With regards to the SPP tasks, again the coordinating and supporting projects task received the greatest percentage of the SPP budget. This percent ranged from 25.4% (HH SPR) to 100% (AB-MV SPR). AB-MV SPR did not distribute its funds across the various tasks for SPP. Realistically, this will have to be done, likely once more clear direction is provided as well as the completion of the technical work. The SPP task that contained the second largest percent of the SPP budget was 'policy development to address drinking water threats'. This policy task was either represented as the lead being the SP Authorities or municipalities. As such it ranged from being 100% (with a municipal lead) to 1.0% with SP Authorities as a lead. Again it is likely difficult / impossible to determine accurate costs of policy development estimates prior to having concrete technical studies completed.

#### **4.4 Political Capacity Assessment**

During the initial stages of the TOR development the lead SP Authorities contacted all of the municipalities within their jurisdictions and requested a meeting with each to discuss the requirements of the CWA and how they would be completed. A large topic of discussion at these meetings was to determine whether or not the municipalities would be interested as being the lead for any of the technical project requirements. There were varying responses; however for the most part the SP Authorities are the leads as evident in the TORs and presented in **Appendix A, Table 1A through 19A**. As shown in these tables, the SPP budget does not take into account the implementation and enforcement of the SPPs. This has yet to be determined. As stated in the Mississippi Valley SPA TOR, "there are still many unknowns about how SPP will be prepared and what they will contain" (Rideau-Mississippi SPC, 2008, 40). It is anticipated that once the SPP regulation is drafted and more municipalities become educated about the SP program, there will likely be an increase in involvement, especially if the municipalities will be responsible for implementation and enforcement. The MOE is developing a SPP



Regulation, Director's Rules and guidance which will provide these necessary details. At this time the Mississippi-Rideau Source Protection Committee is shown as the lead for all SPP tasks. "The Clean Water Act allows municipal councils to pass a resolution to undertake source protection plan tasks within their municipality" (Rideau-Mississippi SPC, 2008, 40).

Under the CWA the roles and responsibilities are outlined and the CAs will exercise and perform the powers and duties of the SP Authority and will be considered the SP authority when undertaking this work. Essentially, the SP authority follows the same structure as the CA boards, which are made up of members that are appointed by municipal councils. The SP Authority administers the CWA process and is responsible for forming a SPC, overseeing the SP program staff and budget, and ensuring that the SPC develops ARs and SPPs in accordance with all legislative requirements (ER SPC, 2008, 9). The SPC conducts research and develops the proposed SPP in consultation with local municipalities and the public (Cataraqui SPC, 2008, 1).

The responsibilities of the lead SPA, as per under the CWA, section 6(2) (Government Ontario<sup>2</sup>, 2006, Online), is to:

- a) assist the other SP Authorities in the SPR in exercising their powers and performing their powers and duties under the CWA;
- b) provide scientific, technical and administrative support and resources to the other SP Authorities in the SPR for the purposes of the CWA;
- c) serve as a liaison between the MOE and the other SP Authorities in the SPR as per the CWA; and
- d) carry out any other functions prescribed by the regulations.

Municipalities are key partners in SPP because of the following reasons as stated by the ER SPC (2008, 12):

- they own and/or operate the municipal residential drinking water systems which are the focus of the CWA;
- their Councils can include other drinking water systems in the source protection process;



- they can chose to lead the technical studies or policy development for their municipality
- they could be responsible for implementing parts of SPPs once they are developed and approved; and
- SPPs could trigger changes to municipal OPs and/or Zoning By-laws in some cases.

As well, Municipalities will play a strong role in development and implementation of SPPs in that areas under municipal jurisdiction since they are already responsible for the delivery of municipal drinking water and land use planning activities. It is anticipated that the proposed SP process will build upon this work. The goal of the policies and implementation measures will be to reduce the risks posed by certain activities. An example of a way in which such a measure could exist is by requiring individual property owners to take action on significant drinking water threats located within WHPAs and/or IPZs by for instance using best management practices. "Ontario municipalities can build stronger foundations for [source] water protection (and thus increase capacity) through developing clear official plan policies relating to [source] water protection, which are supported by zoning by-laws, subdivision controls, and landowner education" (de Loe et al, 2002, 222).

The distribution of the \$231 million dollars is \$173.9 million to conduct the AR with the balance of \$56.9 million (**Table 9**) for the development of the SPP. Of the \$173.9 million to conduct the AR, \$134.5 million is the budget allocated the SP Authorities as the lead; while the municipal leads for the AR work have a budget of \$39.4 million as shown in **Table 6**. Based on these estimated dollar amounts it is evident that the SP Authorities are more heavily involved than the municipalities with the technical AR tasks to be completed. An identical observation can be stated with regards to the SPP, since of the \$56.9 million, \$53.9 million has been allocated to the SP Authorities as the lead and the remaining \$2.9 million is the budgetary request of the municipal leads to complete the SPP as shown in **Table 9**.

During the comparative assessment component of this research, the number of SP authority and municipal partnerships formed within the SPAs / SPRs was reviewed to determine how much political capacity is present within the SPAs / SPRs. This was conducted using **Tables 1B through 38B** and **Graphs 5 through 23**. The level of political capacity can be assessed by the number of municipalities involved in terms of the number of leads involved with the AR and SPP tasks as well as the percentage costs required by the municipalities versus the SP Authority leads. In summary, seven of the 19 SPAs / SPRs did not contain additional support beyond their SPA and SPC members, such as municipalities within their SPA / SPR. Four of these seven SPAs / SPRs are stand-alone SPAs. These seven SPAs / SPRs included:

- RR-SN SPR;
- AB-MW SPR;
- QR SPR;
- ER SPA;
- CAR SPA;
- NB-M SPA; and
- SSMR SPA.

Of the remaining 12 SPAs / SPRs, the municipal partnerships that have been established, beginning with those that have the most partnerships include:

- SGB-LS SPR with support from all three of the SP authorities within the SPR and 11 municipalities, including the City of Barrie, York Region, Durham Region, Peel Region, City of Kawartha Lakes, Township of Essa, Township of Adjala-Tosorontio, Town of Wasaga Beach, Town of Mono, Town of Shelburne and the Town of Mulmur. This support is for the development of the AR.
- CTC SPR with support from all three of the SP authorities within the SPR plus ER SPA and Halton CA and eight municipalities, including the City of Toronto, Peel Region, York Region, Durham Region, Halton Region, Town of Mono, Town of Orangeville and the Town of Erin, plus the Lake Ontario Collaborative Study Group. This support is for the development of the AR.
- LE SPR with support from all four of the SP authorities within the SPR and five municipalities including the Region of Waterloo, the City of Guelph, County of

Oxford, City of Brantford and the County of Haldimand for the development of the AR. Furthermore, for the development of the SPP, the above mentioned five municipalities plus Wellington County, Centre of Wellington, Perth County and County of Brant are in partnership agreements.

- T-SR SPR with support from one of the two SP authorities (SCR SPA) and neighbouring ER SPA as well as six municipalities including the City of London, County of Oxford, Municipality of Thames Centre, Town of St. Mary's, Municipality of Chatham-Kent and the Municipality of West Elgin for the AR tasks. As well the SPC is noted as a lead for the SPP tasks.
- TCC SPR with support from all five of the SP authorities (with limited involvement from GAR SPA) and four municipalities including the Peel Region, Durham Region, City of Kawartha Lakes and Hamilton Township for the development of the AR. Durham Region is involved with the SPP task for policy development.
- S-GS-NBP SPR with support from all three of the SP authorities and two municipalities including the Municipality of Arran-Elderslie and the Township of Chatsworth for the development of the AR. The SPC is noted to be involved with the SPP tasks.
- LR SPA is involved with the AR and SPP tasks, along with assistance for the AR from the City of Thunder Bay and the Municipality of Oliver Paipoonge.
- M-R SPR with support from both SP authorities in the SPR (referred to as CA staff in the TOR) and the Village of West Port and City of Ottawa for the development of the AR. The SPC is noted to be involved with the SPP tasks.
- HH SPR with support from both the SP authorities in the SPR and Halton Region for the development of the AR.
- NP SPA with the support from the Region of Niagara and the Lake Ontario Collaborative Study Group for the development of the AR.
- GSD SPA with support from the Wahnapiatae First Nations and the SPC for the development of both the AR and the SPP.
- MR SPA with support from the City of Timmins for the AR development.

Based on these findings, it is evident that the northern SPAs have fewer partnerships due to the fact that they have fewer municipal drinking water systems as well as fewer

municipalities when compared to the southern SPAs / SPRs. The large urbanized areas in southern Ontario, which consist of the City of Toronto, York Region, Durham Region, Peel Region, Halton Region, Waterloo Region, City of Barrie and the City of London have all formed partnership agreements with their local SPAs / SPRs. As such, they have agreed to take on the lead role of completing various tasks. Most of these municipalities listed, have formed multiple partnerships as a result of their municipal boundaries spanning across more than one SPA / SPR. It is important that SPCs interact with their neighbouring regions to address such cross boundary matters. A section devoted to such matters is presented in the TOR documents. The uncertainty lies with regards to the SP policies and how they will be implemented. It would be ideal if a municipality that spans more than one SPA / SPR follows one set of the policies developed, rather than a mishmash of policies. Many municipalities, such as the City of Barrie and the Region of Durham have requested to be involved with the policy development through co-management. This was presented in the Lake Simcoe-Black River TOR by the SGB-LS SPC (2008, 32), "policy development will be co-managed by the South Georgian Bay-Lake Simcoe Source Protection Region and a planning working group comprised of municipal staff, South Georgian Bay-Lake Simcoe staff and SPC members". Developing policy through co-management allows for a centrally coordinated procedure ensuring consistency across the SPR. As well, since the decision making is comprised of multi-stakeholders, there must be consensus among the members. The top five SPRs (TCC, LE, SGB-LS, CTC and T-SR) requiring the most financial capacity are also the SPRs with the most partnerships.

The lead SP Authority will be responsible for co-ordinating the efforts of the authorities and municipalities within the SPR as well as providing administrative and technical support to the SPC during the development of the TOR, AR and the SPP, which is the responsibility of the SPC (MOE<sup>2</sup>, 2006, Online). The MOE continues to work closely with various partners including the MNR and CAs. The MNR supports the MOE in developing legislation, regulations, policies, technical guidelines, facilitating access to information and participating with the ministry in partnership funding for source protection. As well, the MNR provides funding to CAs through a Memorandum of



Agreement, to develop water budgets, staffing and undertake technical studies (MOE<sup>2</sup>, 2006, Online).

#### **4.5 Social Capacity Assessment**

Social capacity is essentially the involvement of the public with the activities taking place with regards to safeguarding their municipal drinking water supply. The CWA requires that consultation with the public be conducted. For instance, during the preparation of the TOR, it was required that each SPA / SPR hold at least one open house to allow for the public to assist with the process by reviewing and providing comments on the drafted TOR posted on the SPC web sites. A review of all the TORs, revealed that the number of open houses as part of the TOR ranged from one (GSD SPC, 2008, 11) to ten (M-R SPR, 2008, 10). It was observed that the majority of the SPAs / SPRs held three public open houses to discuss the TOR and source protection program within Ontario.

Public participation is very important throughout the process and will result in better SPPs since it is more likely that the public will allow for practical and workable solutions. It is strongly encouraged that interested individuals and groups get involved in the process. Since 2005 CA staff has undertaken various public awareness initiatives to educate people about the CWA through public meetings, presentations, press releases, TV commercials, Calendars and web site updates (ER SPC, 2008, 12). Both the SPC and CA staff are committed to timely and transparent sharing of information with interested individuals and the public. Engaging the local community in SPP will likely build partnerships to protect common interests of various stakeholders. The SPCs have been formulated to work together through the development of the source protection program. They are active members within the communities, meet monthly and attend water-related conferences, festivals, seminars (to name a few) in order to be heard by as many people as possible.

The drafted TORs were placed onto each of the 19 SPC web sites for a minimum 35 day public review and comment period. All SPAs / SPRs have a web site in which information is frequently placed and updated, including copies of the monthly agendas



and meeting minutes. As well, the SPC meetings are open to the public to allow them to observe the meetings and discussions. It is expected that as the technical work is completed, these will also be placed on the web sites. As well hard copies of the TOR were distributed to all of the municipal clerks within the SPA / SPR.

In contemporary society, the internet is one of the fastest ways of obtaining information and communicating with large populations in a short period of time. All of the SPAs / SPRs listed a communication task under the AR and SPP tasks to be conducted. However, the costs and percentage representation of these dollar amounts was surprisingly low for both the AR and SPP. The 'undertaking communication initiatives' task ranged from 0.7% (LE SPR) to 16.6% (NP SPA) of the AR budget. The TCC SPR was second highest at 11.2% for AR communication. For the SPP, the 'undertaking communication initiatives' task ranged from 1.9% (LE SPR) to 21.1% (TCC) of the SPP budget. In both instances LE SPR reported the lowest percentage of their budget for communication. As expected based on some of the previous observations, it is not surprising that the TCC SPR has the largest communication budget since they have the most SPAs and municipalities that make up their region. Some of the SPAs / SPRs combined the communication and information management costs into the coordinating and supporting projects tasks, thus it is difficult to assess the exact budget percentages allocated.

Another program that requires extensive communication and outreach to the public and local businesses is the ODWSP. The CWA does not allow compensation to be paid to affected property owners; however section 97 of the CWA establishes the ODWSP, whose purpose is to provide financial assistance to those whose activities and properties may be affected by the implementation of SPP requirements (Government Ontario<sup>2</sup>, Online). For instance, providing funding for septic system upgrades and well repairs would be covered under the ODWSP if the property owner is within the immediate vulnerable WHPAs / IPZs of a drinking water system. The program also provides for education to raise awareness of the importance and opportunities for individuals to take actions to protect sources of drinking water. A draft regulation was released by the MOE

for public comment in April and May 2008. It is not certain as to when this will be finalized.

The ODWSP has funding until 2011 to provide grants to undertake early actions to address risks in very close proximity to municipal drinking water intakes prior to the approved SPP (ER SPC, 2008, 10). "Eligible projects include 'Pollution Prevention Reviews' (site evaluation by specialist Consultant), upgrade or repair of faulty septic systems, repair or decommissioning of wells, or buffers along waterways" (ER SPC, 2008, 10). Numerous SPCs will continue to request that the province funds the program beyond 2011 in order to provide financial assistance to property owners affected by new policies and risk reduction strategies that may result from approved SPP. Implementation costs cannot be estimated until it is determined how many local drinking water risks there are and what types of policies will be used to address them (policy development is scheduled to start in 2010) (as stated in the TRCA TOR by the CTC SPC, 2008). The SPCs are aware that municipalities and potentially affected landowners and businesses are very concerned about potential implementation costs they may incur with respect to current activities and land uses. They will continue to raise these issues at the provincial level on behalf of our local stakeholders as they become knowledgeable about the nature of the specific costs and the impacted parties through completing the AR and SPP.

#### **4.6 Summary of Comparative Capacity Assessment Findings**

Capacity for source water protection is a complex and multi-dimensional undertaking. Both institutionally and politically, a SP program has been developed through enacting legislation (the CWA) with the goal of protecting source water quantity and quality. The ultimate lead of this program is the MOE through its guidance, support and leadership, not to mention 100% funding commitment. The SPC also plays a significant role through the development of the TOR, AR and SPP. The CWA has attempted to clearly outline the roles and responsibilities of those involved. As indicated in the literature review it is crucial that the roles and responsibilities be clearly identified to allow for a successful SP program and historically this was lacking throughout Ontario. The partnership that have formed amongst the CAs through the SPAs by various SPAs joining with others to form

SPRs will collectively benefit both the CAs, municipalities and the public in their efforts to protect source water. Ultimately, this will allow for resources to be pooled together allowing for more capacity to provide assistance to the smaller and medium CAs and municipalities who require additional support, in terms of staffing resources, technical expertise, equipment and data sharing, thus reducing duplication of efforts through working together as a team. As well, this will provide for political capacity through linkages and partnerships, likely leading to strengthening institutional capacity.

The five largest SPRs containing the most SPC members and SPAs are TCC SPR, LE SPR, SGB-LS, T-SR SPR and CTC SPR. On various accounts, four of these five SPRs (TCC SPR, LE SPR, SGB-LS, and T-SR SPR) were continuously on top for the following indicator items:

- the largest land areas;
- the most municipalities within their jurisdiction;
- the most SP Authorities and municipal partners within their SPR;
- the SPRs requiring the most financial capacity for AR and SPP lead by SP Authorities;
- TCC, LE, SGB-LS and CTC requiring the most financial capacity for AR lead by municipalities;
- LE, TCC and CTC (within top five) requiring the most financial capacity for SPP lead by municipalities;
- SGB-LS, LE and TCC for the most municipal groundwater systems; and
- TCC and SGB-LS for the most municipal surface water systems.

Fox and Kinhead (Online) state that “more than 90% of Ontario residents currently live within watersheds under CA jurisdictions and this proportion is continuing to increase in step with trends in immigration and urbanization”. Furthermore, SPP poses more significant challenges for smaller local communities than it does for larger ones (Timmer et al, 2007, 188). This case was evident in the capacity assessment conducted, which illustrated that the SPRs made up of larger urban centers have more political capacity as a result of the more partnerships amongst the municipalities and SPAs. The larger SPRs in southern Ontario have developed more partnerships than those in the north and those that are stand-alone SPAs.

The research conducted as part of this project determined that approximately \$231 million dollars will be required by the SP authorities within the SPR throughout Ontario. Of the \$231 million, \$120 million has been already been committed to by the McGuinty government from 2004 to 2008. By the end of the 2008-2009 provincial fiscal in March 31, 2009, it was calculated that 35.2% (\$81.2 million) of the total budget estimated (\$231 million) will have been utilized to carry out the technical AR tasks. A remaining \$92.7 million has been budgeting to complete the AR tasks (40.2% of the total budget). While \$56.9 million is for the SPP, accounting 24.7% of the total estimated budget. These details are presented in **Table 15**. The SPP costs estimated appear relatively low comparatively to the grand total of \$231 million. The combined SP Authority and municipal lead SPP budgets were identical to the SP Authorities AR budgets, such that four of the five SPA / SPRs were the same (TCC SPR, LE SPR, SGB-LS SPR and T-SR SPR); however overall, both the SP Authority leads were most involved with the AR and SPP when compared to the municipalities. Typically, the municipalities were involved with delineating the WHPAs, identifying issues and threats, and determining the risks within the WHPAs, while the SPAs took on the lead for the other tasks. The municipalities did exhibit a greater percentage of 'completed / in progress' tasks than the SPAs, which correlates with the fact that much of this work was done during the 2002 Municipal Groundwater Studies.

The other completed tasks for the most part were identical across the board, having the WC reports, CWB and Tier 1 Water Quantity RAs very near completion or completed. The majority of the projects had been started prior to December 2008 across the SPAs / SPRs with the exception of those associated with determining risks in HVAs and SGRAs, some of the new planned systems/wells and the Tier 3 Water Quantity RA. The Tier 3 Water Quantity RA requires that the Tier 2 Water Quantity RA be completed and finalized. Many of the SPAs / SPRs will not require a Tier 3; however, the heavily populated areas of SGB-LS, LE, T-SR and HH will require a Tier 3. RR-SN and S-GS-NBP are yet to be determined and the two northern SPAs of GSD and SSMR will be undertaking Tier 3's. The majority of the funds for the tasks is being spent on 'coordinating and supporting' tasks for the AR, which accounts for much of the administrative duties associated with organizing the SP program as well as for the SPC



and SPA staff managing the consultants with many of the technical projects. The second most costly AR task is the Tier 3 Water Quantity RA, followed by delineating and applying vulnerability scores to WHPAs and IPZs, and then identifying issues and inventorying threats. From the SPP perspective the majority of the SPP estimated budget was committed towards the 'coordinating and supporting role'; however the next largest portion of funds was allocated to 'policy development to address drinking water threats'.

In summary, the pre-screening of the 38 SPAs was a challenging and complex undertaking due to the large amount of information when taking into account all the SPAs and the necessary tasks, along with the completion dates. The important observation that was discovered through this assessment is that all of the SPAs / SPRs are well underway in conducting their technical work. Many of the tasks, which have forecasted completion dates have been started; however, since the final Director's Rules, pertaining to the AR have not yet been finalized by the MOE, it is difficult / impossible to complete the specific projects. On that note, all of the AR tasks are planned to be completed by the end of 2009 with consultation of the reports to be done in 2010. There is uncertainty as to the overall legislative strength of the Act since the ODWSP, AR and SPP regulations are not yet finalized or drafted, thus could not be assessed; however the intent is for strict and enforceable legislation.

From a technical capacity standpoint, if CAs / municipalities are unable to support experts in house, the reliance on external consultants has proven to be successful. Across Ontario consultants have played a major role in undertaking the technical studies conducted thus far. As well, consultants throughout Ontario continue to play an important role in the technical projects being currently undertaken as part of the AR. Building trusting working relationships with environmental consultants is a vital capacity building tool for SWP in Ontario.

As well, it is important to state the once the AR and SPP are complete, the program must be sustained through continuous capacity building initiatives. The SP program fosters a continuous improvement philosophy for ongoing refinement of the work completed. The technical details will change as new drinking water systems are added and / or



decommissioned, as such the AR will require updates in time. Therefore it is also important for those most involved with SP that they build capacity within their local levels.

Socially, ongoing community and public awareness, outreach and education will ultimately lead to a more informed and knowledgeable society. The social task of 'undertaking communication' appeared relatively identical across the SPAs / SPRs and observed to be lower than expected in terms of the percentage of costs being spent and estimated for communication. The ODWSP is another avenue of education and outreach. Based on the nature of this program it is likely that much of the expenditures for education and outreach are coming out of that program. The CWA and associated ODWSP are both new initiatives and it is anticipated that overtime community awareness and education will continue to increase. SWP should be made a high priority through communicating the benefits, especially the financial ones to demonstrate how successful protection can cap or reduce treatment costs over time. Typically, there is insufficient public support because local governments fail to educate the public (Ernst and Hart, 2005, 5). It appears as though the tools are in place for SWP education and outreach across Ontario; however time is required to continually deliver the message effectively and to as many people as possible.

Overall, the comparative assessment of the 19 SPRs across Ontario illustrates that there is still varying capacities throughout the province and that some areas are still lagging behind. These areas are those that are stand-alone SPAs, which are either smaller in southern Ontario or are located in the sparse northern Ontario. This is considered to be acceptable because mandatory actions to protection source water are underway across the province and those that were lagging behind historically are now on a more even and level playing ground to protect their resources, which should be considered significant progress from the ways in which source water was historically protected.

#### **4.7 Future of Source Protection in Ontario**

Following the completion of the technical AR, the SPC will be required to develop a SP plan for each SP area within the SPR as legislated under the CWA. Specific details regarding the content and methods will be available once the province enacts the SPP regulation, which is anticipated for spring 2009 (RR-SN, 2008, 15). The SPPs will be policy documents that will address necessary actions required to protect and enhance drinking water in the SPR. The SPC “will establish criteria for policy development, priority areas based on the assessment report, monitoring and implementation requirements” (RR-SN, 2008, 15). It is recognized that great importance lies with working with local municipalities on the development of the SPPs since they will influence OPs and zoning by-laws. Timmer et al (2007, 197) go as far as to state that “for municipalities to incorporate a watershed perspective into their planning and source water protection activities, it will be necessary for the provincial government to ... support it with appropriate institutional arrangements”. As well, various committees, such as the RR-SN SPC have “...specifically included the development of policies that address funding requirements for the implementation of source protection plans on private land” (RR-SN, 2008, 15). Additional staffing resources, including planners and decision-makers may likely be required to assist the SPCs with providing advice as to how to incorporate technical AR information into the SP plans.

Many lessons can be learned from the experiences of our neighbours to the south, the US regarding policy implementation. Deason et al (2001, 185) states that “prior to the enactment of the Federal Water Pollution Control Act Amendments in 1972, ... no national policy existed in the United States calling for the protection of the quality of the nation’s water resources”. The FWPCA led to the enactment of the CWA and the SDWA in the US; both Acts have led to efforts simplifying policies, such as the one stated by the 1972 amendments with a “goal of restoration of the chemical, physical, and biological integrity of the nation’s water resources” (Deason et al, 2001, 185). The inability of being able to precisely define this phrase has led to an ecological approach of watershed management to achieve sustainable development (Deason et al, 2001, 188). “This approach is based upon the belated recognition that the regulation of specific discharges

is not going to achieve the desired water quality because, in many areas, at least half of the pollutants found in the nation's water come from nonpoint sources which have been largely ignored in the nation's water pollution control efforts" (Deason et al, 2001, 188). The watershed approach is built upon the principle that many water quality issues are best solved at the watershed level as opposed to the individual bodies of water. As well, the "watershed approach focuses on public and private sector efforts on addressing the highest priority problems that exist within hydrologically-defined geographic areas" (Deason et al, 2001, 188). This is also the attempt of the CWA in Ontario, through identifying the issues and threats that are present in vulnerable drinking water areas and then determining the risk associated with each threat in terms of classifying them as significant, moderate, low or negligible. The significant risks are the high priority action areas that will require immediate attention in the formulation a policy and a SPP to reduce the risk. These policies will be heavily reliant upon institutional arrangements. In Ontario, "institutional arrangements for land use planning and wastewater management give municipalities access to a variety of tools that could be used to protect source water quality" (Ivy et al, 2006, 201). Ivy et al (2001, 201) outline the following acts which assist with such institutional arrangements:

- *Planning Act*, which authorizes municipal use of OPs and policies, zoning by-laws, interim control bylaws, site planning and subdivision planning;
- *Drainage Act*, which grants municipalities powers to use sewer use bylaws to regulate discharges to municipal wastewater systems and;
- *Conservation Land Act*, which allows municipalities to hold conservation easements also known as voluntarily agreements registered against the title of a parcel of land.

According to Ivey et al (2006, 202), the RMOW has already developed policies as part of their Regional Official Policies Plan (ROPP) to minimize potential sources of water contamination by:

- discouraging new private septic systems and wells;
- directing lower-tier municipalities to prohibit new development using hazardous substances in the floodplain;
- requiring consideration of assimilative capacity of water systems when planning for growth;

- requiring environmental audits and clean up of contaminated sites when land use change is proposed;
- instituting a sewer use bylaw; and
- encouraging work with businesses and agriculture to minimize environment impacts.

The three most important lessons learned by the US relating to water policy formulation as outlined by Deason et al (2001, 188) are: institutional reform, improved processes for conflict resolution and increased use of modern planning and decision making procedures. The thought is that some of these measures, if not already in the works, could be utilized by Ontario to effectively implement SPPs and policies.

The first is that of an institutional reform with regards to water resources policy development, which Deason et al (2001, 188) state to be an apparent oxymoron because there appears to be both too many and too few actors. The US federal government is a prime example of too many actors. "Jurisdiction over water resources policy is fragmented among at least thirteen Congressional committees, twenty-three Congressional subcommittees, eight Cabinet level departments, six independent agencies and two White House offices" (Deason et al, 2001, 188). More complicating is the fact that the federal entities with authority over water resource planning are not the same entities that have jurisdiction over the funding for water-related projects. In Ontario, since there is minimal federal government involvement the case is somewhat different than in the US. Although in the SP program in Ontario there are many actors, their roles and responsibilities have been clearly defined by the CWA. The program does focus itself on the multi-stakeholder principle in order to allow for good representation of the general public. Those to be involved with the policy development tasks of the SPPs will be coming to the table knowing their specific roles and responsibilities. It is likely through consensus that the plans and policies will be developed, thus all the parties involved will have to be on the same page, especially since the planning aspect of the policies will tie directly into the funding requirements. For the time being the MOE is providing 100% of the funding for the AR. It is anticipated that since the MOE will be approving the SPPs / policies, they shall likely provide some of the necessary funds to implement and enforce the SPPs or at least a method for determining ways to obtain such monies. Ernst and Hart (2005, 18) suggest creating "financial and regulatory incentives



to build commitment of local stakeholders, especially around multijurisdictional or resource-based planning efforts. Support to create public funding programs broad enough to include source water protection, and make funding easy to find with one-stop shopping for water-related funding sources”.

Furthermore, Deason et al (2001, 189) states that the federal US government has omitted the inclusion of Indians and local communities when formulating policies, when they should be incorporating their views, especially those of the lower tier governments who will ultimately have to implement the policies. Ontario is well on route as they have provided for the inclusion of varying groups to represent the SPRs on their SPC, including First Nations. The CWA is the first provincial attempt to include First Nations onto a committee since they are legislated under Federal jurisdiction. The second lesson learned is that of conflict resolution and utilizing mechanisms to resolve major water resources conflicts in the US. The following four mechanisms have been used: 1. litigation, 2. legislation, 3. negotiated agreements, and 4. market mechanisms. Of these four mechanisms, Deason et al (2001, 190) indicates that “the Supreme Court has made its position abundantly clear: States should resolve their conflicts among themselves”. This is because it is more likely that the conflicts will be wisely solved through cooperation, conference, and mutual concession than by proceeding in court. In Ontario, the MOE encourages alternative dispute resolution in attempt to resolve issues raised by stakeholders involved with SP.

The final lesson learned is that of the increased use of modern planning and decision making procedures. “Work at pilot sites participating in the source protection implementation project has seen several tangible results” (Peckenham et al, 2005, 68). In many ways, the RMOW has been the pilot project for Ontario and lessons learned from them could be applied to the other areas throughout Ontario. For instance, once such challenge is that despite the availability of land use planning powers that municipalities have, there is a lack of regulatory power over *existing* land use activities. Ivy et al (2006, 204), states that although financial incentives have been successful at encouraging best management practices with the agricultural and business communities, and in turn contributing to SP, there is still the concern that historic and existing land use activities

are threatening source water quality. "Some planning tools, such as zoning and interim control bylaws, lack flexibility and precision for application of source water protection, [i.e.] while land use zoning could restrict potentially harmful types of businesses from sensitive water supply areas, key informants suggested that it could also restrict many benign land use activities" (Ivey et al, 2006, 204). Furthermore, municipalities within Ontario do not have the legal authority to restrict land uses because of chemical use, rather they have to work backwards to identify and restrict those businesses and industries that may use harmful chemicals. Flexibility in the institutional arrangements would allow municipalities to prioritize SWP. "In some cases, relatively minor changes in institutional arrangements, or delegation of powers ... could enhance flexibility and ensure that legal authority is available to the organizations with the capacity to implement programs and policies" (Ivey et al, 2006, 206). An example would be amendments to the *Ontario Planning Act* to be less restrictive with more flexibility regarding development permits, allowing for broaden legal authority among the municipalities for SWP. Unfortunately, there is no easy solution, since there is no one size fits all to source protection; however it is important that institutional arrangements, such as SP plans and policies remain flexible.

## **5.0 SUMMARY & CONCLUSIONS**

Essentially, protecting source water is a two fold process requiring strict and enforceable legislation and capacity building initiatives. Both of these components must function collectively to be successful and a way in which they can be utilized is through the multi-barrier approach. This approach begins at protecting water at the source and takes into consideration the land use activities surrounding the area to determine the risks to water that are present. The multi-barrier approach has gained much popularity, especially through the US due to the US SDWA. In Ontario, the Walkerton event led to various changes in the way in which source water will be protected, one of which is through the CWA and the capacity building initiatives that have been provided by the Province of Ontario (i.e. MOE).

Essentially, the most critical threats to source water must be identified and the information shared to involve and motivate a broad constituency, especially since often times the threats span jurisdictional boundaries making the situations even more complex (Ernst and Hart, 2005, 6). Building upon existing issues and programs as well as integrating SWP into high-priority initiatives such as storm water management and land conservation would be considered an effective strategy (Ernst and Hart, 2005, 12). For instance, existing mapping of transport pathways that have the potential to allow contaminants of concern to impact drinking water sources (i.e. storm sewers discharging into lakes with drinking water intakes) are being utilized throughout Ontario as part of the AR. Where data and mapping does not exist, the information is being generated to fill in data gaps that are present.

### **5.1 Review of Original Problem**

The original problem leading to this research was the lack of SWP legislation in Ontario, and the unequal (mal) distribution of capacity across the CAs and municipalities to protect drinking water at the source. The objective of this research was to communicate that a CWA is long overdue in Ontario and that with the enforcement of a multi-barrier

approach to SWP through the CWA as well as capacity building initiatives through the Province, source water in Ontario can be protected effectively. The likelihood of another Walkerton event taking place is considerably reduced if not eliminated, following the successful implementation of SWP planning, including risk reduction measures, enforcement, continuous monitoring and updating of scientific data and information relating to the drinking water sources. However, in order for this to be successful, the unequal distribution of capacity across the province at the CA and Municipal levels must be rectified. Historically, the roles, responsibilities were not clearly defined, funds were lacking and the tools available for SWP implementation varied from jurisdiction to jurisdiction. An attempt to align jurisdictions across Ontario is the CWA.

## **5.2 Research Process and Outcome**

The research process was to examine the CWA and its associated regulations to observe the political and institutional capacity that the province has provided to local CAs / SPAs and municipalities. As well, the draft TOR documents drafted by the SPCs was analyzed in a comparative assessment by examining the 19 SPAs / SPRs throughout Ontario to observe their financial capacity requirements and existing technical, institutional, social and political capacity progress following the enactment of the CWA. The outcome was that there is still variation in the level of capacity throughout Ontario within the SPA / SPRs; however, a more level ground has been established through the development of the SP program, legislation, regulation and technical guidance modules. This has allowed CAs and municipalities with capacity to conduct SP more than ever experienced historically. It is evident that not every municipality is engaged in SP as heavily as others. Many municipalities are still minimally involved and are depending on the capacities of the SPAs / SPRs in their jurisdiction. The hypothesis of this research was proven to be correct, such that through the enactment of the CWA, capacity building initiatives will take place through a top-down model where the provincial government provides guidance, direction and support to the local municipalities and CAs. The expectation was proven true, such that when the provincial government takes charge as well as provides an appropriate amount of capacity related assistance, the lower level Municipal and CA governments not only become more regulated; however they are



provided with the ability to function more effectively as there is a level of consistency across the province.

The CWA has clearly defined the roles and responsibilities of the active players including the province (MOE), the SPAs, the SPCs and municipalities. The program is still relatively new and as it unfolds the expectation is that continuous improvement will occur throughout the years. Ongoing awareness, outreach and education are critical and required as this capacity indicator was observed to be the most deficient as well as most difficult to measure based on the methodology utilized. Institutionally the challenge that lies ahead is with regards to how the SPP will be implemented and enforced. Financially the requirements have been determined and the technical projects are underway following identical timelines throughout the province, which are considered somewhat aggressive, especially since the AR and SPP regulations have not been finalized and drafted, respectively. Challenges exist in terms of compensation to business owners that may be situated within a vulnerable area. Politically, the Act has been enacted; however, additional regulations are forthcoming to further implement the program. The AR regulation shall be finalized within the very near future and the SPP likely next year (2009). Ultimately the SPP will require risk reduction strategies to be implemented and enforced. For instance, a shallow well with a casing drawing water from highly fractured bedrock (such as the Walkerton Well 5) would likely be considered a significant risk because of its ability to allow bacteria to easily and quickly enter the well. As such, this well would require mandatory risk reductions to be implemented in order to reduce the risk.

The outcome of this research also illustrated that the larger SPAs / SPRs require more financial capacity. There was a correlation between the largest SPRs and the fact that they most often times contain the largest land areas, the most number of municipalities, the largest number of municipal drinking water systems and populations within their jurisdiction. As well the larger SPRs have more political capacity in terms of the number of partnerships with municipalities. It is anticipated that the number of municipalities involved will increase overtime as the program further develops. At the present time, the municipally lead tasks are more complete than those lead by the SP Authorities; however

the majority of the tasks are lead by the SP Authorities, while the municipally lead tasks are from the historical 2002 Municipal Groundwater Studies. The AR tasks require more financial capacity than the SPP development based on the estimated costs provided. Coordinating and supporting projects, information management, tier 3 water quantity RAs, delineating and applying vulnerability scores to WHPAs and IPZs account for the most costly AR tasks. While for the SPP coordinating and supporting projects and the development of policy to address drinking water threats are the most costly at this time.

The province has provided much of the political capacity to date with the enactment of the CWA as well as its support and guidance through the development of the technical guidance modules. Varying levels of technical capacity are evident since the percentage 'completed / in progress' varies across the SPAs / SPRs; however the timelines implemented will require that all SPAs / SPRs are done by late 2009 / early 2010, at which point technically all regions will be at the same stage.

### **5.3 Discussion and Recommendations**

As presented throughout this paper, the capacity issues related to SWP have existed for decades. Presenting the issues and concerns relating to SP is much easier than addressing them and providing resolution because as presented in this paper there are numerous capacity related aspects that need to be taken into account for a successful SP program. It is even challenging to determine which of the five capacities is of most importance. As stated by Leach and Pelkey in Timmer et al (2007, 189), "adequate funding was the most commonly cited key to successful watershed management". Initially, it was believed by the author that funding was the utmost important; however, this research has lead to the conclusion that the five capacity indicators are all closely intertwined and strongly dependant upon one another. For instance, without money, not much can be done from a technical, social, political and institutional standpoint. However without legislation (a political capacity), technical work voluntarily does not get accomplished (unless it is RMOW which is an exception). Without the social capacity, which also requires funding, the education and outreach aspect does not take place and most people do not become informed or aware of where their water comes from and what implications their

actions can have upon water quality and quantity wise. Institutionally, municipalities are already facing budget shortages and demanding work loads. As such “any capacity building programme must consider not only today's problems but also must anticipate tomorrow's issues”... (Tortajada, 2001, 493). Timmer et al (2007, 187) states that “source water protection is now recognized as a priority in jurisdictions across the world”. Therefore, it is here to stay and capacity building initiatives must be developed. A viable action plan should be created that guides and motivates implementation (Ernst and Hart, 2005, 14). In Ontario, the MOE has developed the CWA, its associated regulations, which have developed new organizations to be involved (SPCs and SPAs), timelines for which the work is to be completed, and guidance modules to assist with the technical work as well as the funding to carry out the tasks. However lots of work still lies ahead.

There is no one correct solution for implementing SWP; however the use of a multi-barrier approach is likely the most proactive a program can get based on the information and knowledge that presently exists within our realm. Further research may prove this incorrect; however only time will tell.

#### **5.4 Research Limitations and Assumptions**

This capacity assessment of the 19 SPRs across Ontario was conducted through the analysis of the draft TOR documents posted for public review and comment on the individual SPC web site through May 2008 to September 2008. Following the comment period, these documents were submitted to the province for review and approval. A limitation is that these documents are not yet finalized and approved by the Minister. It is assumed that the information contained and analyzed within the TOR documents will not change drastically in the very near future to alter the findings of this project.

The first reason as to why the TOR documents may change is related to the release of the finalized AR regulation (Director's Rules), which was posted for public review and comment from June through August 2008. A revision to the AR regulation may lead to changes in the estimated budgets allocated to the technical AR tasks. As well, the time

lines in the TOR documents may have to be altered if there is a delay in the delivery of the AR and SPP regulations by the Province.

Another reason the TOR documents may change is due to unforeseeable changes that may occur, requiring an amendment (i.e. the addition of a new drinking water system or an existing drinking water system inadvertently missed). These types of changes will have to be brought forth by the municipalities within the SPRs. The SP program is one that will be continuously and constantly in flux because of the ever changing world of water as well as social and political realities. For instance, wells are often taken offline for various reasons, while new ones are constructed in order to meet population demands. It should be understood that the TOR is a living document and its contents may require modification from time to time.

The final limitation of this research is that the SPP regulation has not yet been drafted. As such, many of the TOR documents indicated that the SPP budgets may change once the SPP regulation is finalized. Some of the TOR documents did not provide SPP costs for many of the tasks under the SPP; rather they indicated that these were to be determined once more information is available with regards to both the AR results as well as the SPP regulation. Therefore, the SPP budgets are likely underestimated and this should be kept in mind. Any changes made to the TOR documents are beyond the control of the author, thus the TOR documents as presented at the time of this research are considered to be sufficient for the study that was undertaken. As the program unfolds it is likely that capacities will change yet again as they have from historical times.

## **5.5 Conclusions**

Since the Walkerton Event in 2000, the Province of Ontario has implemented numerous measures to improve the safety of drinking water for residents relying on municipal sources. The literature reviewed illustrates that historically, specific source protection legislation was non-existent, while capacities were unequally (mal) distributed across the Province. Various pieces of legislation have been enacted beginning with the initial focus of treating water, and implementing stricter certification programs for drinking



water operators as well as a more proactive measure of safeguarding water at the source. As presented during this research, the financial costs of such an undertaking are large. The Province has currently committed to providing 100% of the funds for the program; however, it is not certain as to when the flow of this money will cease. Both the US and Ontario experience clearly demonstrated that funding is the ultimate force for SWP because without political support and funding, much of these activities are not performed. Nonetheless, the capacity measures provided in the recent years are significant improvements to historical practice. Based on the comparative capacity assessment conducted as part of this research, the five largest SPRs containing the most SPC members and SPAs are TCC SPR, LE SPR, SGB-LS, T-SR SPR and CTC SPR. On various accounts, four of these five SPRs (TCC SPR, LE SPR, SGB-LS, and T-SR SPR) were continuously on top for the following indicator items, indicating stronger capacity:

- the largest land areas;
- the most municipalities within their jurisdiction;
- the most SP Authorities and municipal partners within their SPR;
- the SPRs requiring the most financial capacity for AR and SPP lead by SP Authorities;
- TCC, LE, SGB-LS and CTC requiring the most financial capacity for AR lead by municipalities;
- LE, TCC and CTC (within top five) requiring the most financial capacity for SPP lead by municipalities;
- SGB-LS, LE and TCC for the most municipal groundwater systems; and
- TCC and SGB-LS for the most municipal surface water systems.

Although many of the other SPAs / SPRs were not on top, capacity-wise, they are well underway with their technical AR work in comparison to the ways in which source water was protected historically.

Environmental legislation pertaining to water has existed in Ontario; however the CWA is the first to focus specifically on source water. The CWA allows for an open and transparent SP program, comprised of multi-stakeholder committees across the Province, encouraging the formation of partnerships and geared to promote education and outreach to the public. As demonstrated in this capacity assessment, financial capacity is an important indicator of a successful program, as it is the underlying principle as well as a necessity. When strong political capacity in the form of a clear legislative framework is

developed and the funds are available, only then can the program successfully proceed through other variables. The technical work can be conducted to determine the areas which require further attention in the form of policy implementation for risk reduction. The key is to allow for flexibility in the policies through the development of a range of implementation tools with the regulatory approach used only as a last resort when compliance is critical. Based on how history has unfolded with regards to legislation and negative mishaps, such as Walkerton, a wealth of information and experience has been developed to meet the challenges of tomorrow. Additionally, new challenges have come into play, such as future costs, SPP enforcement and implementation. Ultimately, education is important and once society understands the programs they are more likely to become involved. The capacity issues function collectively as a cycle and it is challenging to pinpoint which capacity measure has more significance on the programs success because as one capacity is moved the other four are misaligned. According to de Loe & Kreutzwiser (2005, 242) as stated by Hamdy et al., 1998 and World Water Assessment Programme, 2003 "... the most important factors accounting for poor public water supplies and outbreaks of waterborne diseases in drinking water appear to be institutional and organizational, and include inadequate financial resources; weak standards, or a failure to implement standards; lack of skilled staff; rivalries among agencies; and insufficient political will". Essentially, this concludes that all five capacities must be synchronized for successful SWP since they are all important and function together. SWP is two fold and requires strict enforceable legislation and capacity building initiatives. The Province has provided the legislation which is strict in terms of the AR and SPP completion; however the timelines for implementation and enforcement of the SPP is uncertain at this time. The ultimate goal of the CWA is to develop policies that lead to the effective management of drinking water resources without impeding society, but allowing for the goal of long term water sustainability. Water is a basic necessity of life, required by everything that is living and humans, most often unconsciously contribute to the degradation of water just by having to live. Fortunately, this realization can prompt change for the good of society by learning from past failures and successes. Successful SWP should be actively promoted to build momentum and encourage replication (Ernst and Hart, 2005, 16). Overtime, this replication will hopefully allow for continuous improvement and victory.

## **5.6 Future Research**

As discussed in the limitations section, there is the chance that changes may occur to the drafted TOR documents. Once the AR and SPP are approved by the Minister, future research could be undertaken to see how accurate the TOR documents were in terms of planning out the work, financially, technically, politically following the prescribed time lines. As well it would be beneficial to observe social and institutional changes relating to the outcome of continued educate and outreach. It is expected that both public and municipal participation shall increase over time as the SP program gains momentum and optimistically popularity. Much of the awareness, education and outreach will likely be through the ODWSP, which must be continuous and ongoing.

As well additional research relating to full-cost recovery and / or the ODWSP would be valuable since funding is a critical component of protecting source water. Whether the funding is directly related to the program (i.e. technical AR tasks) or towards assisting affected property owners, it is important and research to determine how such funds could be generated would be vital for the long term sustainability and acceptance of the program. This research has proven to illustrate the funds required for such a program are significant and the estimated costs determined are likely underestimated somewhat and are only estimated to 2012. Source protection must become self-sustaining by one means or another and this has yet to be determined. In addition, further research could be done to assess the future capacity of implementing the SPPs once they are developed in 2012.

With regards to the SPP and policy implementation and enforcement, there is much uncertainty as to how this will be carried forward and by whom. There is speculation that it will be the responsibility of the municipalities, which has raised numerous concerns in terms of financial, technical and human resource capacities. Much of this links back to the funding aspect of SP, as it cannot be emphasized strongly enough that appropriate funds are extremely crucial for a successful program. The future allocation of resources could also be a potential study area to determine a procedure as to how the funding would be most cost-effectively distributed to implement and enforce the SPPs.

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## APPENDIX A

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TABLE 1A: ESSEX SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report		\$ 1,960,000	\$ 1,960,000	37.6%	20.0%
Information management for the assessment report preparation		\$ 145,000	\$ 145,000	2.8%	1.5%
Undertaking communications initiatives for the assessment report		\$ 136,000	\$ 136,000	2.6%	1.4%
Undertaking a watershed characterization		\$ 32,000	\$ 32,000	0.6%	0.3%
Conducting a conceptual water budget	\$ 64,000		\$ 64,000	1.2%	0.7%
Conducting a tier 1 water budget analysis and stress assessment	\$ 180,000		\$ 180,000	3.4%	1.8%
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 40,000	\$ 40,000	0.8%	0.4%
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 68,000	\$ 68,000	1.3%	0.7%
Assessing risks in HVAs		\$ 30,000	\$ 30,000	0.6%	0.3%
Applying vulnerability scores to SGRAs		\$ -	\$ -		
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	\$ -		
Assessing risk in SGRAs		\$ -	\$ -		
Delineating and applying vulnerability scores to IPZs		\$ 1,400,000	\$ 1,400,000	26.8%	14.3%
Identifying issues, inventorying threats and assessing hazards in IPZs		\$ 761,000	\$ 761,000	14.6%	7.8%
Assess risk in IPZs		\$ 252,000	\$ 252,000	4.8%	2.6%
Consultation on the overall proposed assessment report		\$ -	\$ -	0.0%	0.0%
Other Assessment Report Preparation Task: Collaboration on Great Lakes and International Issues		\$ 150,000	\$ 150,000	2.9%	1.5%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 244,000</b>	<b>\$ 4,974,000</b>			<b>53.2%</b>
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>5,218,000</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 1,620,000		35.3%	16.5%
Undertaking communications initiatives for the source protection plan		\$ 160,000		3.5%	1.6%
Information management for source protection plan preparation		\$ 80,000		1.7%	0.8%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					0.0%
Administrative priority setting of work required to complete SPP based on risk assessments in AR					0.0%
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 900,000		19.6%	9.2%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 250,000		5.5%	2.6%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 525,000		11.5%	5.4%
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 100,000		2.2%	1.0%
Consultation on the overall proposed source protection plan		\$ 750,000		16.4%	7.7%
Other Source Protection Plan Preparation Task: Implement costs/funding responsibilities		\$ 200,000		4.4%	2.0%
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 4,585,000</b>			<b>46.8%</b>
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,585,000</b>		<b>100.0%</b>	<b>100.0%</b>

Essex Region SPA GRAND TOTAL

\$ 9,803,000

Source: Essex Region Source Protection Committee. Essex Region Source Protection Area Terms of Reference. (May 2008).

TABLE 2A: THAMES-SYDENHAM AND REGION SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 2,362,598	\$ 2,017,500	\$ 4,380,098	42.0%	28.7%
Information management for the assessment report preparation	\$ 240,521	\$ 165,000	\$ 405,521	3.9%	2.7%
Undertaking communications initiatives for the assessment report	\$ 131,750	\$ 221,000	\$ 352,750	3.4%	2.3%
Undertaking a watershed characterization	\$ 29,274	\$ -	\$ 29,274	0.3%	0.2%
Conducting a conceptual water budget	\$ 566,173	\$ -	\$ 566,173	5.4%	3.7%
Conducting a tier 1 water budget analysis and stress assessment	\$ 156,800	\$ 254,700	\$ 411,500	3.9%	2.7%
Conducting a tier 2 water budget analysis and stress assessment		\$ 330,000	\$ 330,000	3.2%	2.2%
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 650,000	\$ 650,000	6.2%	4.3%
Delineating and applying vulnerability scores to HVAs		\$ 29,000	\$ 29,000	0.3%	0.2%
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 40,000	\$ 40,000	0.4%	0.3%
Assessing risks in HVAs		\$ 42,000	\$ 42,000	0.4%	0.3%
Applying vulnerability scores to SGRAs		\$ 15,000	\$ 15,000	0.1%	0.1%
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 50,000	\$ 50,000	0.5%	0.3%
Assessing risk in SGRAs		\$ 42,000	\$ 42,000	0.4%	0.3%
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 719,381	\$ 331,390	\$ 1,050,771	10.1%	6.9%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 668,007	\$ 256,760	\$ 924,767	8.9%	6.1%
Assess risk in WHPAs or IPZs	\$ 206,244	\$ 404,020	\$ 610,264	5.9%	4.0%
Consultation on the overall proposed assessment report		\$ 15,000	\$ 15,000	0.1%	0.1%
Other Assessment Report Preparation Task: GUDI - IPZ Studies		\$ 150,000	\$ 150,000	1.4%	1.0%
Other Assessment Report Preparation Task: Peer Reviews and Resulting edits of vulnerability work		\$ 270,000	\$ 270,000	2.6%	1.8%
Other Assessment Report Preparation Task: Prescreening of First Nations Water Supplies		\$ 60,000	\$ 60,000	0.6%	0.4%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 5,080,748</b>	<b>\$ 5,343,370</b>			<b>68.3%</b>
<b>Assessment Report TOTAL</b>		<b>10,424,118</b>		<b>100%</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 145,667	\$ 100,350	\$ 246,017	44.8%	1.6%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 79,947	\$ 68,000	\$ 147,947	26.9%	1.0%
Assess risk in WHPAs or IPZs	\$ 28,567	\$ 34,500	\$ 63,067	11.5%	0.4%
Other Assessment Report Preparation Task: GUDI - IPZ Studies	\$ -	\$ 65,000	\$ 65,000	11.8%	0.4%
Other Assessment Report Preparation Task: Review of Past Work of remodeling WHPAs and vulnerability scores	\$ -	\$ 12,000	\$ 12,000	2.2%	0.1%
Other Assessment Report Preparation Task: Update existing WHPA to account for system expansion and mandatory connection	\$ -	\$ 15,000	\$ 15,000	2.7%	0.1%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 254,181</b>	<b>\$ 294,850</b>			<b>3.6%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>549,031</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 3,670,000		0.9	0.2
Undertaking communications initiatives for the source protection plan		\$ 230,000		0.1	0.0
Information management for source protection plan preparation		\$ 190,000		0.0	0.0
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 50,000		0.0	0.0
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 130,000		0.0	0.0
Establishing timelines for policy implementation					
Consultation on the overall proposed source protection plan		\$ 25,000		0.0	0.0
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,295,000</b>		<b>100.0%</b>	<b>28.1%</b>
<b>T-SR SPR GRAND TOTAL</b>		<b>\$ 15,268,149</b>			<b>100.0%</b>

Source: Thames-Sydenham and Region Source Protection Committee (Aug 12, 2008).

TABLE 3A: AUSABLE BAYFIELD MAITLAND VALLEY SOURCE PROTECTION REGION TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report					
Information management for the assessment report preparation		\$ 3,200,000	3,200,000	55.8%	53.0%
Undertaking communications initiatives for the assessment report					
Undertaking a watershed characterization	\$ 150,000		\$ 150,000	2.6%	2.5%
Conducting a conceptual water budget	\$ 85,000		\$ 85,000	1.5%	1.4%
Conducting a tier 1 water budget analysis and stress assessment	\$ 290,000		\$ 290,000	5.1%	4.8%
Conducting a tier 2 water budget analysis and stress assessment		\$ 70,000	\$ 70,000	1.2%	1.2%
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 200,000	\$ 200,000	3.5%	3.3%
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs		\$ 1,495,000	\$ 1,495,000	26.1%	24.8%
Identifying issues, inventorying threats and assessing hazards in WHPAs					
Assess risk in WHPAs					
Delineating and applying vulnerability scores to IPZs					
Identifying issues, inventorying threats and assessing hazards in IPZs					
Assess risk in IPZs					
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Pilot on non-municipal drinking water systems		\$ 75,000	\$ 75,000	1.3%	1.2%
Other Assessment Report Preparation Task: Pre-screening of intake for 2 FN systems		\$ 170,000	\$ 170,000	3.0%	2.8%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 525,000</b>	<b>\$ 5,210,000</b>			<b>95.0%</b>
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>5,735,000</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan					
Undertaking communications initiatives for the source protection plan		\$ 300,000		100.0%	5.0%
Information management for source protection plan preparation					
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)					
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation					
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan TOTAL</b>		<b>\$ 300,000</b>		<b>100.0%</b>	<b>5.0%</b>

100.0%

Ausable Bayfield-Maitland Valley SPR GRAND TOTAL

\$ 6,035,000

Source: Ausable Bayfield Maitland Valley Source Protection Committee. (July 30, 2008).

TABLE 4A: SAUGEEEN, GREY SAUBLE, AND NORTHERN BRUCE PENINSULA SOURCE PROTECTION REGION TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 1,390,499	\$ 843,594	\$ 2,234,093	39.0%	23.5%
Information management for the assessment report preparation	\$ 197,218	\$ 25,500	\$ 222,718	3.9%	2.3%
Undertaking communications initiatives for the assessment report	\$ 84,829	\$ 49,920	\$ 134,749	2.4%	1.4%
Undertaking a watershed characterization	\$ 28,461	\$ -	\$ 28,461	0.5%	0.3%
Conducting a conceptual water budget	\$ 218,287	\$ -	\$ 218,287	3.8%	2.3%
Conducting a tier 1 water budget analysis and stress assessment	\$ 136,418	\$ 75,749	\$ 212,167	3.7%	2.2%
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 50,000	\$ 50,000	0.9%	0.5%
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD			
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 18,500	\$ 18,500	0.3%	0.2%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	\$ -		
Assessing risks in HVAs	\$ -	\$ -	\$ -		
Applying vulnerability scores to SGRAs	\$ -	\$ 12,500	\$ 12,500	0.2%	0.1%
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	\$ -		
Assessing risk in SGRAs	\$ -	\$ -	\$ -		
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 959,435	\$ 199,433	\$ 1,158,868	20.2%	12.2%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 946,395	\$ 186,727	\$ 1,133,122	19.8%	11.9%
Assess risk in WHPAs or IPZs	\$ 156,428	\$ 128,476	\$ 284,904	5.0%	3.0%
Consultation on the overall proposed assessment report	\$ -	\$ -	\$ -		
Other Assessment Report Preparation Task: Water Quality Analysis	\$ -	\$ 24,470	\$ 24,470	0.4%	0.3%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 4,117,970</b>	<b>\$ 1,614,869</b>			<b>60.3%</b>
<b>Assessment Report TOTAL</b>		<b>5,732,839</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 997,485	\$ 147,647	\$ 1,145,132	45.2%	12.0%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 971,222	\$ 134,327	\$ 1,105,549	43.7%	11.6%
Assess risk in WHPAs or IPZs	\$ 200,303	\$ 80,057	\$ 280,360	11.1%	2.9%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 2,169,010</b>	<b>\$ 362,031</b>			<b>26.6%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>2,531,041</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan (SPP)	\$ -	\$ 1,110,751		89.4%	11.7%
Undertaking communications initiatives for the source protection plan	\$ -	\$ 99,667		8.0%	1.0%
Information management for source protection plan preparation	\$ -	\$ 32,582		2.6%	0.3%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ -			
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ -			
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ -			
Establishing timelines for policy implementation		\$ -			
Consultation on the overall proposed source protection plan		\$ -			
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 1,243,000</b>			<b>13.1%</b>
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,243,000</b>		<b>100.0%</b>	<b>100.0%</b>

S-GS-NBP SPR GRAND TOTAL

\$ 9,506,880

Source: Saugeen, Grey Sauble, and Northern Bruce Peninsula Source Protection Committee. (August 15, 2008).



TABLE 5A: LAKE ERIE SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 2,530,700	\$ 2,576,000	\$ 5,106,700	42.1%	20.3%
Information management for the assessment report preparation	\$ 266,900	\$ 65,900	\$ 332,800	2.7%	1.3%
Undertaking communications initiatives for the assessment report	\$ 23,700	\$ 62,700	\$ 86,400	0.7%	0.3%
Undertaking a watershed characterization	\$ 34,400	\$ -	\$ 34,400	0.3%	0.1%
Conducting a conceptual water budget	\$ 300,300	\$ -	\$ 300,300	2.5%	1.2%
Conducting a tier 1 water budget analysis and stress assessment	\$ -	\$ -	\$ -		
Conducting a tier 2 water budget analysis and stress assessment	\$ 1,289,000	\$ -	\$ 1,289,000	10.6%	5.1%
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ 3,200,000	\$ 1,200,000	\$ 4,400,000	36.2%	17.5%
Delineating and applying vulnerability scores to HVAs	\$ 83,400	\$ 2,900	\$ 86,300	0.7%	0.3%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	\$ -		
Assessing risks in HVAs	\$ -	\$ -	\$ -		
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ -	\$ -		
Other Assessment Report Preparation Task: Peer Review	\$ 6,700	\$ 342,000	\$ 348,700	2.9%	1.4%
Other Assessment Report Preparation Task: Assessment Report Compilation	\$ -	\$ 155,000	\$ 155,000	1.3%	0.6%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 7,735,100</b>	<b>\$ 4,404,500</b>			<b>48.3%</b>
<b>Assessment Report TOTAL</b>		<b>12,139,600</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 988,000	\$ 1,404,800	\$ 2,392,800	35.1%	9.5%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 1,597,800	\$ 1,567,200	\$ 3,165,000	46.4%	12.6%
Assess risk in WHPAs or IPZs	\$ 144,700	\$ 1,120,300	\$ 1,265,000	18.5%	5.0%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 2,730,500</b>	<b>\$ 4,092,300</b>			<b>27.1%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>6,822,800</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan	\$ -	\$ 3,603,600		80.6%	14.3%
Undertaking communications initiatives for the source protection plan	\$ -	\$ 84,000		1.9%	0.3%
Information management for source protection plan preparation	\$ -	\$ 88,200		2.0%	0.4%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 506,900		11.3%	2.0%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 190,000		4.2%	0.8%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -			
Establishing timelines for policy implementation	\$ -	\$ -			
Consultation on the overall proposed source protection plan	\$ -	\$ -			
Other Source Protection Plan Preparation Task: SPP Compilation	\$ -	\$ -			
Other Source Protection Plan Preparation Task:	\$ -	\$ -			
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,472,700</b>		<b>100.0%</b>	<b>17.8%</b>
<b>Municipal Residential Drinking Water Systems</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 1,245,400		72.8%	5.0%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 454,200		26.6%	1.8%
Establishing timelines for policy implementation	\$ -	\$ 10,000		0.6%	0.0%
Other Source Protection Plan Preparation Task:	\$ -	\$ -			
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ 1,709,600</b>		<b>100.0%</b>	<b>6.8%</b>
<b>LE SPR GRAND TOTAL</b>		<b>\$ 25,144,700</b>			<b>100.0%</b>

Source: Lake Erie Region Source Protection Committee. (Sept. 2008).

TABLE 6A: SOUTH GEORGIAN BAY-LAKE SIMCOE SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 2,247,779		\$ 4,647,779	50.5%	25.2%
Information management for the assessment report preparation	\$ 84,843	\$ 2,400,000	\$ 84,843	0.9%	0.5%
Undertaking communications initiatives for the assessment report	\$ 124,381		\$ 124,381	1.4%	0.7%
Undertaking a watershed characterization	\$ 90,298	\$ -	\$ 90,298.13	1.0%	0.5%
Conducting a conceptual water budget	\$ 580,798	\$ -	\$ 580,798.34	6.3%	3.1%
Conducting a tier 1 water budget analysis and stress assessment	\$ 131,401	\$ -	\$ 131,400.93	1.4%	0.7%
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 679,000	\$ 679,000.00	7.4%	3.7%
Conducting a tier 3 water budget analysis and water quantity risk assessment			-		
Delineating and applying vulnerability scores to HVAs	\$ -		-		
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 200,100	\$ 200,100.00	2.2%	1.1%
Assessing risks in HVAs	\$ -		-		
Applying vulnerability scores to SGRAs	\$ -		-		
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	-		
Assessing risk in SGRAs	\$ -		-		
Delineating and applying vulnerability scores to IPZs	\$ 538,600	\$ 50,000	\$ 588,600.00	6.4%	3.2%
Delineating and applying vulnerability scores to WHPAs	\$ 44,900	\$ 314,900	\$ 359,800.00	3.9%	2.0%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 521,600	\$ 111,300	\$ 632,900.00	6.9%	3.4%
Assess risk in WHPAs	\$ 260,700	\$ 552,100	\$ 812,800.00	8.8%	4.4%
Consultation on the overall proposed assessment report			-		
Other Assessment Report Preparation Task: Peer review of HVAs and SGRAs	\$ -	\$ 99,900	\$ 99,900.00	1.1%	0.5%
Other Assessment Report Preparation Task: New planned intake (City of Barrie)	\$ -	\$ 60,000	\$ 60,000.00	0.7%	0.3%
Refine WHPAs to address surface water influence (GUDI)		\$ 110,000	\$ 110,000.00	1.2%	0.6%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 4,625,300</b>	<b>\$ 4,577,300</b>			<b>49.9%</b>
<b>Assessment Report TOTAL</b>		<b>\$ 9,202,600</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 438,300	\$ 84,800	\$ 523,100	10.6%	2.8%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 585,700	\$ 184,900	\$ 770,600	15.7%	4.2%
Assess risk in WHPAs	\$ 228,500	\$ 758,100	\$ 986,600	20.1%	5.3%
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 2,395,000	\$ 2,395,000	48.7%	13.0%
New planned system technical work	\$ -	\$ 58,400	\$ 58,400	1.2%	0.3%
Refine WHPAs to address surface water influence (GUDI)	\$ -	\$ 180,000	\$ 180,000	3.7%	1.0%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 1,252,500</b>	<b>\$ 3,661,200</b>			<b>26.6%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 4,913,700</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 3,600,000		83.2%	19.5%
Undertaking communications initiatives for the source protection plan		included in above			
Information management for source protection plan preparation		included in above			
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 325,000		7.5%	1.8%
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0%	0.0%
Policy development to address drinking water threats (where required and/or permissible in		\$ 399,900		9.2%	2.2%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		in cost directly above			
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation		in cost directly above			
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task: Co-managed policy task		in cost directly above			
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,324,900</b>		<b>100.0%</b>	<b>23.5%</b>
<b>South Georgian Bay-Lake Simcoe Region SPA GRAND TOTAL</b>					<b>100.0%</b>
		<b>\$ 18,441,200</b>			

Source: South Georgian Bay-Lake Simcoe Source Protection Committee. South Georgian Bay-Lake Simcoe Region Source Protection Area Terms of Reference. (Aug. 15, 2008).

TABLE 7A: CREDIT VALLEY, TORONTO AND REGION, CENTRAL LAKE ONTARIO SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 3,595,200	\$ 846,900	\$ 4,442,100	59.0%	29.7%
Information management for the assessment report preparation	\$ 186,300	\$ 47,000	\$ 233,300	3.1%	1.6%
Undertaking communications initiatives for the assessment report	\$ 177,830	\$ 163,000	\$ 340,830	4.5%	2.3%
Undertaking a watershed characterization	\$ 154,990	\$ 75,000	\$ 229,990	3.1%	1.5%
Conducting a conceptual water budget	\$ 409,025	\$ -	\$ 409,025	5.4%	2.7%
Conducting a tier 1 water budget analysis and stress assessment	\$ 574,665	\$ -	\$ 574,665	7.6%	3.8%
Conducting a tier 2 water budget analysis and stress assessment	\$ 345,200	\$ 64,300	\$ 409,500	5.4%	2.7%
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ -	\$ -	-	-
Delineating and applying vulnerability scores to WHPAs	\$ 37,900	\$ -	\$ 37,900	0.5%	0.3%
Delineating and applying vulnerability scores to HVAs	\$ 9,000	\$ 18,000	\$ 27,000	0.4%	0.2%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ 17,050	\$ 12,100	\$ 29,150	0.4%	0.2%
Assessing risks in HVAs	\$ 21,400	\$ 19,700	\$ 41,100	0.5%	0.3%
Applying vulnerability scores to SGRAs	\$ 27,000	\$ -	\$ 27,000	0.4%	0.2%
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 24,050	\$ 5,100	\$ 29,150	0.4%	0.2%
Assessing risk in SGRAs	\$ 21,300	\$ 19,700	\$ 41,000	0.5%	0.3%
Consultation on the overall proposed assessment report	\$ 177,830	\$ 183,000	\$ 360,830	4.8%	2.4%
Other Assessment Report Preparation Task: report compilation	\$ -	\$ 300,000	\$ 300,000	4.0%	2.0%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 5,778,740</b>	<b>\$ 1,753,800</b>			<b>50.4%</b>
<b>Assessment Report TOTAL</b>		<b>\$ 7,532,540</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ 965,000	\$ 160,000	\$ 1,125,000	27.8%	7.5%
Delineating and applying vulnerability scores to WHPAs	\$ 563,870	\$ 2,700	\$ 566,570	14.0%	3.8%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 412,870	\$ 8,000	\$ 420,870	10.4%	2.8%
Assess risk in WHPAs	\$ 109,100	\$ 22,100	\$ 131,200	3.2%	0.9%
Undertaking a watershed 'type' characterization	\$ 419,225	\$ -	\$ 419,225	10.3%	2.8%
Delineating and applying vulnerability scores to IPZ1 and IPZ-2	\$ 345,000	\$ -	\$ 345,000	8.5%	2.3%
Delineating and applying vulnerability scores to IPZ-3	\$ -	\$ 500,000	\$ 500,000	12.3%	3.3%
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 426,800	\$ -	\$ 426,800	10.5%	2.9%
Assess risk in IPZs	\$ 117,750	\$ -	\$ 117,750	2.9%	0.8%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 3,359,615</b>	<b>\$ 692,800</b>			<b>27.1%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 4,052,415</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>					
				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan	\$ -	\$ 2,150,500	\$ 2,150,500	65.0%	14.4%
Undertaking communications initiatives for the source protection plan	\$ -	\$ 562,050	\$ 562,050	17.0%	3.8%
Information management for source protection plan preparation	\$ -	\$ 75,500	\$ 75,500	2.3%	0.5%
Establishing evaluation criteria for selecting policies	\$ -	\$ -	\$ -	-	-
Administrative priority setting of work required to complete SPP based on risk assessments	\$ -	\$ -	\$ -	-	-
Policy development to address drinking water threats (where required and/or permissible in	\$ -	\$ -	\$ -	-	-
Policy development for monitoring (where required, advisable and/or permissible in Act &	\$ -	\$ -	\$ -	-	-
Establishing timelines for policy implementation (Groundwater sources)	\$ -	\$ -	\$ -	-	-
Consultation on the overall proposed source protection plan	\$ -	\$ 522,200	\$ 522,200	15.8%	3.5%
Other Source Protection Plan Preparation Task: SPP compilation	\$ -	\$ -	\$ -	-	-
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 3,310,250</b>			<b>22.1%</b>
<b>Source Protection Plan TOTAL</b>		<b>\$ 3,310,250</b>		<b>100.0%</b>	
<b>Municipal SPP Lead - Lake Ontario Sources</b>					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -	\$ -	-	-
Policy Input from Durham Region	\$ -	\$ 60,000	\$ 60,000	100.0%	0.4%
Establishing timelines for policy implementation (Lake Ontario sources)	\$ -	\$ -	\$ -	-	-
<b>Source Protection Plan TOTAL</b>		<b>\$ 60,000</b>		<b>100.0%</b>	<b>0.4%</b>
				<b>100.0%</b>	

Credit Valley, Toronto &amp; Region, Central Lake Ontario SPR GRAND TOTAL \$ 14,955,205

Source: Credit Valley, Toronto and Region, Central Lake Ontario Source Protection Committee. (July, 2008).

TABLE 8A: HALTON-HAMILTON SOURCE PROTECTION REGION TOTAL COST:

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report		\$ 1,174,400	\$ 1,174,400	16.3%	10.3%
Information management for the assessment report preparation		\$ 949,200	\$ 949,200	13.2%	8.4%
Undertaking communications initiatives for the assessment report		\$ 643,600	\$ 643,600	8.9%	5.7%
Undertaking a watershed characterization	\$ 64,800		\$ 64,800	0.9%	0.6%
Conducting a conceptual water budget	\$ 123,400		\$ 123,400	1.7%	1.1%
Conducting a tier 1 water budget analysis and stress assessment		\$ 101,000	\$ 101,000	1.4%	0.9%
Conducting a tier 2 water budget analysis and stress assessment		\$ 474,000	\$ 474,000	6.6%	4.2%
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 2,000,000	\$ 2,000,000	27.8%	17.6%
Delineating and applying vulnerability scores to HVAs		\$ 189,600	\$ 189,600	2.6%	1.7%
Identifying issues, inventorying threats and assessing hazards in HVAs			\$ -		
Assessing risks in HVAs		\$ 101,000	\$ 101,000	1.4%	0.9%
Applying vulnerability scores to SGRAs		\$ 189,600	\$ 189,600	2.6%	1.7%
Identifying issues, inventorying threats and assessing hazards in SGRAs			\$ -		
Assessing risk in SGRAs		\$ 111,000	\$ 111,000	1.5%	1.0%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 477,000	\$ 477,000	6.6%	4.2%
Assess risk in WHPAs or IPZs		\$ 147,000	\$ 147,000	2.0%	1.3%
Consultation on the overall proposed assessment report			\$ -		
Other Assessment Report Preparation Task: 1 GUDI system		\$ 450,000	\$ 450,000	6.3%	4.0%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 188,200</b>	<b>\$ 7,007,400</b>			<b>63.3%</b>
<b>Assessment Report TOTAL</b>		<b>\$ 7,195,600</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 629,900		100.0%	5.5%
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 629,900</b>		<b>100.0%</b>	<b>5.5%</b>
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 900,600		25.4%	7.9%
Undertaking communications initiatives for the source protection plan		\$ 548,200		15.5%	4.8%
Information management for source protection plan preparation		\$ 280,400		7.9%	2.5%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 350,000		9.9%	3.1%
Administrative priority setting of work required to complete SPP based on risk assessments in				0.0%	0.0%
Policy development to address drinking water threats (where required and/or permissible in		\$ 907,000		25.6%	8.0%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 110,400		3.1%	1.0%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 47,200		1.3%	0.4%
Establishing timelines for policy implementation		\$ 78,800		2.2%	0.7%
Consultation on the overall proposed source protection plan		\$ 103,800		2.9%	0.9%
Other Source Protection Plan Preparation Task:		\$ 212,600		6.0%	1.9%
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 3,539,000</b>			<b>31.1%</b>
<b>Source Protection Plan TOTAL</b>		<b>\$ 3,539,000</b>		<b>100.0%</b>	<b>100.0%</b>

Halton-Hamilton Region SPR GRAND TOTAL

\$ 11,364,500

Source: Halton-Hamilton Source Protection Committee. (Aug. 7, 2008).



TABLE 9A: NIAGARA PENINSULA REGION SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 1,197,512	\$ 900,000	\$ 2,097,512	68.8%	35.9%
Information management for the assessment report preparation	\$ 37,678	\$ 42,000	\$ 79,678	2.6%	1.4%
Undertaking communications initiatives for the assessment report	\$ 171,314	\$ 334,000	\$ 505,314	16.6%	8.7%
Undertaking a watershed characterization	\$ 1,911	\$ 20,000	\$ 21,911	0.7%	0.4%
Conducting a conceptual water budget	\$ 63,472	\$ -	\$ 63,472	2.1%	1.1%
Conducting a tier 1 water budget analysis and stress assessment	\$ 123,560	\$ 47,650	\$ 171,210	5.6%	2.9%
Conducting a tier 2 water budget analysis and stress assessment			\$ -		
Conducting a tier 3 water budget analysis and water quantity risk assessment			\$ -		
Delineating and applying vulnerability scores to HVAs	\$ 2,778	\$ -	\$ 2,778	0.1%	0.0%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 7,000	\$ 7,000	0.2%	0.1%
Assessing risks in HVAs	\$ -	\$ 5,000	\$ 5,000	0.2%	0.1%
Applying vulnerability scores to SGRAs	\$ -	\$ -	\$ -	0.0%	0.0%
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 6,000	\$ 6,000	0.2%	0.1%
Assessing risk in SGRAs	\$ -	\$ -	\$ -		
Delineating and applying vulnerability scores to WHPAs or IPZs			\$ -		
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs			\$ -		
Assess risk in WHPAs or IPZs			\$ -		
Consultation on the overall proposed assessment report	\$ -	\$ 40,000	\$ 40,000	1.3%	0.7%
Other Assessment Report Preparation Task: Assemble Assessment Report	\$ -	\$ 50,000	\$ 50,000	1.6%	0.9%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,598,225</b>	<b>\$ 1,451,650</b>			<b>52.3%</b>
<b>Assessment Report TOTAL</b>		<b>3,049,875</b>		<b>100.0%</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 424,725	\$ -	\$ 424,725	56.0%	7.3%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 264,784	\$ 264,784	34.9%	4.5%
Assess risk in WHPAs or IPZs	\$ -	\$ 68,608	\$ 68,608	9.0%	1.2%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 424,725</b>	<b>\$ 333,392</b>			<b>13.0%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>758,117</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 965,000		73.7%	16.5%
Undertaking communications initiatives for the source protection plan		\$ 175,000		13.4%	3.0%
Information management for source protection plan preparation		\$ 40,000		3.1%	0.7%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				0.0%	0.0%
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0%	0.0%
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 10,000		0.8%	0.2%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 10,000		0.8%	0.2%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 15,000		1.1%	0.3%
Establishing timelines for policy implementation		\$ 20,000		1.5%	0.3%
Consultation on the overall proposed source protection plan		\$ 60,000		4.6%	1.0%
Other Source Protection Plan Preparation Task:		\$ 14,000		1.1%	0.2%
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,309,000</b>		<b>100.0%</b>	<b>22.4%</b>
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 240,000		33.3%	4.1%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 180,000		25.0%	3.1%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 240,000		33.3%	4.1%
Establishing timelines for policy implementation		\$ 60,000		8.3%	1.0%
<b>Source Protection Plan TOTAL</b>		<b>\$ 720,000</b>		<b>100.0%</b>	<b>12.3%</b>

Niagara Peninsula Region SPA GRAND TOTAL

\$ 5,836,992

100.0%

Source: Niagara Peninsula Source Protection Committee. (July, 22, 2008).

TABLE 16A: TRENT CONSERVATION COALITION SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget Required	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 6,479,197	\$ 5,026,000	\$ 11,505,197	39.4%	19.7%
Information management for the assessment report preparation	\$ 1,736,842	\$ 2,580,000	\$ 4,316,842	14.8%	7.4%
Undertaking communications initiatives for the assessment report	\$ 829,847	\$ 2,454,000	\$ 3,283,847	11.2%	5.6%
Undertaking a watershed characterization	\$ 3,305,618	\$ -	\$ 3,305,618	11.3%	5.7%
Conducting a conceptual water budget	\$ 1,276,072	\$ -	\$ 1,276,072	4.4%	2.2%
Conducting a tier 1 water budget analysis and stress assessment	\$ 1,750,594	\$ 717,964	\$ 2,468,558	8.4%	4.2%
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 1,360,000	\$ 1,360,000	4.7%	2.4%
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ -	\$ -	-	-
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 340,000	\$ 340,000	1.2%	0.6%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 170,000	\$ 170,000	0.6%	0.3%
Assessing risks in HVAs	\$ -	\$ 17,000	\$ 17,000	0.1%	0.0%
Applying vulnerability scores to SGRAs	\$ -	\$ 51,000	\$ 51,000	0.2%	0.1%
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 170,000	\$ 170,000	0.6%	0.3%
Assessing risk in SGRAs	\$ -	\$ 17,000	\$ 17,000	0.1%	0.0%
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ -	\$ 40,000	\$ 40,000	0.1%	0.1%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 20,000	\$ 20,000	0.1%	0.0%
Assess risk in WHPAs or IPZs	\$ -	\$ 8,000	\$ 8,000	0.0%	0.0%
Consultation on the overall proposed assessment report	\$ -	\$ 170,000	\$ 170,000	0.6%	0.3%
Other Assessment Report Preparation Task: Revise/Update Assessment Report	\$ -	\$ 680,000	\$ 680,000	2.3%	1.2%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 15,378,171</b>	<b>\$ 13,838,964</b>			<b>49.9%</b>
<b>Assessment Report TOTAL</b>		<b>\$ 29,217,135</b>		<b>100.0%</b>	
<b>City of Kawartha Lakes Groundwater Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 1,662,268	\$ 200,000	\$ 1,862,268	10.7%	3.2%
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 374,400	\$ 814,400	\$ 1,188,400	6.8%	2.0%
Assess risk in IPZs	\$ 214,932	\$ 98,000	\$ 312,932	1.8%	0.5%
<b>City of Kawartha Lakes Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 474,000	\$ 80,000	\$ 554,000	3.2%	0.9%
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 380,000	\$ 840,000	\$ 1,220,000	7.0%	2.1%
Assess risk in IPZs	\$ 102,000	\$ 56,000	\$ 158,000	0.9%	0.3%
<b>Durham Region Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 176,347	\$ 240,000	\$ 416,347	2.4%	0.7%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 511,969	\$ 98,000	\$ 609,969	3.5%	1.0%
Assess risk in WHPAs	\$ 227,323	\$ 50,000	\$ 277,323	1.6%	0.5%
<b>TCC Led Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 2,339,084	\$ 240,000	\$ 2,579,084	14.8%	4.4%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 645,972	\$ 1,174,000	\$ 1,819,972	10.4%	3.1%
Assess risk in WHPAs	\$ 335,364	\$ 138,000	\$ 473,364	2.7%	0.8%
<b>TCC Led Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 807,500	\$ 80,000	\$ 887,500	5.1%	1.5%
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 517,500	\$ 2,000,000	\$ 2,517,500	14.4%	4.3%
Assess risk in IPZs	\$ 151,600	\$ 280,000	\$ 431,600	2.5%	0.7%
<b>TCC Led Planned Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 120,000	\$ 120,000	0.7%	0.2%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ -	\$ 60,000	\$ 60,000	0.3%	0.1%
Assess risk in WHPAs	\$ -	\$ 18,000	\$ 18,000	0.1%	0.0%
<b>Hamilton Groundwater Projects (Camborne, Creighton Heights)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 78,000	\$ 10,000	\$ 88,000	0.5%	0.2%
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 38,812	\$ 29,000	\$ 67,812	0.4%	0.1%
Assess risk in WHPAs	\$ 24,500	\$ 3,000	\$ 27,500	0.2%	0.0%
<b>Lake Ontario Collaborative Surface Water Projects (Newcastle, Port Hope, Cobourg)</b>					
Delineating and applying vulnerability scores to IPZs	\$ 287,739	\$ 40,000	\$ 327,739	1.9%	0.6%
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 167,353	\$ 40,000	\$ 207,353	1.2%	0.4%
Assess risk in IPZs	\$ 43,824	\$ 20,000	\$ 63,824	0.4%	0.1%
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 675,000	\$ 675,000	3.9%	1.2%
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 355,000	\$ 355,000	2.0%	0.6%
First Nations Systems	\$ -	\$ 160,000	\$ 160,000	0.9%	0.3%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 9,566,487</b>	<b>\$ 7,918,699</b>			<b>28.9%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 17,473,487</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan	\$ -	\$ 5,568,000		47.9%	9.5%
Undertaking communications initiatives for the source protection plan	\$ -	\$ 2,454,000		21.1%	4.2%
Information management for source protection plan preparation	\$ -	\$ 2,580,000		22.2%	4.4%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)	\$ -	\$ -		-	-
Administrative priority setting of work required to complete SPP based on risk assessments in AR	\$ -	\$ -		-	-
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 408,000		3.5%	0.7%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 68,000		0.6%	0.1%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 68,000		0.6%	0.1%
Establishing timelines for policy implementation	\$ -	\$ 136,000		1.2%	0.2%
Consultation on the overall proposed source protection plan	\$ -	\$ 340,000		2.9%	0.6%
<b>Other Source Protection Plan Preparation Task:</b>					
<b>Source Protection Plan TOTAL</b>		<b>\$ 11,612,000</b>		<b>100.0%</b>	<b>19.9%</b>
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 195,000		100.0%	0.3%
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ 195,000</b>		<b>100.0%</b>	<b>0.3%</b>
<b>Trent Conservation Coalition SPA GRAND TOTAL</b>		<b>\$ 58,497,822</b>			<b>100.0%</b>

Source: Trent Conservation Coalition Source Protection Committee. (July 17, 2008).

TABLE 11A: QUINTE REGION SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget Required	Percentage of Total Budget Required
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 1,617,039	\$ 1,091,133	\$ 2,708,172	57.6%	38.3%
Information management for the assessment report preparation	\$ 85,811	\$ 25,000	\$ 110,811	2.4%	1.6%
Undertaking communications initiatives for the assessment report	\$ 42,227	\$ 30,000	\$ 72,227	1.5%	1.0%
Undertaking a watershed characterization	\$ 38,538		\$ 38,538	0.8%	0.5%
Conducting a conceptual water budget	\$ 210,350		\$ 210,350	4.5%	3.0%
Conducting a tier 1 water budget analysis and stress assessment	\$ 179,120	\$ 70,000	\$ 249,120	5.3%	3.5%
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 96,000	\$ 96,000	2.0%	1.4%
Conducting a tier 3 water budget analysis and water quantity risk assessment			\$ -		
Delineating and applying vulnerability scores to HVAs	\$ 6,946		\$ 6,946	0.1%	0.1%
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	\$ -		
Assessing risks in HVAs			\$ -		
Applying vulnerability scores to SGRAs			\$ -		
Identifying issues, inventorying threats and assessing hazards in SGRAs			\$ -		
Assessing risk in SGRAs			\$ -		
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 486,014	\$ 155,000	\$ 641,014	13.6%	9.1%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 283,069	\$ 96,000	\$ 379,069	8.1%	5.4%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 38,216	\$ 114,000	\$ 152,216	3.2%	2.2%
Assess risk in WHPAs or IPZs			\$ -		
Consultation on the overall proposed assessment report		\$ 35,000	\$ 35,000	0.7%	0.5%
Other Assessment Report Preparation Task: Water quantity analysis			\$ -		
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,987,330</b>	<b>\$ 1,712,133</b>			<b>66.4%</b>
<b>Assessment Report TOTAL</b>		<b>4,699,463</b>		<b>100.0%</b>	
<b>Source Protection Plan Tasks</b>				<b>Percentage of SPP Budget Required</b>	<b>Percentage of Total Budget Required</b>
Coordinating and supporting projects for the source protection plan (SPP)	\$ -	\$ 2,190,000		92.0%	30.9%
Undertaking communications initiatives for the source protection plan	\$ -	\$ 70,000		2.9%	1.0%
Information management for source protection plan preparation		\$ 50,000		2.1%	0.7%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in		\$ -			
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ -			
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ -			
Establishing timelines for policy implementation		\$ -			
Consultation on the overall proposed source protection plan		\$ 70,000		2.9%	1.0%
Other Source Protection Plan Preparation Task: Misc unknown costs associated with Rules not					
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,380,000</b>		<b>100.0%</b>	<b>33.6%</b>

100.0%

Quinte Region SPA GRAND TOTAL

\$ 7,079,463

Source: Quinte Region Source Protection Committee. (Aug. 2008).

TABLE 12A: MISSISSIPPI-RIDEAU SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated Costs			
Coordinating and supporting projects for the assessment report	\$ 1,790,360	\$ 1,600,000	\$ 3,390,360	53.4	37.0
Information management for the assessment report preparation	\$ 121,154	\$ 48,000	\$ 169,154	2.7	1.8
Undertaking communications initiatives for the assessment report	\$ 28,494	\$ 115,000	\$ 143,494	2.3	1.6
Undertaking a watershed characterization	\$ 78,736	\$ -	\$ 78,736	1.2	0.9
Conducting a conceptual water budget	\$ 403,730	\$ 15,000	\$ 418,730	6.6	4.6
Conducting a tier 1 water budget analysis and stress assessment	\$ 315,634	\$ -	\$ 315,634	5.0	3.4
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 75,000	\$ 75,000	1.2	0.8
Conducting a tier 3 water budget analysis and water quantity risk assessment			\$ -		
Delineating and applying vulnerability scores to HVAs			\$ -		
Identifying issues, inventorying threats and assessing hazards in HVAs and SGRAs			\$ -		
Assessing risks in HVAs and SGRAs			\$ -		
Delineating and applying vulnerability scores to WHPAs or IPZs			\$ -		
Identifying issues, inventorying threats and assessing hazards in WHPAs and IPZs	\$ 594,334	\$ 80,000	\$ 674,334	10.6	7.4
Assess risk in WHPAs or IPZs	\$ -	\$ 300,000	\$ 300,000	4.7	3.3
Consultation on the overall proposed assessment report			\$ -		
Other Assessment Report Preparation Task: Kemptville and Merrickville Groundwater	\$ 543,156	\$ 169,040	\$ 712,196	11.2	7.8
Other Assessment Report Preparation Task: Public Consultation	\$ -	\$ 70,000	\$ 70,000	1.1	0.8
<b>Assessment Report SUB TOTAL</b>	<b>\$ 3,875,598</b>	<b>\$ 2,472,040</b>			<b>69.2</b>
<b>Assessment Report TOTAL</b>		<b>6,347,638</b>		<b>100.0</b>	
<b>Municipal Residential Drinking Water Systems</b>					
Other Assessment Report Preparation Task: Westport Groundwater Vulnerability Study	\$ 80,994	\$ 49,500	\$ 130,494	33.9	1.4
Other Assessment Report Preparation Task: Ottawa River Surface Water Vulnerability Study	\$ 207,500	\$ 46,500	\$ 254,000	66.1	2.8
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 288,494</b>	<b>\$ 96,000</b>			<b>4.2</b>
<b>Municipal Assessment Report TOTAL</b>		<b>384,494</b>		<b>100.0</b>	
<b>Source Protection Plan Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan (SPP)		\$ 2,125,000		87.0	23.2
Undertaking communications initiatives for the source protection plan		\$ 155,000		6.3	1.7
Information management for source protection plan preparation		\$ 72,000		2.9	0.8
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				0.0	0.0
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0	0.0
Policy development to address drinking water threats (where required and/or permissible in	cost in above	\$ -		0.0	0.0
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	cost in above	\$ -		0.0	0.0
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				0.0	0.0
Establishing timelines for policy implementation (Lake Ontario sources)				0.0	0.0
Establishing timelines for policy implementation		\$ -		0.0	0.0
Consultation on the overall proposed source protection plan				0.0	0.0
Other Source Protection Plan Preparation Task: Public Consultation		\$ 90,000		3.7	1.0
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,442,000</b>		<b>100.0</b>	<b>26.6</b>
<b>Mississippi-Rideau SPA GRAND TOTAL</b>		<b>\$ 9,174,132</b>			<b>100.0</b>

Source: Mississippi-Rideau Source Protection Region. (July 18, 2008).



TABLE 13A: CATARAQUI REGION SOURCE PROTECTION AREA TOTAL COST:

Assesment Report Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report		\$ 2,053,590	\$ 2,053,590	48.7%	35.9%
Information management for the assessment report preparation		\$ 82,351	\$ 82,351	2.0%	1.4%
Undertaking communications initiatives for the assessment report		\$ 59,670	\$ 59,670	1.4%	1.0%
Undertaking a watershed characterization	\$ 26,255		\$ 26,255	0.6%	0.5%
Conducting a conceptual water budget	\$ 155,596		\$ 155,596	3.7%	2.7%
Conducting a tier 1 water budget analysis and stress assessment		\$ 160,726	\$ 160,726	3.8%	2.8%
Conducting a tier 2 water budget analysis and stress assessment		\$ 195,850	\$ 195,850	4.6%	3.4%
Conducting a tier 3 water budget analysis and water quantity risk assessment			\$ -	0.0%	0.0%
Delineating and applying vulnerability scores to HVAs		\$ 145,674	\$ 145,674	3.5%	2.6%
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 20,000	\$ 20,000	0.5%	0.4%
Assessing risks in HVAs		\$ -	\$ -		
Applying vulnerability scores to SGRAs		\$ -	\$ -		
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	\$ -		
Assessing risk in SGRAs		\$ -	\$ -		
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 548,868	\$ 548,868	13.0%	9.6%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 83,070	\$ 83,070	2.0%	1.5%
Assess risk in WHPAs or IPZs		\$ 41,850	\$ 41,850	1.0%	0.7%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 87,330	\$ 87,330	2.1%	1.5%
Assess risk in WHPAs or IPZs		\$ 300,674	\$ 300,674	7.1%	5.3%
Consultation on the overall proposed assessment report		\$ 20,500	\$ 20,500	0.5%	0.4%
Other Assessment Report Preparation Task:		\$ 133,782	\$ 133,782	3.2%	2.3%
Other Assessment Report Preparation Task: Additional Tier 2 WQRA research on threats that		\$ 50,000	\$ 50,000	1.2%	0.9%
Other Assessment Report Preparation Task: Proposed pilot project: appropriate methods to		\$ 50,000	\$ 50,000	1.2%	0.9%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 181,852</b>	<b>\$ 4,033,934</b>			<b>73.8%</b>
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>4,215,786</b>		<b>100.0%</b>	
<b>Source Protection Plan Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan (SPP)		\$ 915,600		61.2%	16.0%
Undertaking communications initiatives for the source protection plan		\$ 47,000		3.1%	0.8%
Information management for source protection plan preparation		\$ 10,400		0.7%	0.2%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				0.0%	0.0%
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0%	0.0%
Policy development to address drinking water threats (where required and/or permissible in		\$ 85,525		5.7%	1.5%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 85,525		5.7%	1.5%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 85,525		5.7%	1.5%
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 85,525		5.7%	1.5%
Establishing timelines for policy implementation (Groundwater sources)				0.0%	0.0%
Consultation on the overall proposed source protection plan		\$ 21,900		1.5%	0.4%
Other Source Protection Plan Preparation Task:		\$ 159,800		10.7%	2.8%
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,496,800</b>		<b>100.0%</b>	<b>26.2%</b>

100.0%

Cataraqui Region SPA GRANDTOTAL

\$ 5,712,586

Source: Cataraqui Source Protection Committee. (June 30, 2008).

TABLE 14A: RAISIN-SOUTH NATION SOURCE PROTECTION REGION TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated Costs			
Coordinating and supporting projects for the assessment report		\$ 2,809,000	\$ 2,809,000	32.7	26.5
Information management for the assessment report preparation		\$ 400,000	\$ 400,000	4.7	3.8
Undertaking communications initiatives for the assessment report		\$ 353,000	\$ 353,000	4.1	3.3
Undertaking a watershed characterization	\$ 43,028	\$ -	\$ 43,028	0.5	0.4
Conducting a conceptual water budget	\$ 266,725	\$ -	\$ 266,725	3.1	2.5
Conducting a tier 1 water budget analysis and stress assessment	\$ 195,036	\$ -	\$ 195,036	2.3	1.8
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 300,000	\$ 300,000	3.5	2.8
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD			
Delineating and applying vulnerability scores to HVAs	\$ 19,999	\$ -	\$ 19,999	0.2	0.2
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 39,999	\$ 39,999	0.5	0.4
Assessing risks in HVAs	\$ -	\$ 9,999	\$ 9,999	0.1	0.1
Applying vulnerability scores to SGRAs	\$ 19,999	\$ -	\$ 19,999	0.2	0.2
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 34,999	\$ 34,999	0.4	0.3
Assessing risk in SGRAs	\$ -	\$ 9,999	\$ 9,999	0.1	0.1
Delineating and applying vulnerability scores to WHPAs or IPZs			\$ -		
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs			\$ -		
Assess risk in WHPAs or IPZs			\$ -		
Consultation on the overall proposed assessment report			\$ -		
Other Assessment Report Preparation Task: Non-municipal drinking water systems	\$ -	\$ 19,999	\$ 19,999	0.2	0.2
<b>Municipal Residential Drinking Water Systems (Groundwater)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 213,571	\$ 1,281,428	\$ 1,494,999	17.4	14.1
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 83,200	\$ 499,200	\$ 582,400	6.8	5.5
Assess risk in WHPAs or IPZs	\$ 39,000	\$ 234,000	\$ 273,000	3.2	2.6
Consultation on the overall proposed assessment report	\$ -	\$ 9,999	\$ 9,999	0.1	0.1
<b>Municipal Residential Drinking Water Systems (Surface Water)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 896,857	\$ -	\$ 896,857	10.4	8.5
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 567,204	\$ -	\$ 567,204	6.6	5.4
Assess risk in WHPAs or IPZs	\$ 229,113	\$ -	\$ 229,113	2.7	2.2
Consultation on the overall proposed assessment report	\$ -	\$ 9,999	\$ 9,999	0.1	0.1
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,573,732</b>	<b>\$ 6,011,621</b>			<b>81.1</b>
<b>Assessment Report TOTAL</b>		<b>\$ 8,585,353</b>		<b>100.0</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 1,540,384		77.2	14.6
Undertaking communications initiatives for the source protection plan		\$ 176,000		8.8	1.7
Information management for source protection plan preparation		\$ 100,000		5.0	0.9
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 20,000		1.0	0.2
Administrative priority setting of work required to complete SPP based on risk assessments in AR		\$ 19,999		1.0	0.2
Policy development to address drinking water threats (where required and/or permissible in		\$ 19,999		1.0	0.2
Policy development to address funding requirement for implementation of SPP		\$ 19,999		1.0	0.2
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 19,999		1.0	0.2
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 19,999		1.0	0.2
Establishing timelines for policy implementation		\$ 19,999		1.0	0.2
Consultation on the overall proposed source protection plan		\$ 19,999		1.0	0.2
Other Source Protection Plan Preparation Task: Cannot define specific tasks at this time		\$ 19,999		1.0	0.2
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,996,376</b>		<b>100.0</b>	<b>18.9</b>
<b>Raisin-South Nation SPR GRAND TOTAL</b>		<b>\$ 10,581,729</b>			<b>100.0</b>

Source: Raisin-South Nation Source Protection Committee. (Aug. 21, 2008).

TABLE 15A: LAKEHEAD REGION SOURCE PROTECTION AREA TOTAL COSTS

Assessment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report	\$ 943,967	\$ 1,099,600	\$ 2,043,567	65.2%	42.7%
Information management for the assessment report preparation	\$ 177,713	\$ 111,640	\$ 289,353	9.2%	6.0%
Undertaking communications initiatives for the assessment report	\$ 62,219	\$ 73,000	\$ 135,219	4.3%	2.8%
Undertaking a watershed characterization	\$ 2,450	\$ -	\$ 2,450	0.1%	0.1%
Conducting a conceptual water budget	\$ 69,273	\$ -	\$ 69,273	2.2%	1.4%
Conducting a tier 1 water budget analysis and stress assessment	\$ 24,590	\$ 18,715	\$ 43,305	1.4%	0.9%
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs					
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ 55,400	\$ 55,400	1.8%	1.2%
Other Assessment Report Preparation Task:	\$ -	\$ 96,000	\$ 96,000	3.1%	2.0%
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 88,817	\$ 53,828	\$ 142,645	4.6%	3.0%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 83,271	\$ 54,643	\$ 137,914	4.4%	2.9%
Assess risk in WHPAs or IPZs	\$ 10,987	\$ 107,525	\$ 118,512	3.8%	2.5%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,463,287</b>	<b>\$ 1,670,351</b>			<b>65.5%</b>
<b>Assessment Report TOTAL</b>		<b>3,133,638</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 1,237,050		74.9%	25.9%
Undertaking communications initiatives for the source protection plan		\$ 94,290		5.7%	2.0%
Information management for source protection plan preparation		\$ 144,200		8.7%	3.0%
Establishing evaluation criteria for selecting policies (impact assessments of draft				0.0%	0.0%
Administrative priority setting of work required to complete SPP based on risk				0.0%	0.0%
Policy development to address drinking water threats (where required and/or		\$ -		0.0%	0.0%
Policy development for monitoring (where required, advisable and/or permissible		\$ -		0.0%	0.0%
Policy development for Great Lakes elements (where required/permissible in Act				0.0%	0.0%
Establishing timelines for policy implementation		\$ -		0.0%	0.0%
Consultation on the overall proposed source protection plan		\$ 64,000		3.9%	1.3%
Other Source Protection Plan Preparation Task: Cannot define specific tasks at		\$ 112,000		6.8%	2.3%
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,651,540</b>		<b>100.0%</b>	<b>34.5%</b>

Lakehead Region SPA GRAND TOTAL

\$ 4,785,178

100.0%

Source: Lakehead Source Protection Committee. (June 20, 2008).

TABLE 16A: SAULT STE. MARIE REGION SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated Costs			
Coordinating and supporting projects for the assessment report	\$ 1,317,046	\$ 1,848,200	\$ 3,165,246	76.0	74.6
Information management for the assessment report preparation	\$ 93,362	\$ 120,000	\$ 213,362	5.1	5.0
Undertaking communications initiatives for the assessment report	\$ 49,548	\$ 112,500	\$ 162,048	3.9	3.8
Undertaking a watershed characterization	\$ 3,500	\$ 1,800	\$ 5,300	0.1	0.1
Conducting a conceptual water budget	\$ 111,697	\$ -	\$ 111,697	2.7	2.6
Conducting a tier 1 water budget analysis and stress assessment	\$ 96,824	\$ 21,800	\$ 118,624	2.8	2.8
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ -	\$ -		
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 121,310	\$ 121,310	2.9	2.9
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 5,000	\$ 5,000	0.1	0.1
Identifying issues, inventorying threats and assessing hazards in HVAs			\$ -		
Assessing risks in HVAs	\$ -	\$ 7,500	\$ 7,500	0.2	0.2
Applying vulnerability scores to SGRAs	\$ -	\$ 200,000	\$ 200,000	4.8	4.7
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 1,680	\$ 11,500	\$ 13,180	0.3	0.3
Assessing risk in SGRAs	\$ -	\$ 7,500	\$ 7,500	0.2	0.2
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ -	\$ 5,000	\$ 5,000	0.1	0.1
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 10,000	\$ 10,000	0.2	0.2
Assess risk in WHPAs or IPZs	\$ -	\$ 10,000	\$ 10,000	0.2	0.2
Consultation on the overall proposed assessment report	\$ -	\$ 10,000	\$ 10,000	0.2	0.2
Other Assessment Report Preparation Task:					
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,673,657</b>	<b>\$ 2,492,110</b>			<b>98.1</b>
<b>Assessment Report TOTAL</b>		<b>4,165,767</b>		<b>100.0</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan					
Undertaking communications initiatives for the source protection plan					
Information management for source protection plan preparation					
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 15,000		18.8	0.4
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 15,000		18.8	0.4
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 15,000		18.8	0.4
Establishing timelines for policy implementation		\$ 15,000		18.8	0.4
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task:		\$ 20,000		25.0	0.5
<b>Source Protection Plan TOTAL</b>		<b>\$ 80,000</b>		<b>100.0</b>	<b>1.9</b>

100.0

Sault Ste. Marie Region SPA GRAND TOTAL

\$ 4,245,767



TABLE 17A: MATTAGAMI REGION SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated			
Coordinating and supporting projects for the assessment report		\$ 2,113,004	\$ 2,113,004	76.4%	54.5%
Information management for the assessment report preparation		\$ 467,103	\$ 467,103	16.9%	12.1%
Undertaking communications initiatives for the assessment report		\$ 60,069	\$ 60,069	2.2%	1.6%
Undertaking a watershed characterization	\$ 19,511		\$ 19,511	0.7%	0.5%
Conducting a conceptual water budget	\$ 35,176		\$ 35,176	1.3%	0.9%
Conducting a tier 1 water budget analysis and stress assessment	\$ 41,876		\$ 41,876	1.5%	1.1%
Conducting a tier 2 water budget analysis and stress assessment			\$ -	0.0%	0.0%
Conducting a tier 3 water budget analysis and water quantity risk assessment			\$ -	0.0%	0.0%
Delineating and applying vulnerability scores to HVAs	\$ 12,000		\$ 12,000	0.4%	0.3%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 8,000	\$ 8,000	0.3%	0.2%
Consultation on the overall proposed assessment report			\$ -	0.0%	0.0%
Other Assessment Report Preparation Task: Water quantity analysis	\$ 8,000		\$ 8,000	0.3%	0.2%
<b>Assessment Report SUB TOTAL</b>	<b>\$ 116,562</b>	<b>\$ 2,648,176</b>			<b>71.4%</b>
<b>Assessment Report TOTAL</b>		<b>\$ 2,764,738</b>		<b>100.0%</b>	
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 8,000	\$ 8,000	9.5%	0.2%
Assessing risks in HVAs		\$ 8,000	\$ 8,000	9.5%	0.2%
Applying vulnerability scores to SGRAs	\$ 12,000		\$ 12,000	14.3%	0.3%
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 8,000	\$ 8,000	9.5%	0.2%
Assessing risk in SGRAs		\$ 8,000	\$ 8,000	9.5%	0.2%
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 15,492		\$ 15,492	18.4%	0.4%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 8,000	\$ 8,000	9.5%	0.2%
Assess risk in WHPAs or IPZs	\$ 16,511		\$ 16,511	19.7%	0.4%
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 44,003</b>	<b>\$ 40,000</b>			<b>2.2%</b>
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 84,003</b>		<b>100.0%</b>	
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan		\$ 750,000		73.2%	19.4%
Undertaking communications initiatives for the source protection plan		\$ 120,000		11.7%	3.1%
Information management for source protection plan preparation		\$ 40,000		3.9%	1.0%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				0.0%	0.0%
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0%	0.0%
Policy development to address drinking water threats (where required and/or permissible in		\$ 25,000		2.4%	0.6%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 25,000		2.4%	0.6%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				0.0%	0.0%
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 20,000		2.0%	0.5%
Establishing timelines for policy implementation (Groundwater sources)				0.0%	0.0%
Consultation on the overall proposed source protection plan		\$ 20,000		2.0%	0.5%
Other Source Protection Plan Preparation Task: Misc unknown costs associated with Rules not		\$ 25,000		2.4%	0.6%
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,025,000</b>		<b>100.0%</b>	<b>26.5%</b>

Mattagami Region SPA GRAND TOTAL

\$ 3,873,741

100.0%

Source: Mattagami Region Source Protection Committee. (July 18, 2008).

TABLE 18A: GREATER SUDBURY SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Combined Budget (Completed + Estimated)	Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated Costs			
Coordinating and supporting projects for the assessment report	\$ 1,370,843	\$ 363,249	\$ 1,734,092	47.8	26.9
Information management for the assessment report preparation	\$ 428,665	\$ 15,000	\$ 443,665	12.2	6.9
Undertaking communications initiatives for the assessment report	\$ 51,535	\$ 18,750	\$ 70,285	1.9	1.1
Undertaking a watershed characterization	\$ 33,534		\$ 33,534	0.9	0.5
Conducting a conceptual water budget	\$ 99,052		\$ 99,052	2.7	1.5
Conducting a tier 1 water budget analysis and stress assessment	\$ 167,374		\$ 167,374	4.6	2.6
Conducting a tier 2 water budget analysis and stress assessment	\$ 197,147		\$ 197,147	5.4	3.1
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 139,885	\$ 139,885	3.9	2.2
Delineating and applying vulnerability scores to HVAs	\$ 4,000	\$ 5,000	\$ 9,000	0.2	0.1
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ 4,000	\$ 5,000	\$ 9,000	0.2	0.1
Assessing risks in HVAs	\$ 3,000	\$ 5,000	\$ 8,000	0.2	0.1
Applying vulnerability scores to SGRAs	\$ 2,000	\$ 5,000	\$ 7,000	0.2	0.1
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 4,000	\$ 5,000	\$ 9,000	0.2	0.1
Assessing risk in SGRAs	\$ 3,000	\$ 5,000	\$ 8,000	0.2	0.1
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 310,388	\$ 37,500	\$ 347,888	9.6	5.4
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 172,806	\$ 37,500	\$ 210,306	5.8	3.3
Assess risk in WHPAs or IPZs	\$ 91,360	\$ 37,500	\$ 128,860	3.6	2.0
Consultation on the overall proposed assessment report	\$ -	\$ 1,000	\$ 1,000	0.03	0.02
Other Assessment Report Preparation Task: Provision for unanticipated tasks	\$ -	\$ 1,000	\$ 1,000	0.03	0.02
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,942,704</b>	<b>\$ 681,384</b>			<b>56.2</b>
<b>Assessment Report TOTAL</b>		<b>\$ 3,624,088</b>		<b>100.0</b>	
<b>First Nations Assessment Report (AR) Task</b>					
Other Assessment Report Preparation Task: Pre-screening for Wahnapiatae FN drinking water system	\$ 25,000	\$ -	\$ 25,000	100	0.4
<b>Assessment Report TOTAL</b>	<b>\$ 25,000</b>			<b>100</b>	<b>0.4</b>
<b>Source Protection Plan (SPP) Tasks</b>				<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,735,675		69.4	26.9
Undertaking communications initiatives for the source protection plan	\$ -	\$ 74,533		3.0	1.2
Information management for source protection plan preparation	\$ -	\$ 69,626		2.8	1.1
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				0.0	0.0
Administrative priority setting of work required to complete SPP based on risk assessments in AR				0.0	0.0
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 168,750		6.8	2.6
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 168,750		6.8	2.6
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				0.0	0.0
Establishing timelines for policy implementation	\$ -	\$ 24,000		1.0	0.4
Consultation on the overall proposed source protection plan	\$ -	\$ 15,000		0.6	0.2
Other Source Protection Plan Preparation Task: Extra SPC meetings for policy development	\$ -	\$ 243,294		9.7	3.8
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,499,628</b>		<b>100.0</b>	<b>38.8</b>
<b>First Nations Source Protection Plan (SPP) Tasks</b>					
Other Source Protection Plan Preparation Task: Technical studies and developing policies for the	\$ -	\$ 300,000		100	4.7
<b>Source Protection Plan TOTAL</b>		<b>\$ 300,000</b>		<b>100</b>	<b>4.7</b>

Greater Sudbury District SPA GRAND TOTAL

\$ 6,448,716

100.0

Source: Greater Sudbury Source Protection Committee, (May 22, 2008).

TABLE 19A: NORTH BAY-MATTAWA REGION SOURCE PROTECTION AREA TOTAL COSTS

Assesment Report (AR) Tasks	BUDGET		Percentage of AR Budget	Percentage of Total Budget
	Completed / In Progress	Estimated		
Coordinating and supporting projects for the assessment report		\$ 1,371,400	50.3%	33.3%
Information management for the assessment report preparation		\$ 262,000	9.6%	6.4%
Undertaking communications initiatives for the assessment report		\$ 235,000	8.6%	5.7%
Undertaking a watershed characterization		\$ 54,000	2.0%	1.3%
Conducting a conceptual water budget		\$ 99,370	3.6%	2.4%
Conducting a tier 1 water budget analysis and stress assessment		\$ 156,000	5.7%	3.8%
Conducting a tier 2 water budget analysis and stress assessment		\$ 78,500	2.9%	1.9%
Conducting a tier 3 water budget analysis and water quantity risk assessment				
Delineating and applying vulnerability scores to HVAs		\$ 8,200	0.3%	0.2%
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 15,200	0.6%	0.4%
Assessing risks in HVAs		\$ 10,200	0.4%	0.2%
Applying vulnerability scores to SGRAs		\$ 10,200	0.4%	0.2%
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 15,200	0.6%	0.4%
Assessing risk in SGRAs		\$ 10,200	0.4%	0.2%
Delineating and applying vulnerability scores to WHPAs or IPZs				
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs				
Assess risk in WHPAs or IPZs				
Consultation on the overall proposed assessment report		\$ 70,000	2.6%	1.7%
Other Assessment Report Preparation Task:				
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 30,000	1.1%	0.7%
Delineating, Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 211,413	7.7%	5.1%
Assess risk in WHPAs or IPZs		\$ 51,267	1.9%	1.2%
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 20,000	0.7%	0.5%
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 12,000	0.4%	0.3%
Assess risk in WHPAs or IPZs		\$ 8,000	0.3%	0.2%
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,728,150</b>	<b>100.0%</b>	<b>66.2%</b>
<b>Source Protection Plan Tasks</b>			<b>Percentage of SPP Budget</b>	<b>Percentage of Total Budget</b>
Coordinating and supporting projects for the source protection plan (SPP)		\$ 617,000	44.3%	15.0%
Undertaking communications initiatives for the source protection plan		\$ 162,000	11.6%	3.9%
Information management for source protection plan preparation		\$ 150,000	10.8%	3.6%
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)				
Administrative priority setting of work required to complete SPP based on risk assessments in AR				
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 61,000	4.4%	1.5%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 61,000	4.4%	1.5%
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				
Establishing timelines for policy implementation (Lake Ontario sources)				
Establishing timelines for policy implementation		\$ 62,000	4.5%	1.5%
Consultation on the overall proposed source protection plan		\$ 60,000	4.3%	1.5%
Other Source Protection Plan Preparation Task:				
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 135,000	9.7%	3.3%
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 55,000	3.9%	1.3%
Establishing timelines for policy implementation		\$ 30,000	2.2%	0.7%
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>1,393,000</b>	<b>100.0%</b>	<b>33.8%</b>
<b>North Bay-Mattawa SPA GRAND TOTAL</b>		<b>\$</b>	<b>4,121,150</b>	<b>100.0%</b>

Source: North Bay - Mattawa Source Protection Committee. (June 18, 2008).

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## APPENDIX B

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TABLE 1B: ESSEX REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 1,960,000	1-Jun-05	31-Dec-09	ER SPA
Information management for the assessment report preparation		\$ 145,000	1-Jun-05	31-Dec-09	ER SPA / ER SPC
Undertaking communications initiatives for the assessment report		\$ 136,000	1-Jan-06	31-Dec-09	ER SPA
Undertaking a watershed characterization		\$ 32,000	1-Jun-06	31-Mar-09	ER SPA
Conducting a conceptual water budget	\$ 64,000		1-Oct-05	31-Aug-07	ER SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 180,000		1-Nov-07	30-Nov-08	ER SPA
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 40,000	1-Jun-07	30-Jul-09	ER SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 68,000	1-May-07	30-Jun-09	ER SPA / ER SPC
Assessing risks in HVAs		\$ 30,000	1-Apr-09	31-Aug-09	ER SPA / ER SPC
Applying vulnerability scores to SGRAs		\$ -	1-Jan-09	30-Jun-09	ER SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	1-Jan-09	30-Jun-09	ER SPA / ER SPC
Assessing risk in SGRAs		\$ -	1-Apr-09	31-Aug-09	ER SPA / ER SPC
Delineating and applying vulnerability scores to IPZs		\$ 1,400,000	1-Jan-07	31-May-09	ER SPA
Identifying issues, inventorying threats and assessing hazards in IPZs		\$ 761,000	1-Nov-07	30-Jun-09	ER SPA / ER SPC
Assess risk in IPZs		\$ 252,000	1-Jan-09	31-Aug-09	ER SPA / ER SPC
Consultation on the overall proposed assessment report		\$ -	1-Feb-08	31-Dec-09	ER SPA / ER SPC
Other Assessment Report Preparation Task: Collaboration on Great Lakes and International Issues		\$ 150,000	1-Oct-08	31-Dec-09	ER SPA / ER SPC
<b>Assessment Report SUB TOTAL</b>	<b>\$ 244,000</b>	<b>\$ 4,974,000</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 5,218,000</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 1,620,000	1-Jan-10	31-Jan-13	ER SPA
Undertaking communications initiatives for the source protection plan		\$ 160,000	1-Jan-10	31-Jan-13	ER SPA / ER SPC
Information management for source protection plan preparation		\$ 80,000	1-Jan-10	31-Jan-13	ER SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 900,000	1-Jan-10	30-Jun-12	ER SPC (TBC)
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 250,000	1-Jun-11	20-Sep-12	ER SPC (TBC)
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 525,000	1-Sep-10	30-Jun-12	ER SPC (TBC)
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 100,000	1-Jun-11	30-Sep-12	ER SPC (TBC)
Consultation on the overall proposed source protection plan		\$ 750,000	1-Jan-10	31-Dec-12	ER SPC (TBC)
Other Source Protection Plan Preparation Task: Implement costs/funding responsibilities		\$ 200,000	1-Jun-11	31-Dec-12	ER SPC/ ER SPA (TBC)
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 4,585,000</b>			
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,585,000</b>			

Essex Region SPA GRAND TOTAL \$ 9,803,000

SPR ASSESSMENT REPORT TOTAL \$ 5,218,000

SPR SOURCE PROTECTION PLAN TOTAL \$ 4,585,000

SPR GRAND TOTAL \$ 9,803,000

Source: Essex Region Source Protection Committee. Essex Region Source Protection Area Terms of Reference. (May 2008).

TABLE 2B: UPPER THAMES RIVER SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 2,362,598	\$ 2,017,500	1-Jan-05	31-Jan-10	UTR SPA
Information management for the assessment report preparation	\$ 240,521	\$ 165,000	1-Jan-05	31-Jan-10	UTR SPA
Undertaking communications initiatives for the assessment report	\$ 131,750	\$ 221,000	1-Jan-05	31-Jan-10	UTR SPA
Undertaking a watershed characterization	\$ 29,274	\$ -	1-Jan-05	31-Mar-08	UTR SPA
Conducting a conceptual water budget	\$ 566,173	\$ -	1-Jan-05	31-Mar-08	UTR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 156,800	\$ 254,700	1-Aug-07	31-Aug-08	UTR SPA
Conducting a tier 2 water budget analysis and stress assessment		\$ 330,000	1-Oct-08	31-May-09	UTR SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 650,000	1-Apr-09	30-Nov-09	UTR SPA
Delineating and applying vulnerability scores to HVAs		\$ 29,000	1-May-08	31-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 40,000	1-Oct-08	1-Jun-09	UTR SPA
Assessing risks in HVAs		\$ 42,000	1-Apr-09	1-Aug-09	UTR SPA
Applying vulnerability scores to SGRAs		\$ 15,000	1-Oct-08	1-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 50,000	1-Oct-08	1-Jun-09	UTR SPA
Assessing risk in SGRAs		\$ 42,000	1-Apr-09	1-Aug-09	UTR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 131,008	\$ 142,890	1-Oct-08	30-Jun-09	UTR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 385,940	\$ 166,760	1-Apr-05	30-Apr-09	UTR SPA
Assess risk in WHPAs or IPZs	\$ 126,277	\$ 233,520	1-Apr-06	30-Apr-06	UTR SPA
Consultation on the overall proposed assessment report		\$ 15,000	1-Dec-09	31-Mar-10	UTR SPA
Other Assessment Report Preparation Task: GUDI - IPZ Studies		\$ 150,000	1-Apr-08	31-Mar-09	UTR SPA
Other Assessment Report Preparation Task: Peer Reviews and Resulting edits of vulnerability work		\$ 270,000	1-Oct-08	31-Jul-09	UTR SPA
Other Assessment Report Preparation Task: Prescreening of First Nations Water Supplies		\$ 60,000	31-Dec-08		TBD
<b>Assessment Report SUB TOTAL</b>	<b>\$ 4,130,341</b>	<b>\$ 4,894,370</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 9,024,711</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 119,167	\$ 61,850	1-Apr-05	30-Jun-09	City of London, County of Oxford, Municipality of Thames Centre, Town of St. Marys
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 33,667	\$ 48,000	1-Apr-05	30-Jun-09	City of London, County of Oxford, Town of St. Marys
Assess risk in WHPAs or IPZs	\$ 11,167	\$ 13,000	1-Apr-05	30-Jun-09	City of London, County of Oxford, Town of St. Marys
Other Assessment Report Preparation Task: GUDI - IPZ Studies	\$ -	\$ 65,000	1-Jul-09	30-Sep-09	County of Oxford
Other Assessment Report Preparation Task: Review of Past Work of remodeling WHPAs and vulnerability scores	\$ -	\$ 12,000	1-Jun-08	31-Mar-09	Municipality of Thames Centre
Other Assessment Report Preparation Task: Update existing WHPA to account for system expansion and mandatory connection	\$ -	\$ 15,000	1-Apr-08	31-Mar-09	City of London
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 164,001</b>	<b>\$ 214,850</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 378,851</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 3,670,000	1-Apr-09	20-Aug-12	UTR SPA
Undertaking communications initiatives for the source protection plan		\$ 230,000	1-Apr-10	20-Aug-12	SPC
Information management for source protection plan preparation		\$ 190,000	1-Feb-10	20-Aug-12	UTR SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ -			
Administrative priority setting of work required to complete SPP based on risk assessments in AR		\$ -			
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 50,000	1-Jan-10	20-Aug-12	SPC, County of Oxford
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ -	1-Apr-09	20-Aug-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ -	1-Apr-09	20-Aug-12	SPC
Establishing timelines for policy implementation		\$ -	1-Apr-09	20-Aug-12	SPC
Consultation on the overall proposed source protection plan		\$ 25,000	1-Jan-12	31-Jul-13	SPC
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan TOTAL</b>		<b>\$ 4,165,000</b>			
<b>Upper Thames River SPA GRAND TOTAL</b>		<b>\$ 13,568,562</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 10,424,118</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 549,031</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 4,295,000</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 15,268,149</b>			

Source: Thames-Sydenham and Region Source Protection Committee. Upper Thames River Source Protection Area Terms of Reference. (Aug 12, 2008).

TABLE 3B: LOWER THAMES VALLEY SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report					
Information management for the assessment report preparation					
Undertaking communications initiatives for the assessment report					
Undertaking a watershed characterization					
Conducting a conceptual water budget					
Conducting a tier 1 water budget analysis and stress assessment					
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ -	1-May-08	31-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ -	1-Oct-08	1-Jun-09	UTR SPA
Assessing risks in HVAs		\$ -	1-Apr-09	1-Aug-09	UTR SPA
Applying vulnerability scores to SGRAs		\$ -	1-Oct-08	1-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	1-Oct-08	1-Jun-09	UTR SPA
Assessing risk in SGRAs		\$ -	1-Apr-09	1-Aug-09	UTR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 411,873	\$ 116,500	1-Apr-05	31-May-05	ER SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 213,067	\$ 55,000			
Assess risk in WHPAs or IPZs	\$ 47,967	\$ 132,500			
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task:					
Other Assessment Report Preparation Task: Additional Tier 2 WQRA research on threats that may pose a high level of uncertainty					
Other Assessment Report Preparation Task: Proposed pilot project: appropriate methods to delineate WHPAs around private wells in a small community					
<b>Assessment Report SUB TOTAL</b>	<b>\$ 672,907</b>	<b>\$ 304,000</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>976,907</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 26,500	\$ 38,500	1-Apr-06	31-Mar-09	Municipality of Chatham-Kent, Municipality of West Elgin
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 46,280	\$ 20,000	1-Apr-05	30-Jun-09	ER SPA & Municipality of Chatham-Kent
Assess risk in WHPAs or IPZs	\$ 17,400	\$ 21,500	1-Apr-06	31-Oct-09	ER SPA & Municipality of Chatham-Kent
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 90,180</b>	<b>\$ 80,000</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$</b>	<b>170,180</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan					
Undertaking communications initiatives for the source protection plan					
Information management for source protection plan preparation					
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)					
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 65,000	1-Jan-09	20-Aug-12	SPC
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation (Groundwater sources)					
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>65,000</b>			

Lower Thames Valley SPA GRAND TOTAL	\$ 1,212,087
SPR ASSESSMENT REPORT TOTAL	\$ 10,424,118
SPR MUNICIPAL ASSESSMENT REPORT TOTAL	\$ 549,031
SPR SOURCE PROTECTION PLAN TOTAL	\$ 4,295,000
SPR GRAND TOTAL	\$ 15,268,149

Source: Thames-Sydenham and Region Source Protection Committee. Lower Thames Valley Source Protection Area Terms of Reference. (Aug 12, 2008).

TABLE 4B: ST. CLAIR REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report					
Information management for the assessment report preparation					
Undertaking communications initiatives for the assessment report					
Undertaking a watershed characterization					
Conducting a conceptual water budget					
Conducting a tier 1 water budget analysis and stress assessment					
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ -	1-May-08	31-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ -	1-Oct-08	1-Jun-09	UTR SPA
Assessing risks in HVAs		\$ -	1-Apr-09	1-Aug-09	UTR SPA
Applying vulnerability scores to SGRAs		\$ -	1-Oct-08	1-Dec-08	UTR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	1-Oct-08	1-Jun-09	UTR SPA
Assessing risk in SGRAs		\$ -	1-Apr-09	1-Aug-09	UTR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 176,500	\$ 72,000	1-Apr-06	30-Jun-09	SCR SPA & ER SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 69,000	\$ 35,000	1-Apr-06	30-Jun-09	SCR SPA & ER SPA
Assess risk in WHPAs or IPZs	\$ 32,000	\$ 38,000	1-Apr-06	30-Jun-09	SCR SPA & ER SPA
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task:					
Other Assessment Report Preparation Task: Additional Tier 2 WQRA research on threats that may pose a high level of uncertainty					
Other Assessment Report Preparation Task: Proposed pilot project: appropriate methods to delineate WHPAs around private wells in a small community					
Assessment Report SUB TOTAL	\$ 277,500	\$ 145,000			
Assessment Report TOTAL	\$	422,500			
Source Protection Plan (SPP) Tasks					
Coordinating and supporting projects for the source protection plan (SPP)					
Undertaking communications initiatives for the source protection plan					
Information management for source protection plan preparation					
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)					
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 65,000	1-Jan-09	20-Aug-12	SPC
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation (Groundwater sources)					
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task:					
Source Protection Plan TOTAL		\$ 65,000			
St. Clair Region SPA GRAND TOTAL	\$	487,500			
SPR ASSESSMENT REPORT TOTAL	\$	10,424,118			
SPR MUNICIPAL ASSESSMENT REPORT TOTAL	\$	549,031			
SPR SOURCE PROTECTION PLAN TOTAL	\$	4,295,000			
SPR GRAND TOTAL	\$	15,268,149			

Source: Thames-Sydenham and Region Source Protection Committee. St. Clair Region Source Protection Area Terms of Reference. (Aug 12, 2008).



TABLE 5B: AUSABLE BAYFIELD REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report					
Information management for the assessment report preparation		\$ 1,600,000	7-Feb-05	20-Aug-12	ABMV SPC
Undertaking communications initiatives for the assessment report					
Undertaking a watershed characterization	\$ 75,000		7-Feb-05	30-Apr-08	ABMV SPA
Conducting a conceptual water budget	\$ 42,500		7-Mar-05	31-Mar-06	ABMV SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 145,000		6-Mar-06	30-Apr-08	ABMV SPA
Conducting a tier 2 water budget analysis and stress assessment		\$ 35,000	1-May-08	31-Mar-09	ABMV SPC
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 100,000	6-Apr-09	20-Aug-11	ABMV SPC
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs		\$ 495,000	3-Apr-06	20-Aug-10	ABMV SPC
Identifying issues, inventorying threats and assessing hazards in WHPAs					
Assess risk in WHPAs					
Delineating and applying vulnerability scores to IPZs					
Identifying issues, inventorying threats and assessing hazards in IPZs					
Assess risk in IPZs					
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Pilot on non-municipal drinking water systems		\$ 37,500	1-Apr-09	31-Mar-10	ABMV SPC
Other Assessment Report Preparation Task: Pre-screening of intake for 2 FN systems		\$ 170,000	2-Jun-08	30-Nov-09	ABMV SPC
<b>Assessment Report SUB TOTAL</b>	<b>\$ 262,500</b>	<b>\$ 2,437,500</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,700,000</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan				20-Aug-12	
Undertaking communications initiatives for the source protection plan		\$ 150,000	1-Apr-09	20-Aug-12	ABMV SPC
Information management for source protection plan preparation				20-Aug-12	
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)				20-Aug-12	
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)				20-Aug-12	
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				20-Aug-12	
Establishing timelines for policy implementation (Lake Ontario sources)				20-Aug-12	
Establishing timelines for policy implementation					
Consultation on the overall proposed source protection plan				20-Aug-12	
Other Source Protection Plan Preparation Task				20-Aug-12	
<b>Source Protection Plan TOTAL</b>		<b>\$ 150,000</b>			

<b>Ausable Bayfield Region SPA GRAND TOTAL</b>	<b>\$</b>	<b>2,850,000</b>
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>5,735,000</b>
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>300,000</b>
<b>SPR GRAND TOTAL</b>	<b>\$</b>	<b>6,035,000</b>

Source: Ausable Bayfield Maitland Valley Source Protection Committee. Ausable Bayfield Region Source Protection Area Terms of Reference. (July 30, 2008).

TABLE 6B: MAITLAND VALLEY REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 1,600,000	7-Feb-05	20-Aug-12	ABMV SPC
Information management for the assessment report preparation					
Undertaking communications initiatives for the assessment report					
Undertaking a watershed characterization	\$ 75,000		7-Feb-05	30-Apr-08	ABMV SPA
Conducting a conceptual water budget	\$ 42,500		7-Mar-05	31-Mar-06	ABMV SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 145,000		6-Mar-06	30-Apr-08	ABMV SPA
Conducting a tier 2 water budget analysis and stress assessment		\$ 35,000	1-May-08	31-Mar-09	ABMV SPC
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 100,000	6-Apr-09	20-Aug-11	ABMV SPC
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs		\$ 1,000,000	3-Apr-06	20-Aug-10	ABMV SPC
Identifying issues, inventorying threats and assessing hazards in WHPAs					
Assess risk in WHPAs					
Delineating and applying vulnerability scores to IPZs					
Identifying issues, inventorying threats and assessing hazards in IPZs					
Assess risk in IPZs					
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Pilot on non-municipal drinking water systems		\$ 37,500	1-Apr-09	31-Mar-10	ABMV SPC
<b>Assessment Report SUB TOTAL</b>	<b>\$ 262,500</b>	<b>\$ 2,772,500</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,035,000</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)		\$ 150,000	1-Apr-09	20-Aug-12	ABMV SPC
Undertaking communications initiatives for the source protection plan				20-Aug-12	
Information management for source protection plan preparation				20-Aug-12	
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)				20-Aug-12	
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)				20-Aug-12	
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				20-Aug-12	
Establishing timelines for policy implementation (Lake Ontario sources)				20-Aug-12	
Establishing timelines for policy implementation					
Consultation on the overall proposed source protection plan				20-Aug-12	
Other Source Protection Plan Preparation Task:				20-Aug-12	
<b>Source Protection Plan TOTAL</b>		<b>\$ 150,000</b>			

Maitland Valley Region SPA GRAND TOTAL \$ 3,185,000

SPR ASSESSMENT REPORT TOTAL \$ 5,735,000

SPR SOURCE PROTECTION PLAN TOTAL \$ 300,000

SPR GRAND TOTAL \$ 6,035,000

Source: Ausable Bayfield Maitland Valley Source Protection Committee. Maitland Valley Region Source Protection Area Terms of Reference. (July 30, 2008).

TABLE 7B: SAUGEEN VALLEY SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 750,644	\$ 455,542	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Information management for the assessment report preparation	\$ 106,498	\$ 13,770	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking communications initiatives for the assessment report	\$ 58,724	\$ 14,040	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking a watershed characterization	\$ 15,371	\$ -	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Conducting a conceptual water budget	\$ 117,876	\$ -	1-Jan-05	31-Jan-08	SV, GS, NBP SPAs
Conducting a tier 1 water budget analysis and stress assessment	\$ 73,666	\$ 40,905	1-Dec-07	30-Aug-08	SV, GS, NBP SPAs
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 27,000	1-Apr-08	1-Sep-09	SV, GS, NBP SPAs
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD	1-Jan-09	1-Nov-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 9,990	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risks in HVAs	\$ -	\$ -	1-Apr-09	1-Oct-09	SV, GS, NBP SPAs
Applying vulnerability scores to SGRAs	\$ -	\$ 6,750	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risk in SGRAs	\$ -	\$ -	1-Apr-09	31-Oct-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 351,229	\$ 103,700	1-Mar-06	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 458,514	\$ 111,811	1-Mar-06	1-Aug-09	SV, GS, NBP SPAs
Assess risk in WHPAs or IPZs	\$ 53,716	\$ 69,466	1-Mar-07	1-Aug-09	SV, GS, NBP SPAs
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Jan-09	1-Sep-09	SV, GS, NBP SPAs
Other Assessment Report Preparation Task: Water Quality Analysis	\$ -	\$ 13,200	1-Jun-08	31-Mar-09	SV, GS, NBP SPAs
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,986,238</b>	<b>\$ 866,174</b>			
<b>Assessment Report TOTAL</b>		<b>2,852,412</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 390,451	\$ 52,249		20-Aug-12 (various)	SV, GS, NBP SPAs, Municipality of Arran-Elderslie
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 476,870	\$ 65,882		01-Aug-09 (various)	SV, GS, NBP SPAs, Municipality of Arran-Elderslie
Assess risk in WHPAs or IPZs	\$ 82,453	\$ 36,185		01-Aug-09 (various)	SV, GS, NBP SPAs, Municipality of Arran-Elderslie
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 949,774</b>	<b>\$ 154,316</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>1,104,090</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)	\$ -	\$ 600,387	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Undertaking communications initiatives for the source protection plan	\$ -	\$ 53,820	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Information management for source protection plan preparation	\$ -	\$ 17,595	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ -	1-Nov-09	20-Aug-12	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ -	1-Nov-09	20-Aug-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ -	1-Nov-09	20-Aug-12	SPC
Establishing timelines for policy implementation		\$ -	1-Nov-09	20-Aug-12	SPC
Consultation on the overall proposed source protection plan		\$ -	1-Nov-09	20-Aug-12	SPC
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 671,802</b>			
<b>Source Protection Plan TOTAL</b>		<b>\$ 671,802</b>			

Saugeen Valley SPA GRAND TOTAL \$ 4,628,304

SPR ASSESSMENT REPORT TOTAL \$ 5,732,839

SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 2,531,041

SPR SOURCE PROTECTION PLAN TOTAL \$ 1,243,000

SPR GRAND TOTAL \$ 9,506,880

Source: Saugeen, Grey Sauble, and Northern Bruce Peninsula Source Protection Committee. Saugeen Valley Source Protection Area Terms of Reference. (August 15, 2008).

TABLE 8B: GREY SAUBLE SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 514,699	\$ 312,129	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Information management for the assessment report preparation	\$ 72,971	\$ 9,435	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking communications initiatives for the assessment report	\$ 20,997	\$ 28,860	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking a watershed characterization	\$ 10,529	\$ -	1-Jan-05	30-Apr-08	SV, GS, NBP SPAs
Conducting a conceptual water budget	\$ 80,766	\$ -	1-Jan-05	31-Jan-08	SV, GS, NBP SPAs
Conducting a tier 1 water budget analysis and stress assessment	\$ 50,475	\$ 28,027	1-Dec-07	30-Aug-08	SV, GS, NBP SPAs
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 18,500	1-Apr-08	1-Sep-09	SV, GS, NBP SPAs
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD	1-Jan-09	1-Nov-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 6,845	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risks in HVAs	\$ -	\$ -	1-Apr-09	1-Oct-09	SV, GS, NBP SPAs
Applying vulnerability scores to SGRAs	\$ -	\$ 4,625	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risk in SGRAs	\$ -	\$ -	1-Apr-09	31-Oct-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 539,114	\$ 85,024	1-Mar-06	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 451,064	\$ 67,258	1-Mar-06	1-Aug-09	SV, GS, NBP SPAs
Assess risk in WHPAs or IPZs	\$ 92,190	\$ 53,108	1-Mar-07	1-Aug-09	SV, GS, NBP SPAs
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Jan-09	1-Sep-09	SV, GS, NBP SPAs
Other Assessment Report Preparation Task: Water Quality Analysis	\$ -	\$ 9,065	1-Jun-08	31-Mar-09	SV, GS, NBP SPAs
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,832,805</b>	<b>\$ 622,876</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,455,681</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 538,042	\$ 84,589		20-Aug-12 (various)	SV, GS, NBP SPAs, Township of Chatsworth, Municipality of Arran-Elderslie
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 455,901	\$ 62,421		01-Aug-09 (various)	SV, GS, NBP SPAs, Township of Chatsworth, Municipality of Arran-Elderslie
Assess risk in WHPAs or IPZs	\$ 105,768	\$ 39,530		01-Aug-09 (various)	SV, GS, NBP SPAs, Township of Chatsworth, Municipality of Arran-Elderslie
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 1,099,711</b>	<b>\$ 186,540</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$</b>	<b>1,286,251</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 409,821	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Undertaking communications initiatives for the source protection plan	\$ -	\$ 36,877	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Information management for source protection plan preparation	\$ -	\$ 12,055	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		TBD	1-Nov-09	20-Aug-12	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		TBD	1-Nov-09	20-Aug-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		TBD	1-Nov-09	20-Aug-12	SPC
Establishing timelines for policy implementation		TBD	1-Nov-09	20-Aug-12	SPC
Consultation on the overall proposed source protection plan		\$ -	1-Nov-09	20-Aug-12	SPC
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 458,753</b>			
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>458,753</b>			

Grey Sauble SPA GRAND TOTAL	\$ 4,200,685
SPR ASSESSMENT REPORT TOTAL	\$ 5,732,839
SPR MUNICIPAL ASSESSMENT REPORT TOTAL	\$ 2,531,041
SPR SOURCE PROTECTION PLAN TOTAL	\$ 1,243,000
SPR GRAND TOTAL	\$ 9,506,880

Source: Saugeen, Grey Sauble, and Northern Bruce Peninsula Source Protection Committee. Grey Sauble Source Protection Area Terms of Reference. (August 15, 2008).



TABLE 9B: NORTHERN BRUCE PENINSULA SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 125,156	\$ 75,923	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Information management for the assessment report preparation	\$ 17,749	\$ 2,295	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking communications initiatives for the assessment report	\$ 5,108	\$ 7,020	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Undertaking a watershed characterization	\$ 2,561	\$ -	1-Jan-05	1-Nov-09	SV, GS, NBP SPAs
Conducting a conceptual water budget	\$ 19,645	\$ -	1-Jan-05	31-Jan-08	SV, GS, NBP SPAs
Conducting a tier 1 water budget analysis and stress assessment	\$ 12,277	\$ 6,817	1-Dec-07	30-Aug-08	SV, GS, NBP SPAs
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 4,500	1-Apr-08	1-Sep-09	SV, GS, NBP SPAs
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD	1-Jan-09	1-Nov-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 1,665	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risks in HVAs	\$ -	\$ -	1-Apr-09	1-Oct-09	SV, GS, NBP SPAs
Applying vulnerability scores to SGRAs	\$ -	\$ 1,125	1-Jul-08	1-Dec-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	1-Dec-08	1-Apr-09	SV, GS, NBP SPAs
Assessing risk in SGRAs	\$ -	\$ -	1-Apr-09	31-Oct-09	SV, GS, NBP SPAs
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 69,092	\$ 10,709	1-Mar-06	1-Aug-08	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 36,817	\$ 7,658	1-Mar-06	1-Oct-08	SV, GS, NBP SPAs
Assess risk in WHPAs or IPZs	\$ 10,522	\$ 5,902	1-Mar-07	1-Dec-08	SV, GS, NBP SPAs
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Jan-09	1-Sep-09	SV, GS, NBP SPAs
Other Assessment Report Preparation Task: Water Quality Analysis	\$ -	\$ 2,205	1-Jun-08	31-Mar-09	SV, GS, NBP SPAs
<b>Assessment Report SUB TOTAL</b>	<b>\$ 298,927</b>	<b>\$ 125,819</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>424,746</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 68,992	\$ 10,809		20-Aug-12 (various)	SV, GS, NBP SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 38,451	\$ 6,024		01-Aug-09 (various)	SV, GS, NBP SPAs
Assess risk in WHPAs or IPZs	\$ 12,082	\$ 4,342		01-Aug-09 (various)	SV, GS, NBP SPAs
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 119,525</b>	<b>\$ 21,175</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$</b>	<b>140,700</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)	\$ -	\$ 100,543	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Undertaking communications initiatives for the source protection plan	\$ -	\$ 8,970	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Information management for source protection plan preparation	\$ -	\$ 2,932	1-Nov-09	20-Aug-12	SV, GS, NBP SPAs
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ -	1-Nov-09	20-Aug-12	NBP
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ -	1-Nov-09	20-Aug-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -	1-Nov-09	20-Aug-12	SPC
Establishing timelines for policy implementation	\$ -	\$ -	1-Nov-09	20-Aug-12	SPC
Consultation on the overall proposed source protection plan	\$ -	\$ -	1-Nov-09	20-Aug-12	SPC
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 112,445</b>			
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>112,445</b>			

Northern Bruce Peninsula SPA GRAND TOTAL \$ 677,891

SPR ASSESSMENT REPORT TOTAL \$ 5,732,839

SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 2,531,041

SPR SOURCE PROTECTION PLAN TOTAL \$ 1,243,000

SPR GRAND TOTAL \$ 9,506,880

Source: Saugeen, Grey Sauble, and Northern Bruce Peninsula Source Protection Committee. Northern Bruce Peninsula Source Protection Area Terms of Reference. (August 15, 2008).



Other Source Protection Plan Preparation Task: SPP Completion	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>3,635,860</b>			
<b>Municipal Residential Drinking Water Systems (Town of Southgate)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	15,000	20-Jan-10	20-Feb-12	GRCA
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Town of Amaranth)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	15,000	20-Jan-10	20-Feb-12	GRCA
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of East Luther Grand Valley)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	GRCA
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of East Goreham)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	GRCA
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of Wellington North)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	Wellington County
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Wellington County
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Wellington County
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of Centre Wellington)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	Centre Wellington
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Centre Wellington
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of Mapleton)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	Wellington County
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Wellington County
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Wellington County
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Township of Guelph-Stratford)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	Wellington County
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Wellington County
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Wellington County
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (City of Guelph)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	207,470	20-Jan-10	20-Feb-12	City of Guelph
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	15,000	20-Jan-10	20-Feb-12	City of Guelph
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	City of Guelph
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Regional Municipality of Waterloo)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	507,000	1-Sep-09	31-Dec-11	Regional Municipality of Waterloo
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	185,000	1-Jul-11	31-Dec-11	Regional Municipality of Waterloo
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-10	31-Dec-11	Regional Municipality of Waterloo
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Town of East Perth)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	Perth County
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Perth County
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Perth County
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (County of Oxford)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	8,100	20-Jan-10	20-Feb-12	Oxford
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	5,000	20-Jan-10	20-Feb-12	Oxford
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Oxford
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (City of Hamilton / Lyndale)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	GRCA
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (County of Brant)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Feb-12	County of Brant
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	County of Brant
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	GRCA
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (City of Brantford)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	75,000	20-Jan-10	20-Feb-12	City of Brantford
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	45,000	20-Jan-10	20-Feb-12	City of Brantford
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	City of Brantford
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (County of Haldimand)</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	17,000	20-Jan-10	20-Feb-12	Haldimand
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Feb-12	Haldimand
Establishing timelines for policy implementation	\$	-	\$	-	1-Sep-11	20-Feb-12	Haldimand
Other Source Protection Plan	\$	-	\$	-	20-Jan-10	20-Aug-12	GRCA
<b>San Regions of Grand River</b>							
Policy development to address drinking water threats (where required and/or permissible in Act/Rage)	\$	-	\$	25,000	20-Jan-10	20-Aug-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Rage)	\$	-	\$	10,000	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Source Protection Plan TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>1,595,165</b>			
<b>Grand River SPA GRAND TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>17,886,665</b>	<b>17,886,765</b>		47,209 short from the Municipal Incentive & Grants
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>12,138,800</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>8,822,800</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>6,475,795</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>1,788,665</b>			
<b>SPR GRAND TOTAL</b>	<b>\$</b>	<b>-</b>	<b>\$</b>	<b>25,144,795</b>			

Source: Lake Erie Region Source Protection Committee, Grand River Source Protection Area Terms of Reference, (Sept. 2008).

TABLE 11B: CATFISH CREEK SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 116,400	\$ 118,500	1-Jan-05	20-Jan-10	GRCA with support from CC SPA
Information management for the assessment report preparation	\$ 12,200	\$ 3,000	1-Jan-05	20-Jan-10	GRCA with support from CC SPA
Undertaking communications initiatives for the assessment report	\$ 1,100	\$ 2,900	1-Jan-05	20-Jan-10	GRCA with support from CC SPA
Undertaking a watershed characterization	\$ 1,600	\$ -	1-Jan-05	31-Mar-09	GRCA with support from CC SPA
Conducting a conceptual water budget	\$ 13,800	\$ -	1-Jan-05	31-Dec-07	GRCA with support from CC SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ -	\$ -			
Conducting a tier 2 water budget analysis and stress assessment	\$ 59,700	\$ -	1-Mar-07	31-Mar-10	GRCA with support from CC SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 11,700	\$ 100	1-Jul-07	31-Mar-09	GRCA with support from CC SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Oct-08	31-Oct-09	GRCA with support from CC SPA
Assessing risks in HVAs	\$ -	\$ -	1-Oct-08	31-Mar-09	GRCA with support from CC SPA
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Oct-08	20-Jan-10	GRCA with support from CC SPA
Other Assessment Report Preparation Task: Peer Review	\$ -	\$ 6,000	20-Jan-09	20-Jan-10	GRCA with support from CC SPA
Other Assessment Report Preparation Task: Assessment Report Compilation	\$ -	\$ 7,500	20-Jan-09	20-Jan-10	GRCA with support from CC SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 216,500</b>	<b>\$ 138,000</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 354,500</b>			
<b>Municipal Residential Drinking Water Systems (County of Oxford) (Brownsville)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 1,300	\$ -	1-Jun-05	31-Mar-09	County of Oxford
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 8,900	\$ 3,000	1-Jun-05	30-Sep-09	County of Oxford
Assess risk in WHPAs or IPZs	\$ -	\$ 500	1-Jun-06	30-Sep-09	County of Oxford
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 10,200</b>	<b>\$ 3,500</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 13,700</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 165,700	20-Jan-10	12-Aug-12	GRCA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 3,900	20-Jan-10	12-Aug-12	GRCA
Information management for source protection plan preparation	\$ -	\$ 4,000	20-Jan-10	12-Aug-12	GRCA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in	\$ -	\$ 23,300	20-Jan-10	20-Aug-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 8,700	20-Jan-10	20-Aug-12	GRCA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Establishing timelines for policy implementation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Consultation on the overall proposed source protection plan	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task: SPP Compilation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Source Protection Plan TOTAL</b>		<b>\$ 205,600</b>			
<b>Municipal Residential Drinking Water Systems (County of Oxford) (Brownsville)</b>					
Policy development to address drinking water threats (where required and/or permissible in	\$ -	\$ 2,500	20-Jan-10	29-Feb-12	County of Oxford
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 2,200	20-Jan-10	29-Feb-12	County of Oxford
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	County of Oxford
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ 4,700</b>			

Catfish Creek SPA GRAND TOTAL \$ 578,500

SPR ASSESSMENT REPORT TOTAL \$ 12,139,600

SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 6,822,800

SPR SOURCE PROTECTION PLAN TOTAL \$ 4,472,700

SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL \$ 1,709,600

SPR GRAND TOTAL \$ 25,144,700

Source: Lake Erie Region Source Protection Committee. Catfish Creek Source Protection Area Terms of Reference. (Sept. 2008).



TABLE 128: KETTLE CREEK SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 124,000	\$ 128,200	1-Jan-05	20-Jan-10	GRCA with support from KC SPA
Information management for the assessment report preparation	\$ 13,000	\$ 3,200	1-Jan-05	20-Jan-10	GRCA with support from KC SPA
Undertaking communications initiatives for the assessment report	\$ 1,200	\$ 3,000	1-Jan-05	20-Jan-10	GRCA with support from KC SPA
Undertaking a watershed characterization	\$ 1,700	\$ -	1-Jan-05	31-Mar-09	GRCA with support from KC SPA
Conducting a conceptual water budget	\$ 14,700	\$ -	1-Jan-05	31-Dec-07	GRCA with support from KC SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ -	\$ -			
Conducting a tier 2 water budget analysis and stress assessment	\$ 63,500	\$ -	1-Mar-07	31-Mar-10	GRCA with support from KC SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 11,700	\$ 100	1-Jul-07	31-Mar-09	GRCA with support from KC SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Oct-08	31-Oct-09	GRCA with support from KC SPA
Assessing risks in HVAs	\$ -	\$ -	1-Oct-08	31-Mar-09	GRCA with support from KC SPA
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Oct-08	20-Jan-10	GRCA with support from KC SPA
Other Assessment Report Preparation Task: Peer Review	\$ 700	\$ 36,000	20-Jan-09	20-Jan-10	GRCA with support from KC SPA
Other Assessment Report Preparation Task: Assessment Report Compilation	\$ -	\$ 7,500	20-Jan-09	20-Jan-10	GRCA with support from KC SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 230,500</b>	<b>\$ 176,000</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 406,500</b>			
<b>Municipal Residential Drinking Water Systems (Municipality of Central Elgin)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 34,000	\$ 5,000	1-Jun-05	31-Mar-09	GRCA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 45,000	\$ 12,000	1-Jun-05	30-Sep-09	GRCA
Assess risk in WHPAs or IPZs	\$ -	\$ 11,000	1-Jun-06	30-Sep-09	GRCA
<b>Municipal Residential Drinking Water Systems (Elgin Area Primary Water Board Assessment)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 114,000	\$ 23,000	1-Jun-05	31-Mar-09	Elgin-Area Primary Water Board
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 36,500	\$ 45,500	1-Jun-05	31-Mar-09	Elgin-Area Primary Water Board
Assess risk in WHPAs or IPZs	\$ 11,000	\$ 9,000	1-Jun-06	30-Sep-09	Elgin-Area Primary Water Board
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 240,500</b>	<b>\$ 105,500</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 346,000</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 176,600	20-Jan-10	12-Aug-12	GRCA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 4,100	20-Jan-10	12-Aug-12	GRCA
Information management for source protection plan preparation	\$ -	\$ 4,300	20-Jan-10	12-Aug-12	GRCA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 24,800	20-Jan-10	20-Aug-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 9,300	20-Jan-10	20-Aug-12	GRCA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Establishing timelines for policy implementation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Consultation on the overall proposed source protection plan	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task: SPP Compilation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Source Protection Plan TOTAL</b>		<b>\$ 219,100</b>			
<b>Municipal Residential Drinking Water Systems (Municipality of Central Elgin)</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 25,000	20-Jan-10	29-Feb-12	KC SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 10,000	20-Jan-10	29-Feb-12	KC SPA
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	KC SPA
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	KC SPA
<b>Municipal Residential Drinking Water Systems (Elgin Area Primary Water Board Assessment)</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 60,000	20-Jan-10	29-Feb-12	KC SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 25,000	20-Jan-10	29-Feb-12	KC SPA
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	KC SPA
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ 120,000</b>			
<b>Kettle Creek SPA TOTAL</b>		<b>\$ 1,091,600</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 12,139,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 6,822,800</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 4,472,700</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 1,709,600</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 25,144,700</b>			

Source: Lake Erie Region Source Protection Committee, Kettle Creek Source Protection Area Terms of Reference, (Sept. 2008).

TABLE 13B: LONG POINT REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 685,800	\$ 685,100	1-Jan-05	20-Jan-10	GRCA with support from LPR SPA
Information management for the assessment report preparation	\$ 72,400	\$ 17,900	1-Jan-05	20-Jan-10	GRCA with support from LPR SPA
Undertaking communications initiatives for the assessment report	\$ 5,400	\$ 17,000	1-Jan-05	20-Jan-10	GRCA with support from LPR SPA
Undertaking a watershed characterization	\$ 9,300	\$ -	1-Jan-05	31-Mar-09	GRCA with support from LPR SPA
Conducting a conceptual water budget	\$ 81,400	\$ -	1-Jan-05	31-Dec-07	GRCA with support from LPR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ -	\$ -			
Conducting a tier 2 water budget analysis and stress assessment	\$ 354,500	\$ -	1-Mar-07	31-Mar-10	GRCA with support from LPR SPA
Conducting a tier 3 water budget analysis and water quality risk assessment	\$ -	\$ 1,200,000	1-Jan-09	31-Mar-11	GRCA with support from LPR SPA
Delineating and applying vulnerability scores to HVAs	\$ 25,700	\$ 800	1-Jul-07	31-Mar-09	GRCA with support from LPR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Oct-08	31-Oct-09	GRCA with support from LPR SPA
Assessing risks in HVAs	\$ -	\$ -	1-Oct-08	31-Mar-09	GRCA with support from LPR SPA
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Oct-08	20-Jan-10	GRCA with support from LPR SPA
Other Assessment Report Preparation Task: Peer Review	\$ -	\$ 33,000	1-Apr-08	31-Mar-09	GRCA with support from LPR SPA
Other Assessment Report Preparation Task: Assessment Report Compilation	\$ -	\$ 40,000	20-Jan-09	20-Jan-10	GRCA with support from LPR SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,235,600</b>	<b>\$ 2,895,800</b>			
<b>Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 2,842,300</b>			
<b>Municipal Residential Drinking Water Systems (County of Oxford)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 13,000	\$ 75,000	1-Jun-05	31-Mar-09	Oxford
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 33,000	\$ 40,000	1-Jun-05	30-Sep-09	Oxford
Assess risk in WHPAs or IPZs	\$ 11,500	\$ 15,100	1-Jun-06	30-Sep-09	Oxford
<b>Municipal Residential Drinking Water Systems (Halimand County)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 57,600	\$ 13,000	1-Jun-05	20-Sep-09	Halimand
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 69,900	\$ 66,000	1-Jun-05	30-Sep-08	Halimand
Assess risk in WHPAs or IPZs	\$ -	\$ 5,500	1-Jun-06	30-Sep-09	Halimand
<b>Municipal Residential Drinking Water Systems (Norfolk County)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 55,900	\$ 239,000	1-Jun-05	30-Sep-09	Norfolk
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 149,700	\$ 173,000	1-Jun-05	30-Sep-09	Norfolk
Assess risk in WHPAs or IPZs	\$ 18,700	\$ 13,000	1-Jun-06	30-Sep-09	Norfolk
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 469,300</b>	<b>\$ 642,600</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 1,051,900</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 976,600	20-Jan-10	12-Aug-12	GRCA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 22,800	20-Jan-10	12-Aug-12	GRCA
Information management for source protection plan preparation	\$ -	\$ 23,900	20-Jan-10	12-Aug-12	GRCA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR	\$ -	\$ 137,400	20-Jan-10	20-Aug-12	GRCA
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 51,500	20-Jan-10	20-Aug-12	GRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Establishing timelines for policy implementation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Consultation on the overall proposed source protection plan	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task: SPP Compilation	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 1,212,200</b>			
<b>Municipal Residential Drinking Water Systems (County of Oxford)</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 12,900	20-Jan-10	29-Feb-12	Oxford
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 10,900	20-Jan-10	29-Feb-12	Oxford
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	Oxford
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	LPR SPA
<b>Municipal Residential Drinking Water Systems (Halimand County)</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 17,500	20-Jan-10	29-Feb-12	Halimand
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 10,000	20-Jan-10	29-Feb-12	Halimand
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	Halimand
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Municipal Residential Drinking Water Systems (Norfolk County)</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 17,500	20-Jan-10	29-Feb-12	Norfolk
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 10,000	20-Jan-10	29-Feb-12	Norfolk
Establishing timelines for policy implementation	\$ -	\$ -	1-Sep-11	29-Feb-12	Norfolk
Other Source Protection Plan Preparation Task:	\$ -	\$ -	20-Jan-10	20-Aug-12	GRCA
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 78,800</b>			
<b>Long Point Region SPA GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 5,585,200</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 12,139,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 6,822,800</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ -</b>	<b>\$ 4,472,700</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ -</b>	<b>\$ 1,769,600</b>			
<b>SPR GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 25,144,700</b>			

Source: Lake Erie Region Source Protection Committee, Long Point Region Source Protection Area Terms of Reference, (Sept. 2009).

TABLE 14B: LAKES SIMCOE AND COUCHICHIING-BLACK RIVER SOURCE PROTECTION AREA/

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 749,260		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Information management for the assessment report preparation	\$ 28,281	\$ 800,000	1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking communications initiatives for the assessment report	\$ 41,481		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking a watershed characterization	\$ 30,098	\$ -	1-Jan-05	30-Jun-08	LSC-BR with support from NV and SS
Conducting a conceptual water budget	\$ 193,599	\$ -	1-Jan-05	31-Mar-08	LSC-BR with support from NV and SS
Conducting a tier 1 water budget analysis and stress assessment	\$ 43,800	\$ -	1-Dec-07	31-Jul-08	LSC-BR with support from NV and SS
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 327,000	1-May-08	30-Sep-09	LSC-BR with support from NV and SS
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -				LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to HVAs	\$ -		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 66,700	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risks in HVAs	\$ -		1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Applying vulnerability scores to SGRAs	\$ -		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ -	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risk in SGRAs	\$ -		1-Jun-08	31-Aug-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to IPZs	\$ 406,200	\$ 25,000	1-Jun-06	30-Jun-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 80,000	1-Jun-07	30-Jun-09	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 143,500	\$ -	1-Jun-06	31-Mar-09	LSC-BR with support from NV and SS
Assess risk in WHPAs	\$ 66,200	\$ 150,000	1-Jun-06	31-Mar-12	LSC-BR with support from NV and SS
Consultation on the overall proposed assessment report	\$ -				LSC-BR with support from NV and SS
Other Assessment Report Preparation Task: Peer review of HVAs and SGRAs	\$ -	\$ 33,300	1-Apr-09	1-Jun-09	LSC-BR with support from NV and SS
Other Assessment Report Preparation Task: New planned intake (City of Barrie)	\$ -	\$ 60,000	1-Nov-08	31-Oct-09	LSC-BR with support from NV and SS
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,702,406</b>	<b>\$ 1,542,000</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,244,406</b>			
<b>Municipal Residential Drinking Water Systems (York Region)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 70,200	\$ -	1-Jun-07	31-Mar-09	York Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 129,500	\$ -	1-Jun-07	31-Mar-09	York Region
Assess risk in WHPAs	\$ 54,700	\$ 207,200	1-Jun-07	31-Mar-09	York Region
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 1,495,000	1-Oct-08	31-Aug-09	York Region
New planned system technical work	\$ -	\$ 18,400	1-Apr-09	31-Mar-10	York Region
<b>Municipal Residential Drinking Water Systems (Durham Region)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 55,400	\$ 84,800	1-Jun-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 55,400	\$ 184,900	1-Jun-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 55,400	\$ 230,900	1-Jun-07	31-Mar-12	Durham Region
Refine WHPAs to address surface water influence (GUDI)	\$ -	\$ 100,000	1-Jun-08	30-Jun-09	Durham Region
<b>Municipal Residential Drinking Water Systems (City of Barrie)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 23,600	\$ -	1-Jun-07	31-Mar-09	City of Barrie
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 60,500	\$ -	1-Jun-07	31-Mar-09	City of Barrie
Assess risk in WHPAs	\$ 26,000	\$ 125,000	1-Apr-09	31-Mar-12	City of Barrie
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 900,000	1-Mar-09	31-Mar-10	City of Barrie
New planned system technical work	\$ -	\$ 40,000	1-Aug-08	31-Aug-09	City of Barrie
<b>Municipal Residential Drinking Water Systems (City of Kawartha Lakes)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 64,000	\$ -	1-Jun-07	31-Mar-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 14,400	\$ -	1-Jun-07	31-Mar-09	City of Kawartha Lakes
Assess risk in WHPAs	\$ 8,300	\$ 50,000	1-Jun-07	31-Mar-09	City of Kawartha Lakes
Refine WHPAs to address surface water influence (GUDI)	\$ -	\$ 40,000	1-Jun-08	30-Jun-09	City of Kawartha Lakes
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 617,400</b>	<b>\$ 3,476,200</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 4,093,600</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 1,200,000	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Undertaking communications initiatives for the source protection plan		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Information management for source protection plan preparation		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 150,000	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Administrative priority setting of work required to complete SPP based on risk assessments in AR			1-Oct-09		LSC-BR with support from NV and SS
Policy development to address drinking water threats (where required and/or permissible in Act & Regs)		\$ 133,300	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		in cost directly above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for Great Lakes elements (where required/permissible in Act & Regs)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation (Lake Ontario sources)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation		in cost directly above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Consultation on the overall proposed source protection plan			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Other Source Protection Plan Preparation Task: Co-managed policy task		in cost directly above	1-Oct-09	20-Aug-12	various
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,483,300</b>			
<b>Lakes Simcoe &amp; Couchiching-Black River SPA GRAND TOTAL</b>		<b>\$ 8,821,300</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 9,202,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 4,913,700</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 4,324,900</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 18,441,200</b>			

Source: South Georgian Bay-Lake Simcoe Source Protection Committee. Lakes Simcoe &amp; Couchiching-Black River Source Protection Area Terms of Reference. (Aug. 15, 2008).

TABLE 15B: NOTTAWASAGA VALLEY SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 749,260		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Information management for the assessment report preparation	\$ 26,281	\$ 800,000	1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking communications initiatives for the assessment report	\$ 41,460		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking a watershed characterization	\$ 30,099	-	1-Jan-05	30-Jun-09	LSC-BR with support from NV and SS
Conducting a tier 1 water budget analysis and stress assessment	\$ 193,599	-	1-Jan-05	31-Mar-08	LSC-BR with support from NV and SS
Conducting a tier 2 water budget analysis and stress assessment	\$ 43,900	-	1-Dec-07	31-Jul-08	LSC-BR with support from NV and SS
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 163,500	1-May-08	30-Sep-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to HVAs	\$ -		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 66,700	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risks in HVAs	\$ -		1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Applying vulnerability scores to SGRAs	\$ -		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	-	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risk in SGRAs	\$ -		1-Jun-08	31-Aug-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to IPZs	\$ 66,200	\$ 10,000	1-Jun-06	30-Jun-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 80,000	1-Jun-07	30-Jun-09	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 143,500	-	1-Jun-06	31-Mar-09	LSC-BR with support from NV and SS
Assess risk in WHPAs	\$ 66,200	\$ 125,000	1-Jun-06	31-Mar-12	LSC-BR with support from NV and SS
Consultation on the overall proposed assessment report					LSC-BR with support from NV and SS
Other Assessment Report Preparation Task: Peer review of HVAs and SGRAs	\$ -	\$ 33,300	1-Apr-09	1-Jun-09	LSC-BR with support from NV and SS
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,362,480</b>	<b>\$ 1,278,500</b>			
<b>Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 2,640,900</b>			
<b>Municipal Residential Drinking Water Systems (City of Barrie)</b>					
Delineating and applying vulnerability scores to WHPAs			1-Jun-07	31-Mar-09	City of Barrie
Identifying issues, inventorying threats and assessing hazards in WHPAs			1-Jun-07	31-Mar-09	City of Barrie
Assess risk in WHPAs			1-Apr-09	31-Mar-12	City of Barrie
Conducting a tier 3 water budget analysis and water quantity risk assessment			1-Mar-09	31-Mar-10	City of Barrie
New planned system technical work			1-Aug-08	31-Aug-09	City of Barrie
<b>Municipal Residential Drinking Water Systems (Peel Region)</b>					
Delineating and applying vulnerability scores to WHPAs			1-Jun-07	31-Mar-09	Peel Region
Identifying issues, inventorying threats and assessing hazards in WHPAs			1-Jun-07	31-Mar-09	Peel Region
Assess risk in WHPAs			1-Apr-09	31-Mar-12	Peel Region
<b>Municipal Residential Drinking Water Systems (Township of Essa)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 16,900	\$ -	1-Jun-07	31-Mar-09	Township of Essa
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 97,200	\$ -	1-Jun-07	31-Mar-09	Township of Essa
Assess risk in WHPAs	\$ 17,900	\$ 20,000	1-Apr-09	31-Mar-12	Township of Essa
<b>Municipal Residential Drinking Water Systems (Township of Adjala-Toscoronto)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 86,600	\$ -	1-Jun-07	31-Mar-09	Township of Adjala-Toscoronto
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 66,500	\$ -	1-Jun-07	31-Mar-09	Township of Adjala-Toscoronto
Assess risk in WHPAs	\$ 17,300	\$ 20,000	1-Apr-09	31-Mar-12	Township of Adjala-Toscoronto
<b>Municipal Residential Drinking Water Systems (Town of Wasaga Beach)</b>					
Delineating and applying vulnerability scores to WHPAs		Costs included below	1-Jun-07	31-Mar-09	Town of Wasaga Beach
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 81,400	\$ -	1-Jun-07	31-Mar-09	Town of Wasaga Beach
Assess risk in WHPAs	\$ 20,000	\$ 35,000	1-Apr-09	31-Mar-12	Town of Wasaga Beach
<b>Municipal Residential Drinking Water Systems (Town of Mono)</b>					
Delineating and applying vulnerability scores to WHPAs			1-Jun-07	31-Mar-09	Town of Mono
Identifying issues, inventorying threats and assessing hazards in WHPAs			1-Jun-07	31-Mar-09	Town of Mono
Assess risk in WHPAs		\$ 25,000	1-Apr-09	31-Mar-12	Town of Mono
<b>Municipal Residential Drinking Water Systems (Town of Shelburne)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 30,600	\$ -	1-Jun-07	31-Mar-09	Town of Shelburne
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 55,600	\$ -	1-Jun-07	31-Mar-09	Town of Shelburne
Assess risk in WHPAs	\$ 17,600	\$ 20,000	1-Apr-09	31-Mar-12	Town of Shelburne
Refine WHPAs to address surface water influence (GUDI)	\$ -	\$ 40,000	1-Jun-08	30-Jun-09	Town of Shelburne
<b>Municipal Residential Drinking Water Systems (Town of Mulmur)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 91,000	\$ -	1-Jun-07	31-Mar-09	Town of Mulmur
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 25,200	\$ -	1-Jun-07	31-Mar-09	Town of Mulmur
Assess risk in WHPAs	\$ 11,300	\$ 25,000	1-Apr-09	31-Mar-12	Town of Mulmur
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 636,100</b>	<b>\$ 186,600</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 829,100</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 1,200,000	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Undertaking communications initiatives for the source protection plan		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Information management for source protection plan preparation		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)	\$ 100,000		1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Administrative priority setting of work required to complete SPP based on risk assessments in			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development to address drinking water threats (where required and/or permissible in	\$ 133,300		1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		in cost directly above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for Great Lakes elements (where required/permissible in Act & Regs)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation (Lake Ontario sources)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation		in cost directly above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Consultation on the overall proposed source protection plan			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Other Source Protection Plan Preparation Task: Co-managed policy task		in cost directly above	1-Oct-09	20-Aug-12	various
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 1,433,300</b>			
<b>Nottawasaga Valley SPA GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 4,894,200</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 9,202,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 4,913,700</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ -</b>	<b>\$ 4,324,900</b>			
<b>SPR GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 18,441,200</b>			

Source: South Georgian Bay-Lake Simcoe Source Protection Committee. Nottawasaga Valley Source Protection Area Terms of Reference. (Aug. 15, 2008).



TABLE 16B: SEVERN SOUND SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 749,260		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Information management for the assessment report preparation	\$ 28,281	\$ 800,000	1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking communications initiatives for the assessment report	\$ 41,460		1-Jan-05	30-Sep-09	LSC-BR with support from NV and SS
Undertaking a watershed characterization	\$ 30,099	\$ -	1-Jan-05	30-Jun-08	LSC-BR with support from NV and SS
Conducting a conceptual water budget	\$ 193,599	\$ -	1-Jan-05	31-Mar-08	LSC-BR with support from NV and SS
Conducting a tier 1 water budget analysis and stress assessment	\$ 43,800	\$ -	1-Dec-07	31-Jul-08	LSC-BR with support from NV and SS
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 188,500	1-May-08	30-Sep-09	LSC-BR with support from NV and SS
Conducting a tier 3 water budget analysis and water quantity risk assessment					LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to HVAs	\$ -		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 66,700	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risks in HVAs	costs directly above		1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Applying vulnerability scores to SGRAs	in water budget costs above		1-Jun-07	30-Sep-08	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	in HVA cost above	1-Jun-08	31-May-09	LSC-BR with support from NV and SS
Assessing risk in SGRAs	costs directly above		1-Jun-08	31-Aug-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to IPZs	\$ 66,200	\$ 15,000	1-Jun-06	30-Jun-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 80,000	1-Jun-07	30-Jun-09	LSC-BR with support from NV and SS
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 143,500	\$ -	1-Jun-06	31-Mar-09	LSC-BR with support from NV and SS
Assess risk in WHPAs	\$ 66,200	\$ 75,000	1-Jun-06	31-Mar-12	LSC-BR with support from NV and SS
Consultation on the overall proposed assessment report					LSC-BR with support from NV and SS
Other Assessment Report Preparation Task: Peer review of HVAs and SGRAs	\$ -	\$ 33,300	1-Apr-09	1-Jun-09	LSC-BR with support from NV and SS
Delineating and applying vulnerability scores to WHPAs	\$ 44,900	\$ 74,900	1-Jun-07	30-Jun-09	SS with support from LSC-BR and NV
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 91,100	\$ 111,300	1-Jun-06	31-Mar-09	SS with support from LSC-BR and NV
Assess risk in WHPAs	\$ 62,100	\$ 202,100	1-Jun-06	31-Mar-12	SS with support from LSC-BR and NV
Refine WHPAs to address surface water influence (GUDI)	\$ -	\$ 110,000	1-Jun-08	30-Jun-09	SS with support from LSC-BR and NV
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,560,500</b>	<b>\$ 1,756,800</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,317,300</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 1,200,000	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Undertaking communications initiatives for the source protection plan		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Information management for source protection plan preparation		included in above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 75,000	1-Oct-09		LSC-BR with support from NV and SS
Administrative priority setting of work required to complete SPP based on risk assessments in			1-Oct-09		LSC-BR with support from NV and SS
Policy development to address drinking water threats (where required and/or permissible in		\$ 133,300	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		in cost directly above	1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Policy development for Great Lakes elements (where required/permissible in Act & Regs)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation (Lake Ontario sources)			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Establishing timelines for policy implementation		in cost directly above	1-Oct-09		LSC-BR with support from NV and SS
Consultation on the overall proposed source protection plan			1-Oct-09	20-Aug-12	LSC-BR with support from NV and SS
Other Source Protection Plan Preparation Task: Co-managed policy task		in cost directly above	1-Oct-09	20-Aug-12	various
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,408,300</b>			
<b>Severn Sound SPA GRAND TOTAL</b>		<b>\$ 4,725,600</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 9,202,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 4,913,700</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 4,324,900</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 18,441,200</b>			

Source: South Georgian Bay-Lake Simcoe Source Protection Committee. Severn Sound Source Protection Area Terms of Reference. (Aug, 15, 2008).

TABLE 17B: TORONTO AND REGION REGION SOURCE PROTECTION AREA/

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,557,200	\$ 630,000	1-Jan-05	31-Mar-10	TRCA
Information management for the assessment report preparation	\$ 65,900	\$ 19,000	1-Jan-05	31-Mar-10	TRCA
Undertaking communications initiatives for the assessment report	\$ 177,830	\$ 163,000	1-Jan-05	31-Mar-10	TRCA
Undertaking a watershed characterization	\$ 51,600	\$ 25,000	1-Jan-05	30-Sep-09	TRCA
Conducting a conceptual water budget	\$ 205,325	\$ -	1-Apr-05	31-Dec-07	TRCA
Conducting a tier 1 water budget analysis and stress assessment	\$ 143,965	\$ -	1-Apr-06	30-Sep-08	TRCA
Conducting a tier 2 water budget analysis and stress assessment	\$ 137,800	\$ -	1-Sep-08	31-Jul-09	TRCA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 9,000	1-Sep-08	31-Dec-08	TRCA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 7,000	1-Apr-06	31-Dec-08	TRCA
Assessing risks in HVAs	\$ 13,000	\$ 5,000	1-Sep-08	31-Mar-09	TRCA
Applying vulnerability scores to SGRAs	\$ 9,000	\$ -	1-Sep-08	31-Dec-08	TRCA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 7,000	\$ -	1-Apr-06	31-Dec-08	TRCA
Assessing risk in SGRAs	\$ 13,000	\$ 5,000	1-Sep-08	31-Mar-09	TRCA
Consultation on the overall proposed assessment report	\$ 177,830	\$ 163,000	1-Apr-09	31-Mar-10	TRCA
Other Assessment Report Preparation Task: report compilation	\$ -	\$ 100,000	1-Apr-09	28-Feb-10	TRCA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,559,450</b>	<b>\$ 1,146,000</b>			
<b>Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 3,705,450</b>			
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 251,200	\$ 2,700	1-Apr-05	31-Mar-09	Peel, York, Durham
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 183,800	\$ 8,000	1-Apr-06	31-Mar-09	Peel, York, Durham
Assess risk in WHPAs	\$ 50,300	\$ 22,100	1-Sep-08	31-Mar-09	Peel, York, Durham
Undertaking a watershed 'type' characterization	\$ 419,225	\$ -	1-Apr-05	30-Sep-09	Peel, York, Durham, Toronto and TRCA
Delineating and applying vulnerability scores to IPZ1 and IPZ-2	\$ 345,000	\$ -	1-Apr-05	31-Jan-08	Peel, York, Durham, Toronto and TRCA
Delineating and applying vulnerability scores to IPZ-3	\$ -	\$ 500,000	1-Jul-08	30-Jan-09	Peel, York, Durham, Toronto, TRCA
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 426,800	\$ -	1-Sep-08	30-Jun-09	New lead required - beyond current Lake Ont Collaborative work
Assess risk in IPZs	\$ 117,750	\$ -	1-Mar-09	1-Sep-09	New lead required - beyond current Lake Ont Collaborative work
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 1,794,075</b>	<b>\$ 532,800</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 2,326,875</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,257,000	1-Mar-09	20-Aug-12	TRCA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 562,050	1-Jan-10	20-Aug-12	TRCA
Information management for source protection plan preparation	\$ -	\$ 61,500	1-Mar-09	20-Aug-12	TRCA
Establishing evaluation criteria for selecting policies					
Administrative priority setting of work required to complete SPP based on risk					
Policy development to address drinking water threats (where required and/or permissible)	\$ -	\$ -	1-Nov-08	20-Aug-12	TRCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regulation)	\$ -	\$ -	1-Nov-08	20-Aug-12	TRCA
Establishing timelines for policy implementation (Groundwater sources)	\$ -	\$ -	1-Sep-10	20-Aug-12	TRCA
Consultation on the overall proposed source protection plan	\$ -	\$ 522,200	1-Sep-10	20-Aug-12	TRCA
Other Source Protection Plan Preparation Task: SPP compilation	\$ -	\$ -	1-Apr-11	20-Aug-12	TRCA
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 2,402,750</b>			
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 2,402,750</b>			
<b>Municipal SPP Lead - Lake Ontario Sources</b>					
Policy development for Great Lakes elements (where required/permissible in Act & Regulation)	\$ -	\$ -	1-Sep-09	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
Policy Input from Durham Region	\$ -	\$ 60,000	1-Apr-09	20-Aug-12	Durham Region
Establishing timelines for policy implementation (Lake Ontario sources)	\$ -	\$ -	1-Mar-11	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 60,000</b>			

Toronto & Region SPA GRAND TOTAL	\$ 8,495,075
SPR ASSESSMENT REPORT TOTAL	\$ 7,532,540
SPR MUNICIPAL ASSESSMENT REPORT TOTAL	\$ 4,052,415
SPR SOURCE PROTECTION PLAN TOTAL	\$ 3,310,250
SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL	\$ 60,000
SPR GRAND TOTAL	\$ 14,955,205

Source: Credit Valley, Toronto and Region, Central Lake Ontario Source Protection Committee. Toronto &amp; Region Source Protection Area Terms of Reference. (July, 2008).

TABLE 18B: CENTRAL LAKE ONTARIO REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,015,300	\$ 107,700	1-Jan-05	31-Mar-10	CLOCA
Information management for the assessment report preparation	\$ 60,200	\$ 14,000	1-Jan-05	31-Mar-10	CLOCA
Undertaking communications initiatives for the assessment report	\$ -	\$ -	1-Jan-05	31-Mar-10	CLOCA and TRCA
Undertaking a watershed characterization	\$ 51,700	\$ 25,000	1-Jan-05	30-Sep-09	CLOCA
Conducting a conceptual water budget	\$ 203,700	\$ -	1-Apr-05	31-Dec-07	CLOCA
Conducting a tier 1 water budget analysis and stress assessment	\$ 187,100	\$ -	1-Apr-06	30-Dec-08	CLOCA
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 9,000	\$ -	1-Sep-08	31-Dec-08	CLOCA and TRCA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ 11,000	\$ -	1-Apr-06	31-Dec-08	CLOCA
Assessing risks in HVAs	\$ 3,100	\$ 5,000	1-Sep-08	31-Mar-09	CLOCA
Applying vulnerability scores to SGRAs	\$ 9,000	\$ -	1-Sep-08	31-Dec-08	CLOCA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 11,000	\$ -	1-Apr-06	31-Dec-08	CLOCA
Assessing risk in SGRAs	\$ 3,000	\$ 5,000	1-Sep-08	31-Mar-09	CLOCA
Delineating and applying vulnerability scores to WHPAs	\$ 37,900	\$ -	1-Apr-06	31-Oct-06	CLOCA
Identifying issues, inventorying threats and assessing hazards in WHPAs					
Assess risk in WHPAs					
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Apr-09	31-Mar-10	CLOCA and TRCA
Other Assessment Report Preparation Task: report compilation	\$ -	\$ 100,000	1-Apr-09	28-Feb-10	CLOCA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,602,000</b>	<b>\$ 256,700</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>1,858,700</b>			
<b>Municipal Residential Drinking Water Systems (Lake Ontario Sources)</b>					
Undertaking a watershed 'type' characterization			1-Apr-05	30-Sep-09	Peel, York, Durham, Toronto, TRCA
Delineating and applying vulnerability scores to IPZ1 and IPZ-2			1-Apr-05	31-Jan-08	Peel, York, Durham, Toronto, TRCA
Delineating and applying vulnerability scores to IPZ-3			1-Jul-08	30-Jan-09	Peel, York, Durham, Toronto, TRCA
Identifying issues, inventorying threats and assessing hazards in IPZs			1-Sep-08	30-Jun-09	New lead required - beyond current Lake Ont Collaborative work
Assess risk in IPZs			1-Mar-09	1-Sep-09	New lead required - beyond current Lake Ont Collaborative work
<b>Municipal Assessment Report TOTAL</b>	<b>\$</b>	<b>-</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 430,900	1-Mar-09	20-Aug-12	CLOCA
Undertaking communications initiatives for the source protection plan	\$ -	\$ -	1-Jan-10	20-Aug-12	CLOCA and TRCA
Information management for source protection plan preparation	\$ -	\$ 7,000	1-Mar-09	20-Aug-12	CLOCA
Establishing evaluation criteria for selecting policies					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ -	1-Nov-08	20-Aug-12	CLOCA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ -	1-Nov-08	20-Aug-12	CLOCA
Establishing timelines for policy implementation (Groundwater sources)	\$ -	\$ -	1-Sep-10	20-Aug-12	CLOCA
Consultation on the overall proposed source protection plan	\$ -	\$ -	1-Sep-10	20-Aug-12	CLOCA and TRCA
Other Source Protection Plan Preparation Task: SPP compilation	\$ -	\$ -	1-Apr-11	20-Aug-12	CLOCA
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 437,900</b>			
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>437,900</b>			
<b>Municipal SPP Lead - Lake Ontario Sources</b>					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)			1-Sep-09	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
Policy Input from Durham Region			1-Apr-09	20-Aug-12	Durham Region
Establishing timelines for policy implementation (Lake Ontario sources)			1-Mar-11	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
<b>Municipal Source Protection Plan TOTAL</b>	<b>\$</b>	<b>-</b>			
<b>Central Lake Ontario SPA GRAND TOTAL</b>	<b>\$</b>	<b>2,296,600</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>7,532,540</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>4,052,415</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>3,310,250</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>60,000</b>			
<b>SPR GRAND TOTAL</b>	<b>\$</b>	<b>14,955,205</b>			

Source: Credit Valley, Toronto and Region, Central Lake Ontario Source Protection Committee. Central Lake Ontario Source Protection Area Terms of Reference. (July, 2008).

TABLE 19B: CREDIT VALLEY REGION SOURCE PROTECTION AREA

Assesment Report (AR)Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,022,700	\$ 109,200	1-Jan-05	31-Mar-10	CVC
Information management for the assessment report preparation	\$ 60,200	\$ 14,000	1-Jan-05	31-Mar-10	CVC
Undertaking communications initiatives for the assessment report	\$ -	\$ -	1-Jan-05	31-Mar-10	CVC and TRCA
Undertaking a watershed characterization	\$ 51,690	\$ 25,000	1-Jan-05	30-Sep-09	CVC
Conducting a conceptual water budget					
Conducting a tier 1 water budget analysis and stress assessment	\$ 243,600	\$ -	1-Apr-06	30-Sep-08	CVC
Conducting a tier 2 water budget analysis and stress assessment	\$ 207,400	\$ 64,300	1-Apr-06	30-Sep-08	CVC
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 9,000	1-Sep-08	31-Dec-08	TRCA and CVC
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ 6,050	\$ 5,100	1-Sep-08	31-Dec-08	CVC
Assessing risks in HVAs	\$ 5,300	\$ 9,700	1-Sep-08	31-Mar-09	CVC
Applying vulnerability scores to SGRAs	\$ 9,000	\$ -	1-Sep-08	31-Dec-08	CVC
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 6,050	\$ 5,100	1-Sep-08	31-Dec-08	CVC
Assessing risk in SGRAs	\$ 5,300	\$ 9,700	1-Sep-08	31-Mar-09	CVC
Consultation on the overall proposed assessment report	\$ -	\$ -	1-Apr-09	31-Mar-10	CVC and TRCA
Other Assessment Report Preparation Task: report compilation	\$ -	\$ 100,000	1-Apr-09	28-Feb-10	CLOCA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,617,290</b>	<b>\$ 351,100</b>			
<b>Assessment Report TOTAL</b>		<b>1,968,390</b>			
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ 965,000	\$ 160,000	1-Apr-07	31-Jul-09	Halton, Halton CA, CVC, TRCA, MNR, Orangeville
Delineating and applying vulnerability scores to WHPAs	\$ 312,670	\$ -	1-Apr-05	31-Mar-09	CVC, Halton, Peel, Mono, Orangeville
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 229,070	\$ -	1-Apr-06	31-Mar-09	Halton CA, Peel, Erin, Mono, Orangeville
Assess risk in WHPAs	\$ 58,800	\$ -	1-Sep-08	31-Mar-09	CVC, Halton CA, Peel, Mono, Orangeville
Undertaking a watershed 'type' characterization	\$ -	\$ -	1-Apr-05	30-Sep-09	Peel, York, Durham, Toronto and TRCA
Delineating and applying vulnerability scores to IPZ1 and IPZ-2	\$ -	\$ -	1-Apr-05	31-Jan-08	Peel, York, Durham, Toronto and TRCA
Delineating and applying vulnerability scores to IPZ-3	\$ -	\$ -	1-Jul-08	30-Jan-09	CVC, Peel, York, Durham, Toronto, TRCA
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ -	\$ -	1-Sep-08	30-Jun-09	New lead required - beyond current Lake Ont Collaborative work
Assess risk in IPZs	\$ -	\$ -	1-Mar-09	1-Sep-09	New lead required - beyond current Lake Ont Collaborative work
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 1,565,540</b>	<b>\$ 160,000</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>1,725,540</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 462,600	1-Mar-09	20-Aug-12	CVC
Undertaking communications initiatives for the source protection plan	\$ -	\$ -	1-Jan-10	20-Aug-12	CVC and TRCA
Information management for source protection plan preparation	\$ -	\$ 7,000	1-Mar-09	20-Aug-12	CVC
Establishing evaluation criteria for selecting policies					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ -	1-Nov-08	20-Aug-12	CVC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ -	1-Nov-08	20-Aug-12	CVC
Establishing timelines for policy implementation (Groundwater sources)	\$ -	\$ -	1-Sep-10	20-Aug-12	CVC
Consultation on the overall proposed source protection plan	\$ -	\$ -	1-Sep-10	20-Aug-12	CVC and TRCA
Other Source Protection Plan Preparation Task: SPP compilation	\$ -	\$ -	1-Apr-11	20-Aug-12	CVC and TRCA
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 469,600</b>			
<b>Source Protection Plan TOTAL</b>		<b>\$ 469,600</b>			
<b>Municipal SPP Lead - Lake Ontario Sources</b>					
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	Costs included in TR SPA TOR		1-Sep-09	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
Establishing timelines for policy implementation (Lake Ontario sources)			1-Mar-11	20-Aug-12	New lead required - beyond current Lake Ont Collaborative work
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ -</b>			
<b>Credit Valley SPA GRAND TOTAL</b>	<b>\$</b>	<b>4,163,530</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>7,532,540</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>4,052,415</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>3,310,250</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>60,000</b>			
<b>SPR GRAND TOTAL</b>	<b>\$</b>	<b>14,955,205</b>			

Source: Credit Valley, Toronto and Region, Central Lake Ontario Source Protection Committee. Credit Valley Source Protection Area Terms of Reference. (July, 2008).



TABLE 20B: HALTON REGION SOURCE PROTECTION AREA

Assesment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 587,200		31-Dec-08	HH SPR
Information management for the assessment report preparation		\$ 474,600		31-Dec-08	HH SPR
Undertaking communications initiatives for the assessment report		\$ 321,800		31-Dec-08	HH SPR
Undertaking a watershed characterization	\$ 32,400			31-Mar-08	HH SPR
Conducting a conceptual water budget	\$ 61,700			31-Mar-08	HH SPR
Conducting a tier 1 water budget analysis and stress assessment		\$ 50,500		30-Jun-08	HH SPR
Conducting a tier 2 water budget analysis and stress assessment		\$ 379,200		30-Jun-09	HH SPR
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 2,000,000		30-Jun-10	HH SPR
Delineating and applying vulnerability scores to HVAs		\$ 94,800		30-Jun-09	HH SPR
Identifying issues, inventorying threats and assessing hazards in HVAs					HH SPR
Assessing risks in HVAs		\$ 50,500		30-Oct-09	HH SPR
Applying vulnerability scores to SGRAs		\$ 94,800		30-Jun-09	HH SPR
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs		\$ 55,500		30-Jun-09	HH SPR
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 294,300		30-Sep-09	HH SPR
Assess risk in WHPAs or IPZs		\$ 98,100		30-Sep-09	HH SPR
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: 2 GUDI systems		\$ 300,000		30-Sep-09	HH SPR
<b>Assessment Report SUB TOTAL</b>	<b>\$ 94,100</b>	<b>\$ 4,801,300</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>4,895,400</b>			
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 391,400		30-Sep-09	Halton Region (Phase 1) and HH SPR (Phase 2)
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 391,400</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 450,300		20-Aug-12	HH SPR
Undertaking communications initiatives for the source protection plan		\$ 274,100		20-Aug-12	HH SPR
Information management for source protection plan preparation		\$ 140,200		20-Aug-12	HH SPR
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 175,000		31-Mar-12	HH SPR
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 453,500		31-Mar-12	HH SPR
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 55,200		30-Jun-12	HH SPR
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 23,600		31-Dec-11	HH SPR
Establishing timelines for policy implementation		\$ 39,400		30-Jun-12	HH SPR
Consultation on the overall proposed source protection plan		\$ 51,900		31-Jul-12	HH SPR
Other Source Protection Plan Preparation Task:		\$ 106,300		20-Aug-12	HH SPR
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 1,769,500</b>			
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,769,500</b>			

Halton Region GRAND TOTAL \$ 7,056,300

SPR ASSESSMENT REPORT TOTAL \$ 7,195,600

SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 629,900

SPR SOURCE PROTECTION PLAN TOTAL \$ 3,539,000

SPR GRAND TOTAL \$ 11,364,500

Source: Halton-Hamilton Source Protection Committee. Halton Region Source Protection Area Terms of Reference. (Aug. 7, 2008).

TABLE 21B: HAMILTON REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 587,200		31-Dec-08	HH SWP
Information management for the assessment report preparation		\$ 474,600		31-Dec-08	HH SWP
Undertaking communications initiatives for the assessment report		\$ 321,800		31-Dec-08	HH SWP
Undertaking a watershed characterization	\$ 32,400			31-Mar-08	HH SWP
Conducting a conceptual water budget	\$ 61,700			31-Mar-08	HH SWP
Conducting a tier 1 water budget analysis and stress assessment		\$ 50,500		30-Jun-08	HH SWP
Conducting a tier 2 water budget analysis and stress assessment		\$ 94,800		30-Jun-09	HH SWP
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ -			
Delineating and applying vulnerability scores to HVAs		\$ 94,800		30-Jun-09	HH SWP
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs		\$ 50,500		30-Oct-09	HH SWP
Applying vulnerability scores to SGRAs		\$ 94,800		30-Jun-09	HH SWP
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs		\$ 55,500		30-Sep-09	HH SWP
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 182,700		30-Sep-09	HH SWP
Assess risk in WHPAs or IPZs		\$ 48,900		30-Sep-09	HH SWP
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: 1 GUDI system		\$ 150,000		30-Sep-09	HH SWP
<b>Assessment Report SUB TOTAL</b>	<b>\$ 94,100</b>	<b>\$ 2,206,100</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,300,200</b>			
<b>Municipal Residential Drinking Water Systems (Wells and Lake Ontario Sources)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 238,500		30-Sep-09	City of Hamilton
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 238,500</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 450,300		20-Aug-12	HH SWP
Undertaking communications initiatives for the source protection plan		\$ 274,100		20-Aug-12	HH SWP
Information management for source protection plan preparation		\$ 140,200		20-Aug-12	HH SWP
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 175,000		31-Mar-12	HH SWP
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act & Regs)		\$ 453,500		31-Mar-12	HH SWP
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 55,200		30-Jun-12	HH SWP
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 23,600		31-Dec-11	HH SWP
Establishing timelines for policy implementation		\$ 39,400			
Consultation on the overall proposed source protection plan		\$ 51,900		20-Aug-12	HH SWP
Other Source Protection Plan Preparation Task:		\$ 106,300			
<b>Source Protection Plan SUB TOTAL</b>	<b>\$ -</b>	<b>\$ 1,769,500</b>			
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,769,500</b>			
<b>Hamilton Region SPA GRAND TOTAL</b>		<b>\$ 4,308,200</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 7,195,600</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 629,900</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 3,539,000</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 11,364,500</b>			

Source: Halton-Hamilton Source Protection Committee. Hamilton Region Source Protection Area Terms of Reference. (Aug. 7, 2008).

TABLE 22B: NIAGARA PENINSULA REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,197,512	\$ 900,000	1-Jan-05	31-Mar-10	Niagara Peninsula SPA
Information management for the assessment report preparation	\$ 37,678	\$ 42,000	1-Jan-05	31-Mar-10	Niagara Peninsula SPA
Undertaking communications initiatives for the assessment report	\$ 171,314	\$ 334,000	1-Jan-05	31-Mar-10	Niagara Peninsula SPA
Undertaking a watershed characterization	\$ 1,911	\$ 20,000	1-Jan-05	31-Mar-10	Niagara Peninsula SPA
Conducting a conceptual water budget	\$ 63,472	\$ -	1-Jan-05	15-Jun-07	Niagara Peninsula SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 123,560	\$ 47,650	2-Oct-07	31-Dec-08	Niagara Peninsula SPA
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 2,778	\$ -	1-Apr-06	30-Jan-09	Niagara Peninsula SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 7,000	1-Apr-06	31-Mar-09	Niagara Peninsula SPA
Assessing risks in HVAs	\$ -	\$ 5,000	1-Apr-06	30-Apr-09	Niagara Peninsula SPA
Applying vulnerability scores to SGRAs	\$ -	\$ -	1-Apr-06	30-Jan-09	Niagara Peninsula SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 6,000	1-Apr-06	31-Mar-09	Niagara Peninsula SPA
Assessing risk in SGRAs	\$ -	\$ -	1-Apr-06	30-Apr-09	Niagara Peninsula SPA
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ 40,000	1-Aug-09	31-Jan-10	Niagara Peninsula SPA
Other Assessment Report Preparation Task: Assemble Assessment Report	\$ -	\$ 50,000	1-May-09	30-Sep-09	Niagara Peninsula SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,598,225</b>	<b>\$ 1,451,650</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,049,875</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 424,725	\$ -	31-Jan-06	27-Sep-08	Regional Municipality of Niagara
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 264,784	1-Apr-07	30-Apr-09	Regional Municipality of Niagara, Lake Ontario Collaborative Study Group
Assess risk in WHPAs or IPZs	\$ -	\$ 68,608	1-Apr-07	31-May-09	Regional Municipality of Niagara
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 424,725</b>	<b>\$ 333,392</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 758,117</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 965,000	1-Apr-10	31-Mar-12	Niagara Peninsula SPA
Undertaking communications initiatives for the source protection plan		\$ 175,000	1-Apr-10	31-Mar-12	Niagara Peninsula SPA
Information management for source protection plan preparation		\$ 40,000	1-Apr-10	31-Mar-12	Niagara Peninsula SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 10,000	10-Jan-10	31-Mar-11	Niagara Peninsula SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 10,000	10-Jan-10	31-Mar-11	Niagara Peninsula SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 15,000	10-Jan-10	31-Mar-11	Niagara Peninsula SPA
Establishing timelines for policy implementation		\$ 20,000	10-Jan-10	31-Aug-11	Niagara Peninsula SPA
Consultation on the overall proposed source protection plan		\$ 60,000	10-Jan-10	31-Mar-11	Niagara Peninsula SPA
Other Source Protection Plan Preparation Task:		\$ 14,000	10-Jan-10	31-Mar-11	Niagara Peninsula SPA
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,309,000</b>			
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 240,000	1-Mar-10	31-Mar-11	Niagara Peninsula SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 180,000	1-Mar-10	31-Mar-11	Niagara Peninsula SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 240,000	1-Mar-10	31-Mar-11	Niagara Peninsula SPA
Establishing timelines for policy implementation		\$ 60,000	1-Mar-10	31-Aug-11	Niagara Peninsula SPA
<b>Source Protection Plan TOTAL</b>		<b>\$ 720,000</b>			
<b>Niagara Peninsula Region SPA GRAND TOTAL</b>		<b>\$ 5,836,992</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 3,049,875</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 758,117</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 1,309,000</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 720,000</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 5,836,992</b>			

Source: Niagara Peninsula Source Protection Committee, Niagara Peninsula Region Source Protection Area Terms of Reference, (July, 22, 2008).

TABLE 23B: LOWER TRENT SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,524,517	\$ 1,170,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Information management for the assessment report preparation	\$ 405,959	\$ 600,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the assessment report	\$ 185,256	\$ 570,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking a watershed characterization	\$ 777,792	\$ -	1-Apr-05	30-Sep-08	CV, K-H, LT, O-P SPAs
Conducting a conceptual water budget	\$ 302,348	\$ -	1-Apr-05	30-Sep-07	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 1 water budget analysis and stress assessment	\$ 402,490	\$ 173,692	1-Apr-07	31-Dec-08	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 330,000	1-Jul-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ -			LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to H/VAs	\$ -	\$ 80,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in H/VAs	\$ -	\$ 40,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risks in H/VAs	\$ -	\$ 4,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Applying vulnerability scores to SGRAs	\$ -	\$ 12,000	1-Jan-09	31-Mar-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 40,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risk in SGRAs	\$ -	\$ 4,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ 40,000	1-Apr-05	31-Dec-09	LT SPA
Other Assessment Report Preparation Task: Revise/Update Assessment Report	\$ -	\$ 160,000	1-Jan-10	30-Jun-12	LT SPA (CV, K-H, O-P SPAs)
<b>Assessment Report SUB TOTAL</b>	<b>\$ 3,611,082</b>	<b>\$ 3,223,692</b>			
<b>Assessment Report TOTAL</b>	<b>\$ 6,834,774</b>				
<b>City of Kawartha Lakes Groundwater Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 415,567	\$ 50,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 93,600	\$ 203,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 53,733	\$ 24,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>City of Kawartha Lakes Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 118,500	\$ 20,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 95,000	\$ 210,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 25,500	\$ 14,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>Durham Region Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 40,542	\$ 38,000	1-Apr-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 119,461	\$ 20,000	1-Apr-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 52,401	\$ 10,000	1-Apr-07	30-Jun-09	Durham Region
<b>TCC Led Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 584,771	\$ 80,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 161,493	\$ 293,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ 83,841	\$ 34,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 200,825	\$ 20,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 129,375	\$ 500,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in IPZs	\$ 37,900	\$ 70,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Planned Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 40,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ -	\$ 20,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ -	\$ 6,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 165,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 85,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
First Nations Systems	\$ -	\$ 40,000			LT SPA (K-H, O-P SPAs)
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 2,212,309</b>	<b>\$ 1,924,000</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$ 4,136,309</b>				
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,290,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the source protection plan	\$ -	\$ 570,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Information management for source protection plan preparation	\$ -	\$ 600,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 96,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing timelines for policy implementation	\$ -	\$ 32,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Consultation on the overall proposed source protection plan	\$ -	\$ 80,000	1-Jan-10	20-Aug-12	LT SPA
<b>Other Source Protection Plan Preparation Task:</b>					
<b>Source Protection Plan TOTAL</b>	<b>\$ 2,790,000</b>				
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 45,000	1-Jan-10	20-Aug-12	Durham Region
<b>Municipal Source Protection Plan TOTAL</b>	<b>\$ 45,000</b>				
<b>Lower Trent Region SPA GRAND TOTAL</b>	<b>\$ 13,716,083</b>				
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ 29,217,135</b>				
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$ 17,473,487</b>				
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ 11,612,000</b>				
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ 195,000</b>				
<b>SPR GRAND TOTAL</b>	<b>\$ 58,497,622</b>				

Source: Trent Conservation Coalition Source Protection Committee. Lower Trent Region Source Protection Area Terms of Reference. (July 17, 2008).



TABLE 24B: CROWE VALLEY SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,524,517	\$ 1,170,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Information management for the assessment report preparation	\$ 408,669	\$ 600,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the assessment report	\$ 195,256	\$ 570,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking a watershed characterization	\$ 777,792	\$ -	1-Apr-05	30-Sep-08	CV, K-H, LT, O-P SPAs
Conducting a conceptual water budget	\$ 302,348	\$ -	1-Apr-05	30-Sep-07	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 1 water budget analysis and stress assessment	\$ 402,499	\$ 173,692	1-Apr-07	31-Dec-08	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 330,000	1-Jul-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ -			LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 80,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 40,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risks in HVAs	\$ -	\$ 4,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Applying vulnerability scores to SGRAs	\$ -	\$ 12,000	1-Jan-09	31-Mar-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 40,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risk in SGRAs	\$ -	\$ 4,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ -	\$ 40,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 20,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs or IPZs	\$ -	\$ 6,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Consultation on the overall proposed assessment report	\$ -	\$ 40,000	1-Apr-05	31-Dec-09	LT SPA
Other Assessment Report Preparation Task: Revise/Update Assessment Report	\$ -	\$ 160,000	1-Jan-10	30-Jun-12	LT SPA (CV, K-H, O-P SPAs)
<b>Assessment Report SUB TOTAL</b>	<b>\$ 3,611,082</b>	<b>\$ 3,289,692</b>			
<b>Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 6,900,774</b>			
<b>City of Kawartha Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 415,567	\$ 50,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 93,600	\$ 203,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in WHPAs	\$ 53,733	\$ 24,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>City of Kawartha Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 118,500	\$ 20,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 95,000	\$ 210,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 25,500	\$ 14,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>Durham Region Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 40,542	\$ 38,000	1-Apr-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 119,461	\$ 20,000	1-Apr-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 52,401	\$ 10,000	1-Apr-07	30-Jun-09	Durham Region
<b>TCC Led Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 584,771	\$ 60,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 161,493	\$ 293,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ 83,841	\$ 34,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 200,625	\$ 20,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 129,375	\$ 500,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in IPZs	\$ 37,900	\$ 70,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 165,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 85,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
First Nations Systems	\$ -	\$ 40,000			LT SPA (K-H, O-P SPAs)
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 2,212,309</b>	<b>\$ 1,858,000</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$ -</b>	<b>\$ 4,070,309</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,290,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the source protection plan	\$ -	\$ 570,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Information management for source protection plan preparation	\$ -	\$ 600,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)	\$ -	\$ -			
Administrative priority setting of work required to complete SPP based on risk assessments in AR	\$ -	\$ -			
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 96,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing timelines for policy implementation	\$ -	\$ 32,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P SPAs
Consultation on the overall proposed source protection plan	\$ -	\$ 80,000	1-Jan-10	20-Aug-12	LT SPA
Other Source Protection Plan Preparation Task:	\$ -	\$ -			
<b>Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 2,700,000</b>			
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 45,000	1-Jan-10	20-Aug-12	Durham Region
<b>Municipal Source Protection Plan TOTAL</b>	<b>\$ -</b>	<b>\$ 45,000</b>			
<b>Crowe Valley SPA GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 13,716,083</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 29,217,135</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$ -</b>	<b>\$ 17,473,487</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ -</b>	<b>\$ 11,612,000</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ -</b>	<b>\$ 195,000</b>			
<b>SPR GRAND TOTAL</b>	<b>\$ -</b>	<b>\$ 58,497,622</b>			

Source: Trent Conservation Coalition Source Protection Committee. Crowe Valley Source Protection Area Terms of Reference. (July 17, 2008).

TABLE 25B: GANARASKA REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 381,129	\$ 346,000	1-Apr-05	31-Dec-09	LT SPA & GR SPA
Information management for the assessment report preparation	\$ 102,167	\$ 180,000	1-Apr-05	31-Dec-09	LT SPA & GR SPA
Undertaking communications initiatives for the assessment report	\$ 48,821	\$ 174,000	1-Apr-05	31-Dec-09	LT SPA & GR SPA
Undertaking a watershed characterization	\$ 194,449	\$ -	1-Apr-05	30-Sep-08	LT SPA & GR SPA
Conducting a conceptual water budget	\$ 66,680	\$ -	1-Apr-05	30-Sep-07	LT SPA & GR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 140,598	\$ 23,195	1-Apr-07	31-Dec-08	LT SPA & GR SPA
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 60,000	1-Jul-08	30-Jun-09	LT SPA & GR SPA
Conducting a tier 3 water budget analysis and water quantify risk assessment	\$ -	\$ -			LT SPA & GR SPA
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 20,000	1-Apr-09	31-Dec-09	LT SPA & GR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 10,000	1-Apr-09	31-Dec-09	LT SPA & GR SPA
Assessing risks in HVAs	\$ -	\$ 1,000	1-Apr-09	31-Dec-09	LT SPA & GR SPA
Applying vulnerability scores to SGRAs	\$ -	\$ 3,000	1-Jan-09	31-Mar-09	LT SPA & GR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 10,000	1-Jan-09	30-Jun-09	LT SPA & GR SPA
Assessing risk in SGRAs	\$ -	\$ 1,000	1-Jan-09	30-Jun-09	LT SPA & GR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs			1-Apr-08	31-Dec-11	LT SPA & GR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs			1-Apr-08	31-Dec-11	LT SPA & GR SPA
Assess risk in WHPAs or IPZs			1-Apr-08	31-Dec-11	LT SPA & GR SPA
Consultation on the overall proposed assessment report	\$ -	\$ 10,000	1-Apr-05	31-Dec-09	LT SPA & GR SPA
Other Assessment Report Preparation Task: Revise/update Assessment Report	\$ -	\$ 40,000	1-Jan-10	30-Jun-12	LT SPA & GR SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 933,844</b>	<b>\$ 878,195</b>			
<b>Assessment Report TOTAL</b>		<b>1,812,039</b>			
<b>Durham Region Groundwater Projects (Orono)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 14,179	\$ 88,000	1-Apr-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 34,125	\$ 18,000	1-Apr-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 17,719	\$ 10,000	1-Apr-07	30-Jun-09	Durham Region
<b>Hamilton Groundwater Projects (Camborne, Creighton Heights)</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 78,000	\$ 10,000	1-Apr-06	30-Jun-09	Hamilton Twp
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 38,812	\$ 29,000	1-Apr-06	30-Jun-09	Hamilton Twp
Assess risk in WHPAs	\$ 24,500	\$ 3,000	1-Apr-07	30-Jun-09	Hamilton Twp
<b>Lake Ontario Collaborative Surface Water Projects (Newcastle, Port Hope, Cobourg)</b>					
Delineating and applying vulnerability scores to IPZs	\$ 287,739	\$ 40,000	1-Apr-06	30-Jun-09	Peel Region (GR SPA & LT SPA)
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 167,353	\$ 40,000	1-Apr-07	30-Jun-09	Peel Region (GR SPA & LT SPA)
Assess risk in IPZs	\$ 43,824	\$ 20,000	1-Apr-07	30-Jun-09	Peel Region (GR SPA & LT SPA)
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 15,000	1-Dec-08	30-Jun-09	LT SPA & GR SPA
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 15,000	1-Dec-08	30-Jun-09	LT SPA & GR SPA
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 706,251</b>	<b>\$ 288,000</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>994,251</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 398,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 174,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
Information management for source protection plan preparation	\$ -	\$ 180,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act & Regs)	\$ -	\$ 24,000	1-Jan-10	20-Aug-12	SPC, LT and GR SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 4,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 4,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
Establishing timelines for policy implementation	\$ -	\$ 8,000	1-Jan-10	20-Aug-12	SPC, LT and GR SPA
Consultation on the overall proposed source protection plan	\$ -	\$ 20,000	1-Jan-10	20-Aug-12	LT SPA & GR SPA
<b>Other Source Protection Plan Preparation Task:</b>					
<b>Source Protection Plan TOTAL</b>		<b>812,000</b>			
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 15,000	1-Jan-10	20-Aug-12	Durham Region
<b>Municipal Source Protection Plan TOTAL</b>		<b>15,000</b>			

Ganaraska Region SPA GRAND TOTAL \$ 3,633,290

SPR ASSESSMENT REPORT TOTAL \$ 29,217,135  
 SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 17,473,487  
 SPR SOURCE PROTECTION PLAN TOTAL \$ 11,612,000  
 SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL \$ 195,000  
 SPR GRAND TOTAL \$ 58,497,622

Source: Trent Conservation Coalition Source Protection Committee, Ganaraska Region Source Protection Region Terms of Reference, (July 17, 2008).

TABLE 26B: KAWARTHA-HALIBURTON SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,524,517	\$ 1,170,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Information management for the assessment report preparation	\$ 408,669	\$ 600,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the assessment report	\$ 195,256	\$ 570,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking a watershed characterization	\$ 777,792	\$ -	1-Apr-05	30-Sep-08	CV, K-H, LT, O-P SPAs
Conducting a conceptual water budget	\$ 302,348	\$ -	1-Apr-05	30-Sep-07	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 1 water budget analysis and stress assessment	\$ 402,499	\$ 173,692	1-Apr-07	31-Dec-08	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 330,000	1-Jul-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 3 water budget analysis and water quality risk assessment	\$ -	\$ -			LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 80,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 40,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risks in HVAs	\$ -	\$ 4,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Applying vulnerability scores to SGRAs	\$ -	\$ 12,000	1-Jan-09	31-Mar-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 40,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risk in SGRAs	\$ -	\$ 4,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs	\$ -	\$ 40,000	1-Apr-05	31-Dec-09	LT SPA
Consultation on the overall proposed assessment report	\$ -	\$ 160,000	1-Jan-10	30-Jun-12	LT SPA (CV, K-H, O-P SPAs)
Other Assessment Report Preparation Task: Revise/Update Assessment Report	\$ -	\$ -			
Assessment Report SUB TOTAL	\$ 3,611,882	\$ 3,223,692			
Assessment Report TOTAL	\$ -	\$ 6,834,774			
<b>City of Kawartha Lakes Groundwater Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 415,567	\$ 50,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 93,600	\$ 203,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 53,733	\$ 24,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>City of Kawartha Lakes Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 118,500	\$ 20,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 95,000	\$ 210,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 25,500	\$ 14,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>Durham Region Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 40,542	\$ 38,000	1-Apr-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 119,461	\$ 20,000	1-Apr-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 52,401	\$ 10,000	1-Apr-07	30-Jun-09	Durham Region
<b>TCC Led Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 584,771	\$ 80,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 161,493	\$ 293,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ 83,841	\$ 34,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 200,625	\$ 20,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 129,375	\$ 500,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in IPZs	\$ 37,900	\$ 70,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Planned Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 40,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ -	\$ 20,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ -	\$ 6,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 165,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 85,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
First Nations Systems	\$ -	\$ 40,000			
Municipal Assessment Report SUB TOTAL	\$ 2,212,369	\$ 1,824,000			
Municipal Assessment Report TOTAL	\$ -	\$ 4,136,399			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,290,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the source protection plan	\$ -	\$ 570,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Information management for source protection plan preparation	\$ -	\$ 600,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR	\$ -	\$ -			
Policy development to address drinking water threats (where required and/or permissible in Act & Regs)	\$ -	\$ 90,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing timelines for policy implementation	\$ -	\$ 32,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Consultation on the overall proposed source protection plan	\$ -	\$ 80,000	1-Jan-10	20-Aug-12	LT SPA
Other Source Protection Plan Preparation Task:					
Source Protection Plan TOTAL	\$ -	\$ 2,700,000			
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 45,000	1-Jan-10	20-Aug-12	Durham Region
Municipal Source Protection Plan TOTAL	\$ -	\$ 45,000			
<b>Kawartha-Haliburton SPA GRAND TOTAL</b>					
		\$ 13,716,083			
<b>SPR ASSESSMENT REPORT TOTAL</b>					
		\$ 29,217,135			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>					
		\$ 17,473,487			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>					
		\$ 11,612,000			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>					
		\$ 195,000			
<b>SPR GRAND TOTAL</b>					
		\$ 58,497,622			

Source: Trent Conservation Coalition Source Protection Committee, Kawartha-Haliburton Source Protection Area Terms of Reference, (July 17, 2008).

TABLE 27B: OTONABEE-PETERBOROUGH SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,524,517	\$ 1,170,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Information management for the assessment report preparation	\$ 408,669	\$ 600,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the assessment report	\$ 195,256	\$ 570,000	1-Apr-05	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Undertaking a watershed characterization	\$ 777,792	\$ -	1-Apr-05	30-Sep-08	CV, K-H, LT, O-P SPAs
Conducting a conceptual water budget	\$ 302,348	\$ -	1-Apr-05	30-Sep-07	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 1 water budget analysis and stress assessment	\$ 402,499	\$ 173,692	1-Apr-07	31-Dec-08	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 330,000	1-Jul-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ -			LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 80,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 40,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risks in HVAs	\$ -	\$ 4,000	1-Apr-09	31-Dec-09	LT SPA (CV, K-H, O-P SPAs)
Applying vulnerability scores to SGRAs	\$ -	\$ 12,000	1-Jan-09	31-Mar-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 40,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assessing risk in SGRAs	\$ -	\$ 4,000	1-Jan-09	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs	\$ -	\$ 40,000	1-Apr-05	31-Dec-09	LT SPA
Other Assessment Report Preparation Task: Revise/update Assessment Report	\$ -	\$ 160,000	1-Jan-10	30-Jun-12	LT SPA (CV, K-H, O-P SPAs)
<b>Assessment Report SUB TOTAL</b>	<b>\$ 3,611,082</b>	<b>\$ 3,223,692</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 6,834,774</b>			
<b>City of Kawartha Lakes Groundwater Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 415,567	\$ 50,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 93,600	\$ 203,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 53,733	\$ 24,500	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>City of Kawartha Lakes Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 118,500	\$ 20,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 95,000	\$ 210,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
Assess risk in IPZs	\$ 25,500	\$ 14,000	1-Apr-07	30-Jun-09	City of Kawartha Lakes
<b>Durham Region Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 40,542	\$ 38,000	1-Apr-07	30-Jun-09	Durham Region
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 119,461	\$ 20,000	1-Apr-07	30-Jun-09	Durham Region
Assess risk in WHPAs	\$ 52,401	\$ 10,000	1-Apr-07	30-Jun-09	Durham Region
<b>TCC Led Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ 584,771	\$ 80,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 161,493	\$ 293,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ 83,841	\$ 34,500	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Surface Water Projects</b>					
Delineating and applying vulnerability scores to IPZs	\$ 200,625	\$ 20,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in IPZs	\$ 129,375	\$ 500,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Assess risk in IPZs	\$ 37,900	\$ 70,000	1-Apr-06	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
<b>TCC Led Planned Groundwater Projects</b>					
Delineating and applying vulnerability scores to WHPAs	\$ -	\$ 40,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ -	\$ 20,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
Assess risk in WHPAs	\$ -	\$ 6,000	1-Apr-08	31-Dec-11	LT SPA (CV, K-H, O-P SPAs)
<b>Other Assessment Report Preparation Task:</b>					
Peer Review of Municipal Well Vulnerability Studies	\$ -	\$ 165,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
Peer Review of Municipal Surface Water Intake Vulnerability Studies	\$ -	\$ 85,000	1-Dec-08	30-Jun-09	LT SPA (CV, K-H, O-P SPAs)
First Nations Systems	\$ -	\$ 40,000			LT SPA (K-H, O-P SPAs)
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 2,212,309</b>	<b>\$ 1,924,000</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 4,136,309</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,290,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Undertaking communications initiatives for the source protection plan	\$ -	\$ 570,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Information management for source protection plan preparation	\$ -	\$ 600,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in					
Policy development to address drinking water threats (where required and/or permissible in	\$ -	\$ 96,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$ -	\$ 16,000	1-Jan-10	20-Aug-12	LT SPA (CV, K-H, O-P SPAs)
Establishing timelines for policy implementation	\$ -	\$ 32,000	1-Jan-10	20-Aug-12	SPC and LT, CV, K-H, O-P
Consultation on the overall proposed source protection plan	\$ -	\$ 80,000	1-Jan-10	20-Aug-12	LT SPA
Other Source Protection Plan Preparation Task:					
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,700,000</b>			
<b>Municipal Source Protection Plan (SPP) Tasks</b>					
Policy Development Input from Durham Region	\$ -	\$ 45,000	1-Jan-10	20-Aug-12	Durham Region
<b>Municipal Source Protection Plan TOTAL</b>		<b>\$ 45,000</b>			
<b>Otonabee-Peterborough SPA REGION TOTAL</b>		<b>\$ 13,716,083</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 29,217,135</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>		<b>\$ 17,473,487</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 11,612,000</b>			
<b>SPR MUNICIPAL SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 195,000</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 58,497,622</b>			

Source: Trent Conservation Coalition Source Protection Committee, Otonabee-Peterborough Source Protection Area Terms of Reference, (July 17, 2008).



TABLE 28B: QUINTE REGION SOURCE PROTECTION AREA

Assessment Report Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,617,039	\$ 1,091,133	4-Jul-05	30-Oct-09	QC SPA
Information management for the assessment report preparation	\$ 85,811	\$ 25,000	1-Apr-05	30-Oct-09	QC SPA
Undertaking communications initiatives for the assessment report	\$ 42,227	\$ 30,000	1-Apr-05	30-Oct-09	QC SPA
Undertaking a watershed characterization	\$ 38,538		1-Sep-05	31-Mar-08	QC SPA
Conducting a conceptual water budget	\$ 210,350		30-Jun-05	12-Jan-07	QC SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 179,120	\$ 70,000	1-Apr-06	31-Mar-09	QC SPA
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 96,000	2-Jun-08	31-Mar-09	QC SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 6,946		1-Apr-06	31-Mar-08	QC SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ -	1-Oct-08	30-Sep-09	QC SPA
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 486,014	\$ 155,000	various	31-Mar-09	QC SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 283,069	\$ 96,000	various	31-Mar-09	QC SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 38,216	\$ 114,000	various	31-Mar-09	QC SPA
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report		\$ 35,000	20-Oct-08	20-Oct-09	QC SPA
Other Assessment Report Preparation Task: Water quantity analysis					
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,987,330</b>	<b>\$ 1,712,133</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>4,699,463</b>			
<b>Source Protection Plan Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)	\$ -	\$ 2,190,000	2-Nov-09	21-Aug-12	QC SPA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 70,000	20-Aug-09	20-Aug-12	QC SPA
Information management for source protection plan preparation		\$ 50,000	20-Aug-09	20-Aug-12	QC SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in		\$ -	20-Aug-09	20-Aug-12	QC SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ -	20-Aug-09	20-Aug-12	QC SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ -	20-Aug-09	20-Aug-12	QC SPA
Establishing timelines for policy implementation		\$ -	20-Aug-09	20-Aug-12	QC SPA
Consultation on the overall proposed source protection plan		\$ 70,000	20-Aug-09	20-Aug-12	QC SPA
Other Source Protection Plan Preparation Task: Misc unknown costs associated with Rules not yet					
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,380,000</b>			

Quinte Region SPA GRAND TOTAL

\$ 7,079,463

7,156,461 in TOR

SPR ASSESSMENT REPORT TOTAL

\$ 4,699,463

SPR SOURCE PROTECTION PLAN TOTAL

\$ 2,380,000

SPR GRAND TOTAL

\$ 7,079,463

Source: Quinte Region Source Protection Committee. Quinte Region Source Protection Area Terms of Reference. (Aug. 2008).

TABLE 29B: RIDEAU VALLEY SOURCE PROTECTION AREA

Assesment Report Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 895,180	\$ 800,000	1-Jan-05	31-Dec-09	CA staff
Information management for the assessment report preparation	\$ 60,577	\$ 24,000	1-Apr-05	31-Dec-09	CA staff
Undertaking communications initiatives for the assessment report	\$ 14,247	\$ 57,500	1-Apr-05	31-Dec-09	CA staff
Undertaking a watershed characterization	\$ 39,368	\$ -	1-Apr-05	31-Dec-09	CA staff
Conducting a conceptual water budget	\$ 201,865	\$ 7,500	1-Apr-05	31-Dec-09	CA staff
Conducting a tier 1 water budget analysis and stress assessment	\$ 157,817	\$ -	31-Mar-07	31-Dec-09	CA staff
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 37,500	1-Oct-08	31-Dec-09	CA staff
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs					
Identifying issues, inventorying threats and assessing hazards in HVAs and SGRAs					
Assessing risks in HVAs and SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs and IPZs	\$ 416,034	\$ 56,000	31-Mar-06	31-Dec-09	CA staff
Assess risk in WHPAs or IPZs	\$ -	\$ 210,000	31-Mar-09	31-Dec-09	CA staff
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Kemptville and Merrickville Groundwater	\$ 230,981	\$ 6,500	1-Sep-06	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Richmond (King's Park) and Munster Hamlet	\$ 23,640	\$ 4,290	1-Jun-07	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Aquifer Vulnerability Study	\$ 9,095	\$ -	1-Jan-07	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Perth and Smith Falls Surface Water Vulnerability	\$ 157,900	\$ 26,070	1-Jun-08	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Public Consultation	\$ -	\$ 35,000	1-Jan-09	31-Dec-09	CA staff
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,206,704</b>	<b>\$ 1,264,360</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,471,064</b>			
<b>Municipal Residential Drinking Water Systems</b>					
Other Assessment Report Preparation Task: Westport Groundwater Vulnerability Study	\$ 80,994	\$ 49,500	1-Sep-08	31-Dec-09	Village of West Port with CA assistance
Other Assessment Report Preparation Task: Ottawa River Surface Water Vulnerability Study	\$ 207,500	\$ 46,500	1-Jun-07	31-Dec-09	City of Ottawa with CA assistance
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 288,494</b>	<b>\$ 96,000</b>			
<b>Municipal Assessment Report TOTAL</b>		<b>\$ 384,494</b>			
<b>Source Protection Plan Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)		\$ 1,062,500	1-Jan-10	20-Aug-12	SPC
Undertaking communications initiatives for the source protection plan		\$ 77,500	1-Jan-10	20-Aug-12	SPC
Information management for source protection plan preparation		\$ 36,000	1-Jan-10	20-Aug-12	SPC
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in	cost in above	\$ -	1-Jan-10	1-Jan-12	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	cost in above	\$ -	1-Jan-10	1-Jan-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation		\$ -	1-Jan-10	1-Jan-12	SPC
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task: Public Consultation		\$ 45,000	1-Jan-10	20-Aug-12	SPC
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,221,000</b>			

<b>Rideau Valley SPA GRAND TOTAL</b>	<b>\$ 5,076,558</b>
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ 6,347,638</b>
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>	<b>\$ 384,494</b>
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ 2,442,000</b>
<b>SPR GRAND TOTAL</b>	<b>\$ 9,174,132</b>

Source: Mississippi-Rideau Source Protection Region. Rideau Valley Source Protection Area Terms of Reference. (July 18, 2008).

TABLE 30B: MISSISSIPPI VALLEY SOURCE PROTECTION AREA

Assessment Report Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 895,180	\$ 800,000	1-Jan-05	31-Dec-09	CA staff
Information management for the assessment report preparation	\$ 60,577	\$ 24,000	1-Apr-05	31-Dec-09	CA staff
Undertaking communications initiatives for the assessment report	\$ 14,247	\$ 57,500	1-Apr-05	31-Dec-09	CA staff
Undertaking a watershed characterization	\$ 39,368	\$ -	1-Apr-05	31-Dec-09	CA staff
Conducting a conceptual water budget	\$ 201,865	\$ 7,500	1-Apr-05	31-Dec-09	CA staff
Conducting a tier 1 water budget analysis and stress assessment	\$ 157,817	\$ -	31-Mar-07	31-Dec-09	CA staff
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 37,500	1-Oct-08	31-Dec-09	CA staff
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs					
Identifying issues, inventorying threats and assessing hazards in HVAs and SGRAs			1-Oct-07	31-Dec-09	CA staff
Assessing risks in HVAs and SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs	\$ 178,300	\$ 24,000	1-Apr-07	31-Dec-09	CA staff
Assess risk in WHPAs or IPZs	\$ -	\$ 90,000	31-Mar-09	31-Dec-10	CA staff
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Almonte Groundwater Vulnerability Study	\$ 21,675	\$ 3,500	1-Sep-06	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Carp Groundwater Vulnerability Study	\$ 11,820	\$ 2,145	1-Jun-07	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Village of Lanark Groundwater Vulnerability Study	\$ -	\$ 113,500	1-Jun-08	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Carlton Place Surface Water Vulnerability Study	\$ 78,950	\$ 13,035	31-Mar-06	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Groundwater Vulnerability Study	\$ 9,095	\$ -	1-Jan-07	31-Dec-09	CA staff
Other Assessment Report Preparation Task: Public Consultation	\$ -	\$ 35,000	1-Jan-09	31-Dec-09	CA staff
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,668,894</b>	<b>\$ 1,207,680</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,876,574</b>			
<b>Source Protection Plan Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)		\$ 1,062,500	1-Jan-10	20-Aug-12	SPC
Undertaking communications initiatives for the source protection plan		\$ 77,500	1-Jan-10	20-Aug-12	SPC
Information management for source protection plan preparation		\$ 36,000	1-Jan-10	20-Aug-12	SPC
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in					
Policy development to address drinking water threats (where required and/or permissible in	cost in above	\$ -	1-Jan-10	1-Jan-12	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	cost in above	\$ -	1-Jan-10	1-Jan-12	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation		\$ -	1-Jan-10	1-Jan-12	SPC
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task: Public Consultation		\$ 45,000	1-Jan-10	20-Aug-12	SPC
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,221,000</b>			
<b>Mississippi Valley SPA GRAND TOTAL</b>					
		<b>\$ 4,097,574</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>					
		<b>\$ 6,347,638</b>			
<b>SPR MUNICIPAL ASSESSMENT REPORT TOTAL</b>					
		<b>\$ 384,494</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>					
		<b>\$ 2,442,000</b>			
<b>SPR GRAND TOTAL</b>					
		<b>\$ 9,174,132</b>			

Source: Mississippi-Rideau Source Protection Region. Mississippi Valley Source Protection Area Terms of Reference. (July 18, 2008).

TABLE 31B: CATARAQUI REGION SOURCE PROTECTION AREA

Assessment Report Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 2,053,590	3-Jan-05	31-Mar-10	CAR SPA
Information management for the assessment report preparation		\$ 82,351	3-Jan-05	31-Mar-10	CAR SPA
Undertaking communications initiatives for the assessment report		\$ 59,670	3-Jan-05	31-Mar-10	CAR SPA
Undertaking a watershed characterization	\$ 26,255		3-Jan-05	31-Mar-08	CAR SPA
Conducting a conceptual water budget	\$ 155,596		3-Jan-05	30-Mar-07	CAR SPA
Conducting a tier 1 water budget analysis and stress assessment		\$ 160,726	2-Apr-07	30-Jun-09	CAR SPA
Conducting a tier 2 water budget analysis and stress assessment		\$ 195,850	2-Jun-08	31-Dec-08	CAR SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 145,674	1-Mar-07	31-Mar-12	CAR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 20,000	2-Apr-07	30-Jan-09	CAR SPA
Assessing risks in HVAs		\$ -	1-Oct-08	31-Jul-09	CAR SPA
Applying vulnerability scores to SGRAs		\$ -	1-Mar-07	31-Mar-10	CAR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ -	2-Apr-07	30-Jan-09	CAR SPA
Assessing risk in SGRAs		\$ -	1-Oct-08	31-Jul-09	CAR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 548,868	various	various	CAR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 83,070	3-Apr-06	31-Oct-08	CAR SPA
Assess risk in WHPAs or IPZs		\$ 41,850	3-Apr-06	31-Dec-08	CAR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 87,330	2-Apr-07	30-Jan-09	CAR SPA
Assess risk in WHPAs or IPZs		\$ 300,674	2-Apr-07	31-Jul-09	CAR SPA
Consultation on the overall proposed assessment report		\$ 20,500	1-Apr-08	31-Mar-10	CAR SPA
Other Assessment Report Preparation Task:		\$ 133,782	15-Nov-07	31-Mar-10	CAR SPA
Other Assessment Report Preparation Task: Additional Tier 2 WQRA research on threats that may		\$ 50,000	1-Apr-10	31-Mar-11	CAR SPA
Other Assessment Report Preparation Task: Proposed pilot project: appropriate methods to		\$ 50,000	2-Jun-08	30-Sep-09	CAR SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 181,852</b>	<b>\$ 4,033,934</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>4,215,786</b>			
<b>Source Protection Plan Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)		\$ 915,600		20-Aug-12	CAR SPA
Undertaking communications initiatives for the source protection plan		\$ 47,000		20-Aug-12	CAR SPA
Information management for source protection plan preparation		\$ 10,400		20-Aug-12	CAR SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in		\$ 85,525		20-Aug-12	CAR SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 85,525		20-Aug-12	CAR SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 85,525		20-Aug-12	CAR SPA
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 85,525		20-Aug-12	CAR SPA
Establishing timelines for policy implementation (Groundwater sources)					
Consultation on the overall proposed source protection plan		\$ 21,900		20-Aug-12	CAR SPA
Other Source Protection Plan Preparation Task:		\$ 159,800		20-Aug-12	CAR SPA
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,496,800</b>			

Cataraqui Region SPA GRANDTOTAL \$ 5,712,586

SPR ASSESSMENT REPORT TOTAL \$ 4,215,786

SPR SOURCE PROTECTION PLAN TOTAL \$ 1,496,800

SPR GRAND TOTAL \$ 5,712,586

Source: Cataraqui Source Protection Committee. Cataraqui Region Source Protection Area Terms of Reference. (June 30, 2008).



TABLE 32B: RAISIN REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 1,404,500	ongoing		RR-SN SPAs
Information management for the assessment report preparation		\$ 200,000	ongoing		RR-SN SPAs
Undertaking communications initiatives for the assessment report		\$ 176,500	ongoing		RR-SN SPAs
Undertaking a watershed characterization	\$ 21,514	\$ -	1-Oct-06	1-Mar-08	RR-SN SPAs
Conducting a conceptual water budget	\$ 88,908	\$ -	1-Oct-06	1-Jun-08	RR-SN SPAs
Conducting a tier 1 water budget analysis and stress assessment	\$ 65,012	\$ -	1-May-07	1-Aug-08	RR-SN SPAs
Conducting a tier 2 water budget analysis and stress assessment	\$ -	150000	1-Jun-08	1-Dec-09	RR-SN SPAs
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD	TBD	TBD	RR-SN SPAs
Delineating and applying vulnerability scores to HVAs	\$ 6,666	\$ -	1-Sep-07	1-Oct-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 13,333	1-Sep-08	1-Mar-09	RR-SN SPAs
Assessing risks in HVAs	\$ -	\$ 3,333	1-Sep-08	1-Mar-09	RR-SN SPAs
Applying vulnerability scores to SGRAs	\$ 6,666	\$ -	1-Sep-07	1-Oct-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 11,666	1-Sep-08	1-Mar-09	RR-SN SPAs
Assessing risk in SGRAs	\$ -	\$ 3,333	1-Sep-08	1-Mar-09	RR-SN SPAs
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Non-municipal drinking water systems	\$ -	\$ 6,666	TBD	TBD	RR-SN SPAs
<b>Municipal Residential Drinking Water Systems (Groundwater)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 213,571	\$ -	1-Jul-06	1-Sep-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 83,200	\$ -	1-Jul-06	1-Dec-08	RR-SN SPAs
Assess risk in WHPAs or IPZs	\$ 39,000	\$ -	1-Jul-06	1-Dec-08	RR-SN SPAs
Consultation on the overall proposed assessment report	\$ -	\$ 3,333	1-Sep-08	1-Dec-09	RR-SN SPAs
<b>Municipal Residential Drinking Water Systems (Surface Water)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 312,857	\$ -	1-Jul-06	1-Apr-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 197,862	\$ -	1-Jul-06	1-Oct-08	RR-SN SPAs
Assess risk in WHPAs or IPZs	\$ 79,923	\$ -	1-Jul-06	1-Oct-08	RR-SN SPAs
Consultation on the overall proposed assessment report	\$ -	\$ 3,333	1-Sep-08	1-Dec-09	RR-SN SPAs
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,115,179</b>	<b>\$ 1,975,997</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,091,176</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 770,192	ongoing		RR-SN SPAs
Undertaking communications initiatives for the source protection plan		\$ 88,000	ongoing		RR-SN SPAs
Information management for source protection plan preparation		\$ 50,000	ongoing		RR-SN SPAs
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 10,000	Mar-09	1-May-09	SPC
Administrative priority setting of work required to complete SPP based on risk assessments in AR		\$ 6,666	Mar-09	1-May-09	SPC
Policy development to address drinking water threats (where required and/or permissible in		\$ 6,666	1-Sep-09	1-Mar-10	SPC
Policy development to address funding requirement for implementation of SPP		\$ 6,666	1-Jan-09	1-Jan-10	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 6,666	1-Nov-09	1-May-10	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 13,333	1-Nov-09	1-Aug-10	SPC
Establishing timelines for policy implementation		\$ 6,666	1-Nov-10	1-Feb-11	SPC
Consultation on the overall proposed source protection plan		\$ 6,666	1-Feb-11	1-May-11	SPC
Other Source Protection Plan Preparation Task: Cannot define specific tasks at this time		\$ 6,666	TBD	TBD	SPC
<b>Source Protection Plan TOTAL</b>		<b>\$ 978,187</b>			
<b>Raisin Region SPA GRAND TOTAL</b>		<b>\$ 4,069,363</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>		<b>\$ 8,585,353</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		<b>\$ 1,996,376</b>			
<b>SPR GRAND TOTAL</b>		<b>\$ 10,581,729</b>			

Source: Raisin-South Nation Source Protection Committee. Raisin Region Source Protection Area Terms of Reference. (Aug. 21, 2008).

TABLE 33B: SOUTH NATION REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 1,404,500	ongoing		RR-SN SPAs
Information management for the assessment report preparation		\$ 200,000	ongoing		RR-SN SPAs
Undertaking communications initiatives for the assessment report		\$ 176,500	ongoing		RR-SN SPAs
Undertaking a watershed characterization	\$ 21,514	\$ -	1-Oct-06	1-Mar-08	RR-SN SPAs
Conducting a conceptual water budget	\$ 177,817	\$ -	1-Oct-06	1-Jun-08	RR-SN SPAs
Conducting a tier 1 water budget analysis and stress assessment	\$ 130,024	\$ -	1-May-07	1-Aug-08	RR-SN SPAs
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ 150,000	1-Jun-08	1-Dec-09	RR-SN SPAs
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	TBD	TBD	TBD	RR-SN SPAs
Delineating and applying vulnerability scores to HVAs	\$ 13,333	\$ -	1-Sep-07	1-Oct-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ -	\$ 26,666	1-Sep-08	1-Mar-09	RR-SN SPAs
Assessing risks in HVAs	\$ -	\$ 6,666	1-Sep-08	1-Mar-09	RR-SN SPAs
Applying vulnerability scores to SGRAs	\$ 13,333	\$ -	1-Sep-07	1-Oct-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ -	\$ 23,333	1-Sep-08	1-Mar-09	RR-SN SPAs
Assessing risk in SGRAs	\$ -	\$ 6,666	1-Sep-08	1-Mar-09	RR-SN SPAs
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Non-municipal drinking water systems	\$ -	\$ 13,333	TBD	TBD	RR-SN SPAs
<b>Municipal Residential Drinking Water Systems (Groundwater)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 1,281,428	1-Jul-06	1-Feb-09	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 499,200	1-Jul-06	1-Mar-09	RR-SN SPAs
Assess risk in WHPAs or IPZs		\$ 234,000	1-Jul-06	1-Sep-09	RR-SN SPAs
Consultation on the overall proposed assessment report		\$ 6,666	1-Oct-09	1-Jan-10	RR-SN SPAs
<b>Municipal Residential Drinking Water Systems (Surface Water)</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 584,000	\$ -	1-Jul-06	1-Apr-08	RR-SN SPAs
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 369,342	\$ -	1-Jul-06	1-Dec-08	RR-SN SPAs
Assess risk in WHPAs or IPZs	\$ 149,190	\$ -	1-Jul-06	1-Jan-08	RR-SN SPAs
Consultation on the overall proposed assessment report	\$ -	\$ 6,666	1-Sep-08	1-Jan-10	RR-SN SPAs
<b>Assessment Report SUB TOTAL</b>	\$ 1,458,553	\$ 4,035,624			
<b>Assessment Report TOTAL</b>	\$	\$ 5,494,177			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 770,192	ongoing		RR-SN SPAs
Undertaking communications initiatives for the source protection plan		\$ 88,000	ongoing		RR-SN SPAs
Information management for source protection plan preparation		\$ 50,000	ongoing		RR-SN SPAs
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)		\$ 10,000	Aug-09	1-Dec-09	SPC
Administrative priority setting of work required to complete SPP based on risk assessments in AR		\$ 13,333	May-09	1-Mar-10	SPC
Policy development to address drinking water threats (where required and/or permissible in SPP)		\$ 13,333	1-Jan-10	1-Jan-11	SPC
Policy development to address funding requirement for implementation of SPP		\$ 13,333	1-Jan-09	1-Jan-10	SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 13,333	1-May-10	1-May-11	SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 6,666	1-Oct-10	1-Jan-11	SPC
Establishing timelines for policy implementation		\$ 13,333	1-Dec-11	1-Apr-11	SPC
Consultation on the overall proposed source protection plan		\$ 13,333	1-May-11	1-Aug-11	SPC
Other Source Protection Plan Preparation Task: Cannot define specific tasks at this time		\$ 13,333	TBD	TBD	SPC
<b>Source Protection Plan TOTAL</b>		\$ 1,018,189			
<b>South Nation SPA GRAND TOTAL</b>		\$ 6,512,366			
<b>SPR ASSESSMENT REPORT TOTAL</b>		\$ 8,585,353			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>		\$ 1,996,376			
<b>SPR GRAND TOTAL</b>		\$ 10,581,729			

Source: Raisin-South Nation Source Protection Committee. South Nation Source Protection Area Terms of Reference. (Aug. 21, 2008).

TABLE 34B: LAKEHEAD REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 943,967	\$ 1,099,600	3-Jan-05	31-Mar-10	LR SPA
Information management for the assessment report preparation	\$ 177,713	\$ 111,640	1-Jan-05	31-Mar-10	LR SPA
Undertaking communications initiatives for the assessment report	\$ 62,219	\$ 73,000	3-Jan-05	31-Mar-10	LR SPA
Undertaking a watershed characterization	\$ 2,450	\$ -	3-Oct-05	31-Mar-08	LR SPA
Conducting a conceptual water budget	\$ 69,273	\$ -	1-Aug-06	30-Jun-07	LR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 24,590	\$ 18,715	1-Feb-07	30-Aug-08	LR SPA
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs					
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs					
Applying vulnerability scores to SGRAs					
Identifying issues, inventorying threats and assessing hazards in SGRAs					
Assessing risk in SGRAs					
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report	\$ -	\$ 55,400	1-Jan-09	31-Mar-10	LR SPA
Other Assessment Report Preparation Task:	\$ -	\$ 96,000	20-Oct-08	31-Mar-10	LR SPA
<b>Municipal Residential Drinking Water Systems</b>					
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 88,817	\$ 53,828	1-Jun-06	31-Dec-09	City of Thunder Bay, Municipality of Oliver Paipoonge, LR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 83,271	\$ 54,643	1-Jun-06	31-Dec-09	City of Thunder Bay, Municipality of Oliver Paipoonge, LR SPA
Assess risk in WHPAs or IPZs	\$ 10,987	\$ 107,525	18-May-07	31-Dec-09	City of Thunder Bay, Municipality of Oliver Paipoonge, LR SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 1,463,287</b>	<b>\$ 1,670,351</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>3,133,638</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 1,237,050	3-Jan-11	20-Aug-12	LR SPA
Undertaking communications initiatives for the source protection plan		\$ 94,290	3-Jan-11	20-Aug-12	LR SPA
Information management for source protection plan preparation		\$ 144,200	3-Jan-11	20-Aug-12	LR SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft					
Administrative priority setting of work required to complete SPP based on risk					
Policy development to address drinking water threats (where required and/or		\$ -	3-Jan-11	20-Aug-12	LR SPA
Policy development for monitoring (where required, advisable and/or permissible		\$ -	3-Jan-11	20-Aug-12	LR SPA
Policy development for Great Lakes elements (where required/permissible in Act					
Establishing timelines for policy implementation		\$ -	3-Jan-11	20-Aug-12	LR SPA
Consultation on the overall proposed source protection plan		\$ 64,000	3-Jan-11	20-Aug-12	LR SPA
Other Source Protection Plan Preparation Task: Cannot define specific tasks at		\$ 112,000	3-Jan-11	20-Aug-12	LR SPA
<b>Source Protection Plan TOTAL</b>		<b>\$ 1,651,540</b>			

Lakehead Region SPA GRAND TOTAL \$ 4,785,178

SPR ASSESSMENT REPORT TOTAL \$ 3,133,638

SPR SOURCE PROTECTION PLAN TOTAL \$ 1,651,540

SPR GRAND TOTAL \$ 4,785,178

Source: Lakehead Source Protection Committee. Lakehead Region Source Protection Area Terms of Reference. (June 20, 2008).

TABLE 35B: SAULT STE. MARIE REGION SOURCE PROTECTION AREA

Assesment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,317,046	\$ 1,848,200	7-Mar-05	15-Jan-12	SSMR SPA
Information management for the assessment report preparation	\$ 93,362	\$ 120,000	16-May-05	15-Jan-12	SSMR SPA
Undertaking communications initiatives for the assessment report	\$ 49,548	\$ 112,500	7-Mar-05	15-Jan-12	SSMR SPA
Undertaking a watershed characterization	\$ 3,500	\$ 1,800	1-Sep-05	30-Jun-08	SSMR SPA
Conducting a conceptual water budget	\$ 111,697	\$ -	9-Jan-06	1-Apr-07	SSMR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 96,824	\$ 21,800	1-Dec-06	30-Aug-08	SSMR SPA
Conducting a tier 2 water budget analysis and stress assessment	\$ -	\$ -	1-Mar-07	30-Aug-08	SSMR SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment	\$ -	\$ 121,310	1-Jul-08	30-Aug-09	SSMR SPA
Delineating and applying vulnerability scores to HVAs	\$ -	\$ 5,000	3-Jul-07	31-Dec-08	SSMR SPA
Identifying issues, inventorying threats and assessing hazards in HVAs					
Assessing risks in HVAs	\$ -	\$ 7,500	1-Dec-08	31-Aug-09	SSMR SPA
Applying vulnerability scores to SGRAs	\$ -	\$ 200,000	11-Aug-08	31-Dec-08	SSMR SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 1,680	\$ 11,500	2-Apr-07	31-Aug-09	SSMR SPA
Assessing risk in SGRAs	\$ -	\$ 7,500	1-Dec-08	31-Aug-09	SSMR SPA
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ -	\$ 5,000	6-Jun-06	31-Dec-08	SSMR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ -	\$ 10,000	7-Nov-07	31-Aug-09	SSMR SPA
Assess risk in WHPAs or IPZs	\$ -	\$ 10,000	7-Nov-07	31-Aug-09	SSMR SPA
Consultation on the overall proposed assessment report	\$ -	\$ 10,000	4-Aug-08	1-Jan-10	SSMR SPA
Other Assessment Report Preparation Task:					
Assessment Report SUB TOTAL	\$ 1,673,657	\$ 2,492,110			
Assessment Report TOTAL	\$	4,165,767			
Source Protection Plan (SPP) Tasks					
Coordinating and supporting projects for the source protection plan					
Undertaking communications initiatives for the source protection plan					
Information management for source protection plan preparation					
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 15,000	2-Nov-09	15-Jan-12	SSMR SPA
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 15,000	2-Nov-09	15-Jan-12	SSMR SPA
Policy development for Great Lakes elements (where required/permissible in Act & Regs)		\$ 15,000	2-Nov-09	15-Jan-12	SSMR SPA
Establishing timelines for policy implementation		\$ 15,000	2-Nov-09	15-Jan-12	SSMR SPA
Consultation on the overall proposed source protection plan					
Other Source Protection Plan Preparation Task:		\$ 20,000	1-Apr-08	15-Jan-12	SSMR SPA
Source Protection Plan TOTAL		\$ 80,000			
Sault Ste. Marie Region SPA GRAND TOTAL		\$ 4,245,767			
SPR ASSESSMENT REPORT TOTAL		\$ 4,165,767			
SPR SOURCE PROTECTION PLAN TOTAL		\$ 80,000			
SPR GRAND TOTAL		\$ 4,245,767			

Source: Sault Ste. Marie Region Source Protection Committee. Sault Ste. Marie Region Source Protection Area Terms of Reference. (Aug. 19, 2008).



TABLE 36B: MATTAGAMI REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 2,113,004		30-Oct-09	MR SPA
Information management for the assessment report preparation		\$ 467,103		30-Oct-09	MR SPA
Undertaking communications initiatives for the assessment report		\$ 60,069		30-Oct-09	MR SPA and SPC
Undertaking a watershed characterization	\$ 19,511			6-Mar-08	MR SPA
Conducting a conceptual water budget	\$ 35,176			24-Jul-07	MR SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 41,876			26-Oct-07	MR SPA
Conducting a tier 2 water budget analysis and stress assessment					
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs	\$ 12,000			9-Apr-09	MR SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 8,000		31-Dec-08	MR SPA
Consultation on the overall proposed assessment report					
Other Assessment Report Preparation Task: Water quantity analysis	\$ 8,000			31-Dec-08	MR SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 116,562</b>	<b>\$ 2,648,176</b>			
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,764,738</b>			
<b>Municipal Residential Drinking Water System Tasks</b>					
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 8,000		31-Dec-08	City of Timmins
Assessing risks in HVAs		\$ 8,000		31-Dec-08	City of Timmins
Applying vulnerability scores to SGRAs	\$ 12,000			9-Apr-08	City of Timmins
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 8,000		31-Dec-08	City of Timmins
Assessing risk in SGRAs		\$ 8,000		31-Dec-08	City of Timmins
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 15,492			9-Apr-08	City of Timmins
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 8,000		31-Dec-08	City of Timmins
Assess risk in WHPAs or IPZs	\$ 16,511			4-Aug-06	City of Timmins
<b>Municipal Assessment Report SUB TOTAL</b>	<b>\$ 44,003</b>	<b>\$ 40,000</b>			
<b>Municipal Assessment Report TOTAL</b>	<b>\$</b>	<b>84,003</b>			
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan		\$ 750,000		17-Aug-12	MR SPA
Undertaking communications initiatives for the source protection plan		\$ 120,000		17-Aug-12	MR SPA
Information management for source protection plan preparation		\$ 40,000		17-Aug-12	MR SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 25,000		17-Aug-12	MR SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 25,000		17-Aug-12	MR SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)				17-Aug-12	MR SPC
Establishing timelines for policy implementation (Lake Ontario sources)		\$ 20,000		17-Aug-12	MR SPC
Establishing timelines for policy implementation (Groundwater sources)					
Consultation on the overall proposed source protection plan		\$ 20,000		17-Aug-12	MR SPA
Other Source Protection Plan Preparation Task: Misc unknown costs associated with Rules not yet available		\$ 25,000		17-Aug-12	MR SPA
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>1,025,000</b>			

Mattagami Region SPA GRAND TOTAL \$ 3,873,741

SPR ASSESSMENT REPORT TOTAL \$ 2,764,738

SPR MUNICIPAL ASSESSMENT REPORT TOTAL \$ 84,003

SPR SOURCE PROTECTION PLAN TOTAL \$ 1,025,000

SPR GRAND TOTAL \$ 3,873,741

Source: Mattagami Region Source Protection Committee, Mattagami Source Protection Area Terms of Reference. (July 18, 2008).

TABLE 37B: GREATER SUDBURY SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated Costs	Start	Completion	
Coordinating and supporting projects for the assessment report	\$ 1,370,843	\$ 363,249	1-Jan-05	31-Dec-09	GS SPA
Information management for the assessment report preparation	\$ 428,665	\$ 15,000	1-Jan-05	31-Dec-09	GS SPA
Undertaking communications initiatives for the assessment report	\$ 51,535	\$ 18,750	1-Jan-05	31-Dec-09	GS SPA
Undertaking a watershed characterization	\$ 33,534		1-Apr-05	30-Apr-08	GS SPA
Conducting a conceptual water budget	\$ 99,052		1-Oct-05	30-Jun-06	GS SPA
Conducting a tier 1 water budget analysis and stress assessment	\$ 167,374		1-Aug-06	29-Feb-08	GS SPA
Conducting a tier 2 water budget analysis and stress assessment	\$ 197,147		1-Mar-08	1-Jun-09	GS SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 139,885	1-Jan-09	30-Sep-09	GS SPA
Delineating and applying vulnerability scores to HVAs	\$ 4,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Identifying issues, inventorying threats and assessing hazards in HVAs	\$ 4,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Assessing risks in HVAs	\$ 3,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Applying vulnerability scores to SGRAs	\$ 2,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs	\$ 4,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Assessing risk in SGRAs	\$ 3,000	\$ 5,000	1-Sep-08	1-Sep-09	GS SPA
Delineating and applying vulnerability scores to WHPAs or IPZs	\$ 310,388	\$ 37,500	1-Mar-06	1-Sep-09	GS SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$ 172,806	\$ 37,500	1-Mar-07	1-Sep-09	GS SPA
Assess risk in WHPAs or IPZs	\$ 91,360	\$ 37,500	1-Mar-07	1-Sep-09	GS SPA
Consultation on the overall proposed assessment report	\$ -	\$ 1,000	1-Jun-08	31-Dec-09	GS SPA
Other Assessment Report Preparation Task: Provision for unanticipated tasks	\$ -	\$ 1,000	1-Apr-08	31-Dec-09	GS SPA
<b>Assessment Report SUB TOTAL</b>	<b>\$ 2,942,704</b>	<b>\$ 681,384</b>			
<b>Assessment Report TOTAL</b>		<b>\$ 3,624,088</b>			
<b>First Nations Assessment Report (AR) Task</b>					
Other Assessment Report Preparation Task: Pre-screening for Wahnapiatae FN drinking water system	\$ 25,000	\$ -	1-Apr-08	31-Mar-09	Wahnapiatae FN
<b>Assessment Report TOTAL</b>	<b>\$ 25,000</b>				
<b>Source Protection Plan (SPP) Tasks</b>					
Coordinating and supporting projects for the source protection plan	\$ -	\$ 1,735,675	1-Jan-10	20-Aug-12	GS SPA
Undertaking communications initiatives for the source protection plan	\$ -	\$ 74,533	1-Jan-10	20-Aug-12	GS SPA
Information management for source protection plan preparation	\$ -	\$ 69,626	1-Jan-10	20-Aug-12	GS SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	\$ -	\$ 168,750	1-Jan-10	20-Aug-12	GS SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	\$ -	\$ 168,750	1-Jan-10	20-Aug-12	GS SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation	\$ -	\$ 24,000	1-Jan-10	20-Aug-12	GS SPA
Consultation on the overall proposed source protection plan	\$ -	\$ 15,000	1-Jan-10	20-Aug-12	GS SPC
Other Source Protection Plan Preparation Task: Extra SPC meetings for policy development	\$ -	\$ 243,294	1-Jan-10	20-Aug-12	GS SPA
<b>Source Protection Plan TOTAL</b>		<b>\$ 2,499,628</b>			
<b>First Nations Source Protection Plan (SPP) Tasks</b>					
Other Source Protection Plan Preparation Task: Technical studies and developing policies for the	\$ -	\$ 300,000	1-Jan-10	20-Aug-12	Wahnapiatae FN
<b>Source Protection Plan TOTAL</b>		<b>\$ 300,000</b>			
<b>Greater Sudbury District SPA GRAND TOTAL</b>		<b>\$ 6,448,716</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$ 3,624,088</b>				
<b>SPR FIRST NATIONS ASSESSMENT REPORT TOTAL</b>	<b>\$ 25,000</b>				
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ 2,499,628</b>				
<b>SPR FIRST NATIONS SOURCE PROTECTION PLAN TOTAL</b>	<b>\$ 300,000</b>				
<b>SPR GRAND TOTAL</b>	<b>\$ 6,448,716</b>				

Source: Greater Sudbury Source Protection Committee. Greater Sudbury District Source Protection Area Terms of Reference. (May 22, 2008).

TABLE 38B: NORTH BAY-MATTAWA REGION SOURCE PROTECTION AREA

Assessment Report (AR) Tasks	BUDGET		Timeline		Lead
	Completed / In Progress	Estimated	Start	Completion	
Coordinating and supporting projects for the assessment report		\$ 1,371,400		20-Oct-09	NB-M SPA
Information management for the assessment report preparation		\$ 262,000		20-Oct-09	NB-M SPA
Undertaking communications initiatives for the assessment report		\$ 235,000		20-Oct-09	NB-M SPA
Undertaking a watershed characterization		\$ 54,000		20-Oct-09	NB-M SPA
Conducting a conceptual water budget		\$ 99,370		20-Oct-09	NB-M SPA
Conducting a tier 1 water budget analysis and stress assessment		\$ 156,000		20-Oct-09	NB-M SPA
Conducting a tier 2 water budget analysis and stress assessment		\$ 78,500		20-Oct-09	NB-M SPA
Conducting a tier 3 water budget analysis and water quantity risk assessment					
Delineating and applying vulnerability scores to HVAs		\$ 8,200		20-Oct-09	NB-M SPA
Identifying issues, inventorying threats and assessing hazards in HVAs		\$ 15,200		20-Oct-09	NB-M SPA
Assessing risks in HVAs		\$ 10,200		20-Oct-09	NB-M SPA
Applying vulnerability scores to SGRAs		\$ 10,200		20-Oct-09	NB-M SPA
Identifying issues, inventorying threats and assessing hazards in SGRAs		\$ 15,200		20-Oct-09	NB-M SPA
Assessing risk in SGRAs		\$ 10,200		20-Oct-09	NB-M SPA
Delineating and applying vulnerability scores to WHPAs or IPZs					
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs					
Assess risk in WHPAs or IPZs					
Consultation on the overall proposed assessment report		\$ 70,000		20-Oct-09	NB-M SPA
Other Assessment Report Preparation Task:					
Conducting a tier 3 water budget analysis and water quantity risk assessment		\$ 30,000		20-Oct-09	NB-M SPA
Delineating, identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 211,413		20-Oct-09	NB-M SPA
Assess risk in WHPAs or IPZs		\$ 51,267		20-Oct-09	NB-M SPA
Delineating and applying vulnerability scores to WHPAs or IPZs		\$ 20,000		20-Oct-09	NB-M SPA
Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs		\$ 12,000		20-Oct-09	NB-M SPA
Assess risk in WHPAs or IPZs		\$ 8,000		20-Oct-09	NB-M SPA
<b>Assessment Report TOTAL</b>	<b>\$</b>	<b>2,728,150</b>			
<b>Source Protection Plan Tasks</b>					
Coordinating and supporting projects for the source protection plan (SPP)		\$ 617,000		20-Aug-12	NB-M SPA
Undertaking communications initiatives for the source protection plan		\$ 162,000		20-Aug-12	NB-M SPA
Information management for source protection plan preparation		\$ 150,000		20-Aug-12	NB-M SPA
Establishing evaluation criteria for selecting policies (impact assessments of draft policies)					
Administrative priority setting of work required to complete SPP based on risk assessments in AR					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 61,000		20-Aug-12	NB-M SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 61,000		20-Aug-12	NB-M SPC
Policy development for Great Lakes elements (where required/permissible in Act & Regs)					
Establishing timelines for policy implementation (Lake Ontario sources)					
Establishing timelines for policy implementation		\$ 62,000		20-Aug-12	NB-M SPC
Consultation on the overall proposed source protection plan		\$ 60,000		20-Aug-12	NB-M SPA
Other Source Protection Plan Preparation Task:					
Policy development to address drinking water threats (where required and/or permissible in Act/Regs)		\$ 135,000		20-Aug-12	NB-M SPC
Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)		\$ 55,000		20-Aug-12	NB-M SPC
Establishing timelines for policy implementation		\$ 30,000		20-Aug-12	NB-M SPC
<b>Source Protection Plan TOTAL</b>	<b>\$</b>	<b>1,393,000</b>			
<b>North Bay-Mattawa SPA GRAND TOTAL</b>	<b>\$</b>	<b>4,121,150</b>			
<b>SPR ASSESSMENT REPORT TOTAL</b>	<b>\$</b>	<b>2,728,150</b>			
<b>SPR SOURCE PROTECTION PLAN TOTAL</b>	<b>\$</b>	<b>1,393,000</b>			
<b>SPR GRAND TOTAL</b>	<b>\$</b>	<b>4,121,150</b>			

Source: North Bay - Mattawa Source Protection Committee. North Bay-Mattawa Source Protection Area Terms of Reference. (June 18, 2008).

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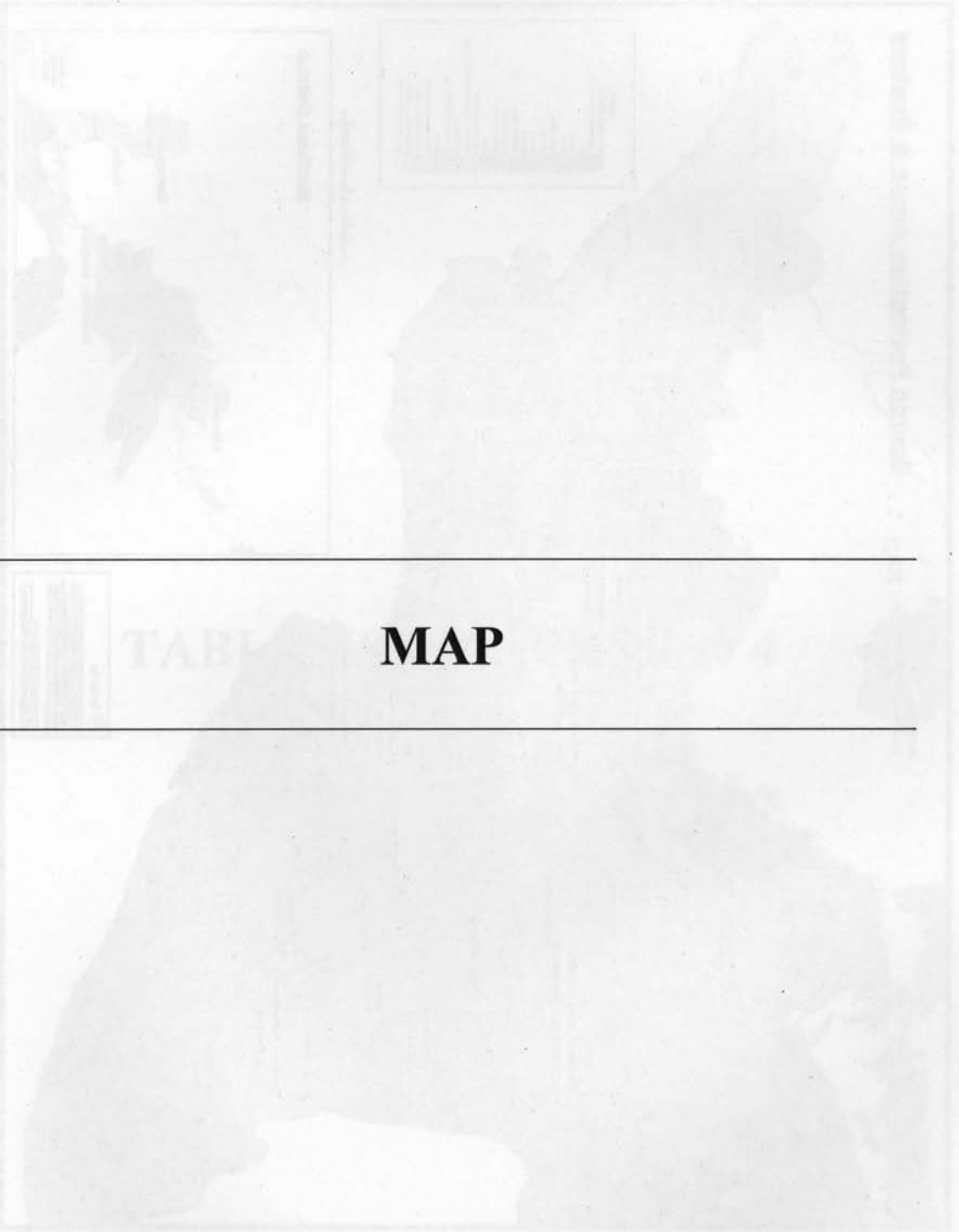
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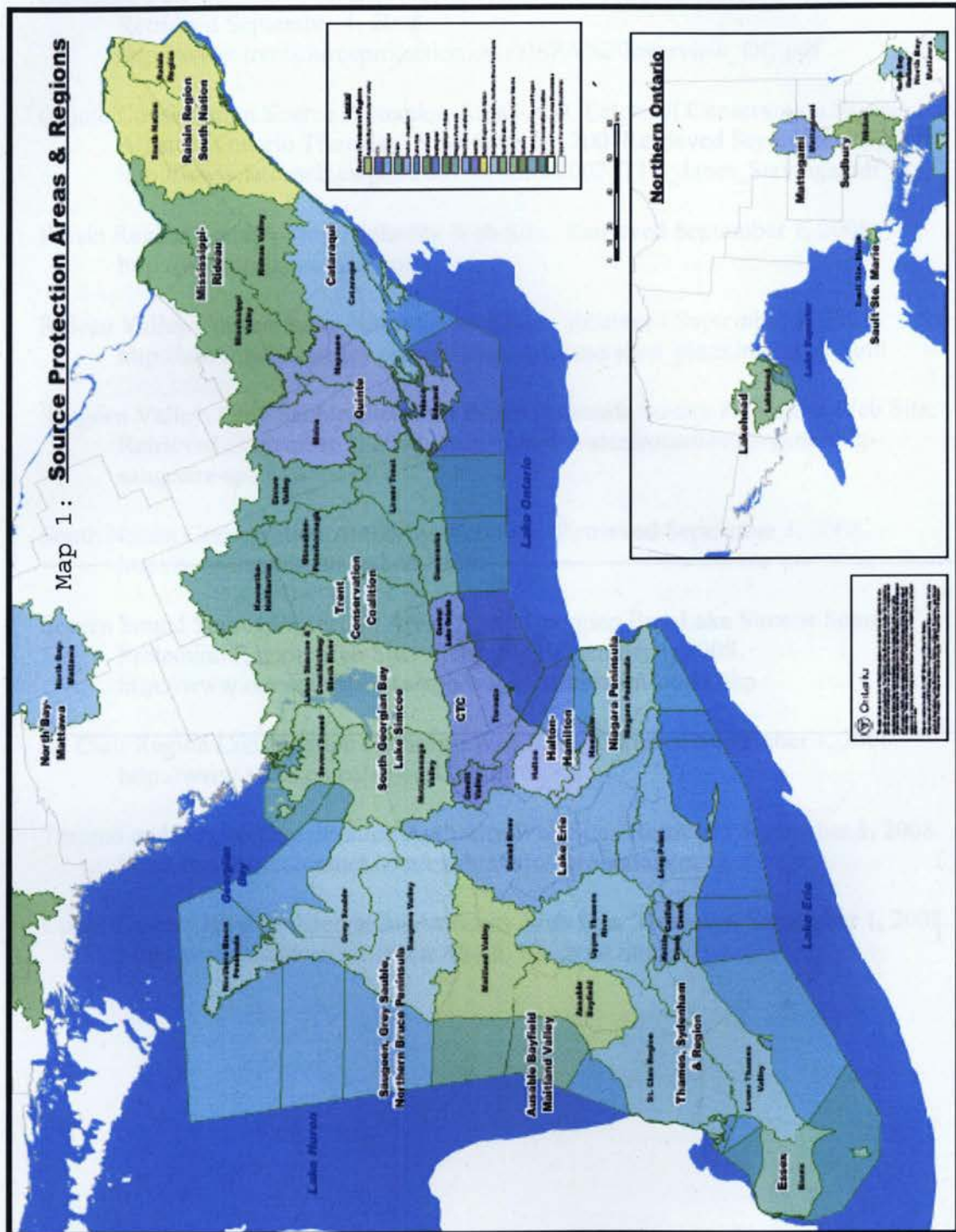
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## MAP

Map 1: **Source Protection Areas & Regions**



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## TABLES & GRAPHS 1 to 4

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**TABLE 1: Summary of Source Protection Regions and Source Protection Areas**

SPR ID	SPR Name	SPA ID	SPA Name
1A	Essex Region	1B	Essex Region*
2A	Thames, Sydenham & Region	2B	Upper Thames River*
		3B	Lower Thames Valley*
		4B	St. Clair Region*
3A	Ausable Bayfield Maitland Valley	5B	Ausable Bayfield*
		6B	Maitland Valley*
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula	7B	Saugeen Valley*
		8B	Grey Sauble*
		9B	Northern Bruce Peninsula
5A	Lake Erie	10B	Grand River*
		11B	Catfish Creek*
		12B	Kettle Creek*
		13B	Long Point Region*
		14B	Lakes Simcoe & Couchiching -Black River*
6A	South Georgian Bay Lake Simcoe	15B	Nottawasaga Valley*
		16B	Severn Sound
		17B	Toronto Region*
7A	Credit Valley, Toronto and Region, Central Lake Ontario	18B	Central Lake Ontario*
		19B	Credit Valley*
		20B	Conservation Halton*
8A	Halton-Hamilton	21B	Hamilton*
		22B	Niagara Peninsula*
10A	Trent Conservation Coalition	23B	Lower Trent*
		24B	Crowe Valley*
		25B	Ganaraska Region*
		26B	Kawartha-Haliburton*
		27B	Otonabee-Peterborough*
		28B	Quinte Conservation*
11A	Quinte Region	29B	Rideau Valley*
12A	Mississippi-Rideau	30B	Mississippi Valley*
13A	Cataraqui Region	31B	Cataraqui Region*
14A	Raisin Region South Nation	32B	Raisin Region*
		33B	South Nation*
15A	Lakehead Region	34B	Lakehead Region*
16A	Sault Ste Marie Region	35B	Sault Ste Marie Region*
17A	Mattagami Region	36B	Mattagami Region*
18A	Greater Sudbury District	37B	Greater Sudbury District*
19A	North Bay-Mattawa	38B	North Bay-Mattawa*

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

Bold SPA is LEAD SPA in that SPR

\* - denotes one of the 36 CAs

**TABLE 2: Summary of Source Protection Area / Source Protection Region Land Area**

ID	SPA / SPR Name	SPA / SPR Area (sq. km)	% Distribution of SPA / SPR Land Area Across Ontario
6A	South Georgian Bay Lake Simcoe SPR	11,342	9.9
17A	Mattagami Region SPR	11,000	9.6
2A	Thames, Sydenham & Region SPR	10,857	9.4
5A	Lake Erie SPR	10,710	9.3
10A	Trent Conservation Coalition SPR	9,576	8.3
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	8,603	7.5
12A	Mississippi-Rideau SPR	8,094	7.0
18A	Greater Sudbury District SPA	7,576	6.6
11A	Quinte Region SPR	6,200	5.4
3A	Ausable Bayfield Maitland Valley SPR	5,725	5.0
14A	Raisin Region South Nation SPR	5,580	4.9
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	5,094	4.4
13A	Cataraqui Region SPA	3,500	3.0
19A	North Bay-Mattawa SPA	2,800	2.4
15A	Lakehead Region SPA	2,600	2.3
9A	Niagara Peninsula SPA	2,424	2.1
1A	Essex Region SPA	1,600	1.4
8A	Halton-Hamilton SPR	1,538	1.3
16A	Sault Ste Marie Region SPA	215	0.2
Total		115,034	100

**Notes:**  
 SPR - Source Protection Region  
 SPA - Source Protection Area

estimated areas  
 total SPA/SPR areas

**Graph 1: Percentage Distribution of SPA / SPR Land Area**

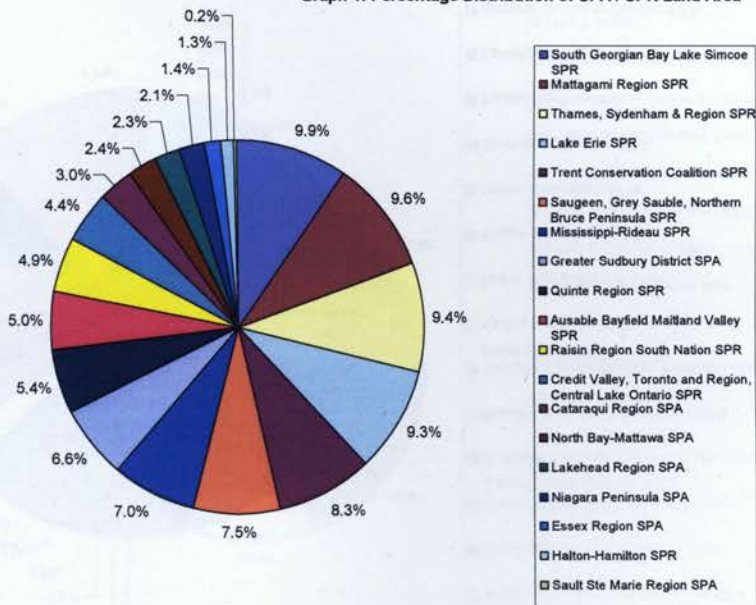




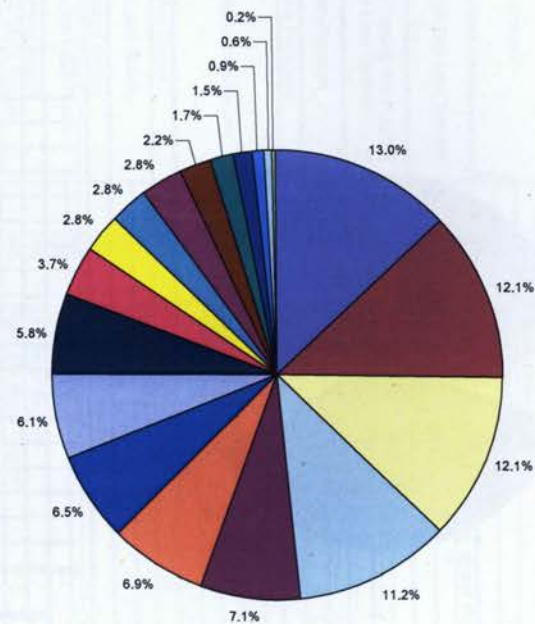
TABLE 3: Summary of Municipalities in Source Protection Area / Source Protection Region

ID	SPA / SPR Name	No. of Municipalities in SPA / SPR	% Distribution of Municipalities in SPA / SPR
10A	Trent Conservation Coalition SPR	70	13.0
6A	South Georgian Bay Lake Simcoe SPR	65	12.1
5A	Lake Erie SPR	65	12.1
2A	Thames, Sydenham & Region SPR	60	11.2
12A	Mississippi-Rideau SPR	38	7.1
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	37	6.9
3A	Ausable Bayfield Maitland Valley SPR	35	6.5
14A	Raisin Region South Nation SPR	33	6.1
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	31	5.8
11A	Quinte Region SPR	20	3.7
19A	North Bay-Mattawa SPA	15	2.8
9A	Niagara Peninsula SPA	15	2.8
8A	Halton-Hamilton SPR	15	2.8
13A	Cataraqui Region SPA	12	2.2
1A	Essex Region SPA	9	1.7
15A	Lakehead Region SPA	8	1.5
18A	Greater Sudbury District SPA	5	0.9
16A	Sault Ste Marie Region SPA	3	0.6
17A	Mattagami Region SPA	1	0.2

Notes:  
SPR - Source Protection Region  
SPA - Source Protection Area

Total 537 100

Graph 2: Percentage Distribution of Municipalities in SPA / SPR



- Trent Conservation Coalition SPR
- South Georgian Bay Lake Simcoe SPR
- Lake Erie SPR
- Thames, Sydenham & Region SPR
- Mississippi-Rideau SPR
- Credit Valley, Toronto and Region, Central Lake Ontario SPR
- Ausable Bayfield Maitland Valley SPR
- Raisin Region South Nation SPR
- Saugeen, Grey Sauble, Northern Bruce Peninsula SPR
- Quinte Region SPR
- North Bay-Mattawa SPA
- Niagara Peninsula SPA
- Halton-Hamilton SPR
- Cataraqui Region SPA
- Essex Region SPA
- Lakehead Region SPA
- Greater Sudbury District SPA
- Sault Ste Marie Region SPA

**TABLE 4: Summary of Source Protection Area / Source Protection Region Municipal Groundwater Drinking Water Systems**

ID	SPA / SPR Name	No. of Groundwater Systems in SPA / SPR	% Distribution of Groundwater Systems in SPA / SPR Across Ontario	No. of Wells in SPR
6A	South Georgian Bay Lake Simcoe SPR	98	28.9	301
5A	Lake Erie SPR	53	15.6	-
10A	Trent Conservation Coalition SPR	36	10.6	82
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	30	8.8	67
3A	Ausable Bayfield Maitland Valley SPR	29	8.6	48
2A	Thames, Sydenham & Region SPR	27	8.0	87
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	20	5.9	64
14A	Raisin Region South Nation SPR	14	4.1	23
18A	Greater Sudbury District SPA	8	2.4	24
12A	Mississippi-Rideau SPR	7	2.1	19
11A	Quinte Region SPR	5	1.5	-
8A	Halton-Hamilton SPR	5	1.5	-
13A	Cataraqui Region SPA	3	0.9	4
19A	North Bay-Mattawa SPA	2	0.6	-
15A	Lakehead Region SPA	1	0.3	2
16A	Sault Ste Marie Region SPA	1	0.3	6
17A	Mattagami Region SPA	0	0.0	0
1A	Essex Region SPA	0	0.0	0
9A	Niagara Peninsula SPA	0	0.0	0
Total		339	100.0	426

Notes:  
 SPR - Source Protection Region  
 SPA - Source Protection Area  
 (-) DENOTES not presented in Terms of Reference

**Graph 3: Percentage Distribution of Municipal Groundwater Drinking Water Systems in SPA / SPR**

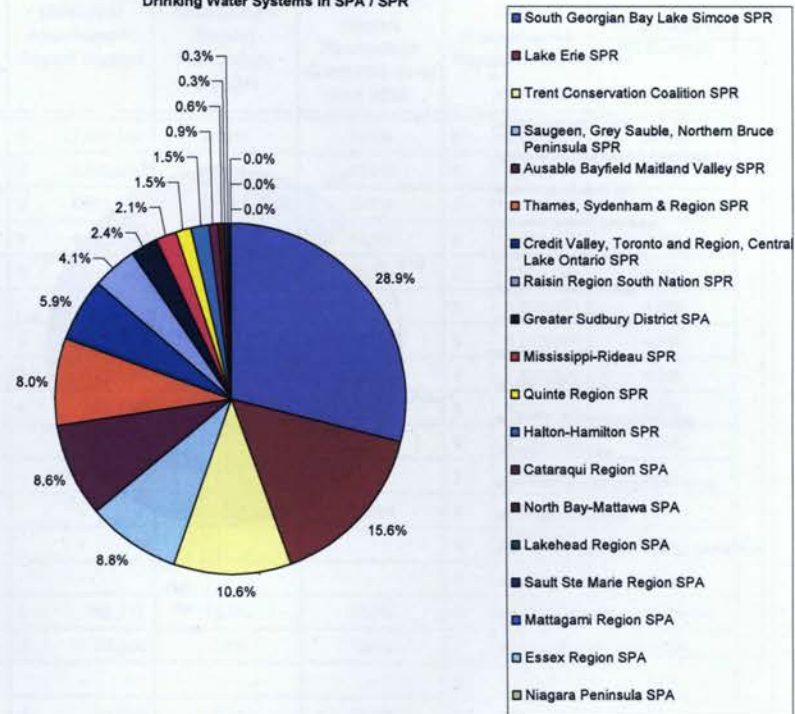




TABLE 5: Summary of Source Protection Area / Source Protection Region Municipal Surface Water Drinking Water Systems

ID	SPA / SPR Name	No. of Surface Water Systems in SPA / SPR	% Distribution of Surface Water Systems in SPA / SPR Across Ontario	No. of Surface Water Intakes in SPA / SPR
10A	Trent Conservation Coalition SPR	19	14.8	21
6A	South Georgian Bay Lake Simcoe SPR	15	11.7	15
14A	Raisin Region South Nation SPR	14	10.9	-
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	10	7.8	10
13A	Cataraqui Region SPA	9	7.0	9
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	9	7.0	10
11A	Quinte Region SPR	7	5.5	7
2A	Thames, Sydenham & Region SPR	7	5.5	8
1A	Essex Region SPA	6	4.7	-
5A	Lake Erie SPR	6	4.7	6
9A	Niagara Peninsula SPA	6	4.7	6
12A	Mississippi-Rideau SPR	5	3.9	5
8A	Halton-Hamilton SPR	4	3.1	4
18A	Greater Sudbury District SPA	3	2.3	-
19A	North Bay-Mattawa SPA	3	2.3	-
3A	Ausable Bayfield Maitland Valley SPR	2	1.6	-
15A	Lakehead Region SPA	1	0.8	1
16A	Sault Ste Marie Region SPA	1	0.8	1
17A	Mattagami Region SPA	1	0.8	1

Notes:

SPR - Source Protection Region

SPA - Source Protection Area

(-) DENOTES not presented in Terms of Reference

Total

128

100.0

104

Graph: 4 Percentage Distribution of Municipal Surface Water Systems in SPA / SPR

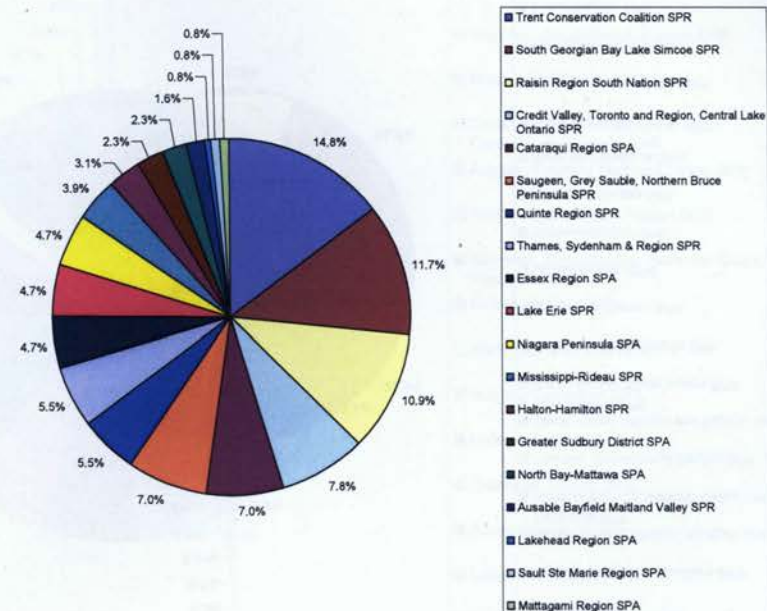


TABLE 6: Summary of Total Assessment Report Budget and Percentage Requirements

ID	SPA / SPR Name	SPA / SPR Assessment Report Budget	SPA / SPR Assessment Report Percentage Budget	SPA / SPR Assessment Report Percentage Complete as of Dec 2008	Municipal Assessment Report Budget	Municipal Assessment Report Percentage Budget	Municipal Assessment Report Percentage Complete as of Dec 2008	Total Assessment Report Budget	Percentage of AR Budget
10A	Trent Conservation Coalition SPR	\$ 29,217,135	49.9%	52.6%	\$ 17,473,487	29.9%	54.7%	\$ 46,690,622	26.8%
5A	Lake Erie SPR	\$ 12,139,600	48.3%	63.7%	\$ 6,822,800	27.1%	40.0%	\$ 18,962,400	10.9%
6A	South Georgian Bay Lake Simcoe SPR	\$ 9,202,600	49.9%	50.3%	\$ 4,913,700	26.6%	25.5%	\$ 14,116,300	8.1%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 7,532,540	50.4%	76.7%	\$ 4,052,415	27.1%	82.9%	\$ 11,584,955	6.7%
2A	Thames, Sydenham & Region SPR	\$ 10,424,118	68.3%	48.7%	\$ 549,031	3.6%	46.3%	\$ 10,973,149	6.3%
14A	Raisin Region South Nation SPR	\$ 8,585,353	81.1%	30.0%	-	-	-	\$ 8,585,353	4.9%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 5,732,839	60.3%	71.8%	\$ 2,531,041	26.6%	85.7%	\$ 8,263,880	4.8%
8A	Halton-Hamilton SPR	\$ 7,195,600	63.3%	2.6%	\$ 629,900	5.5%	0.0%	\$ 7,825,500	4.5%
12A	Mississippi-Rideau SPR	\$ 6,347,638	69.2%	61.1%	\$ 384,494	4.2%	75.0%	\$ 6,732,132	3.9%
3A	Ausable Bayfield Maitland Valley SPR	\$ 5,735,000	95.0%	9.2%	-	-	-	\$ 5,735,000	3.3%
1A	Essex Region SPA	\$ 5,218,000	53.2%	4.7%	-	-	-	\$ 5,218,000	3.0%
11A	Quinte Region SPR	\$ 4,699,463	66.4%	61.8%	-	-	68.9%	\$ 4,699,463	2.7%
13A	Cataraqui Region SPA	\$ 4,215,786	73.8%	4.3%	-	-	-	\$ 4,215,786	2.4%
16A	Sault Ste Marie Region SPA	\$ 4,165,767	98.1%	40.2%	-	-	-	\$ 4,165,767	2.4%
9A	Niagara Peninsula SPA	\$ 3,049,875	52.3%	52.4%	\$ 758,117	13.0%	56.0%	\$ 3,807,992	2.2%
18A	Greater Sudbury District SPA	\$ 3,624,088	56.2%	81.2%	\$ 25,000	0.4%	100%	\$ 3,649,088	2.1%
15A	Lakehead Region SPA	\$ 3,133,638	65.5%	46.7%	-	-	-	\$ 3,133,638	1.8%
17A	Mattagami Region SPA	\$ 2,764,738	71.4%	4.2%	\$ 84,003	2.2%	52.4%	\$ 2,848,741	1.6%
19A	North Bay-Mattawa SPA	\$ 2,728,150	66.2%	0.0%	-	-	-	\$ 2,728,150	1.6%
									100.0%

## Notes:

SPR - Source Protection Region

SPA - Source Protection Area

TOTAL COSTS \$ 135,711,928

\$ 38,223,988

\$ 173,935,916



**TABLE 7: Summary Assessment Report Budget Requirements With SPAs as Lead**

ID	SPA / SPR Name	SPA / SPR Assessment Report Budget	SPA / SPR Assessment Report Percent of Total Budget	SPA / SPR Assessment Report Percentage Complete as of Dec 2008	SPA / SPR Assessment Report Percentage Required
10A	Trent Conservation Coalition SPR	\$ 29,217,135	49.9%	52.6%	21.5%
5A	Lake Erie SPR	\$ 12,139,600	48.3%	63.7%	8.9%
2A	Thames, Sydenham & Region SPR	\$ 10,424,118	68.3%	48.7%	7.7%
6A	South Georgian Bay Lake Simcoe SPR	\$ 9,202,600	49.9%	50.3%	6.8%
14A	Raisin Region South Nation SPR	\$ 8,585,353	81.1%	30.0%	6.3%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 7,532,540	50.4%	76.7%	5.6%
8A	Halton-Hamilton SPR	\$ 7,195,600	63.3%	2.6%	5.3%
12A	Mississippi-Rideau SPR	\$ 6,347,638	69.2%	61.1%	4.7%
3A	Ausable Bayfield Maitland Valley SPR	\$ 5,735,000	95.0%	9.2%	4.2%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 5,732,839	60.3%	71.8%	4.2%
1A	Essex Region SPA	\$ 5,218,000	53.2%	4.7%	3.8%
11A	Quinte Region SPR	\$ 4,699,463	57.0%	61.8%	3.5%
13A	Cataraqui Region SPA	\$ 4,215,786	73.8%	4.3%	3.1%
16A	Sault Ste Marie Region SPA	\$ 4,165,767	98.1%	40.2%	3.1%
18A	Greater Sudbury District SPA	\$ 3,624,088	56.2%	81.2%	2.7%
15A	Lakehead Region SPR	\$ 3,133,638	65.5%	46.7%	2.3%
9A	Niagara Peninsula SPA	\$ 3,049,875	52.3%	52.4%	2.2%
17A	Mattagami Region SPA	\$ 2,764,738	71.4%	4.2%	2.0%
19A	North Bay-Mattawa SPA	\$ 2,728,150	66.2%	0.0%	2.0%

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

**TOTAL COSTS \$ 135,711,928**

**100.0%**

**TABLE 8: Summary of Assessment Report Budget Requirements With Municipalities as Lead**

ID	SPA / SPR Name	Municipal Assessment Report Budget	Municipal Assessment Report Percent of Total Budget	Municipal Assessment Report Percentage Complete as of Dec 2008	Municipal Assessment Report Percentage Required
10A	Trent Conservation Coalition SPR	\$ 17,473,487	29.9%	54.7%	45.7%
5A	Lake Erie SPR	\$ 6,822,800	32.0%	40.0%	17.8%
6A	South Georgian Bay Lake Simcoe SPR	\$ 4,913,700	29.7%	25.5%	12.9%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 4,052,415	33.4%	82.9%	10.6%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 2,531,041	35.0%	85.7%	6.6%
9A	Niagara Peninsula	\$ 758,117	16.1%	56.0%	2.0%
8A	Halton-Hamilton SPR	\$ 629,900	8.7%	0.0%	1.6%
2A	Thames, Sydenham & Region SPR	\$ 549,031	3.6%	46.3%	1.4%
12A	Mississippi-Rideau SPR	\$ 384,494	5.0%	75.0%	1.0%
17A	Mattagami Region SPA	\$ 84,003	1.5%	52.4%	0.2%
18A	Greater Sudbury District SPA	\$ 25,000	0.5%	100%	0.1%
11A	Quinte Region SPR	-	-	-	-
3A	Ausable Bayfield Maitland Valley SPR	-	-	-	-
1A	Essex Region SPA	-	-	-	-
13A	Cataraqui Region SPA	-	-	-	-
14A	Raisin Region South Nation SPR	-	-	-	-
15A	Lakehead Region SPA	-	-	-	-
16A	Sault Ste Marie Region SPA	-	-	-	-
19A	North Bay-Mattawa SPA	-	-	-	-

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

**TOTAL COSTS \$ 38,223,988**

**100.0%**



**TABLE 9: Summary of Total Source Protection Plan Budget and Percentage Requirements**

ID	SPA / SPR Name	SPA / SPR Source Protection Plan Budget	SPA / SPR Source Protection Plan Percent of Total Budget	Municipal Source Protection Plan Budget	Municipal Source Protection Plan Percent of Total Budget	Total SPP Budget	Percentage of SPP Budget
10A	Trent Conservation Coalition SPR	\$ 11,612,000	19.9%	\$ 195,000	0.3%	\$ 11,807,000	20.7%
5A	Lake Erie SPR	\$ 4,472,700	17.8%	\$ 1,709,600	6.8%	\$ 6,182,300	10.9%
1A	Essex Region SPA	\$ 4,585,000	46.8%	-	-	\$ 4,585,000	8.1%
6A	South Georgian Bay Lake Simcoe SPR	\$ 4,324,900	23.5%	-	-	\$ 4,324,900	7.6%
2A	Thames, Sydenham & Region SPR	\$ 4,295,000	28.1%	-	-	\$ 4,295,000	7.5%
8A	Halton-Hamilton SPR	\$ 3,539,000	31.1%	-	-	\$ 3,539,000	6.2%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 3,310,250	22.1%	\$ 60,000	0.4%	\$ 3,370,250	5.9%
18A	Greater Sudbury District SPA	\$ 2,499,628	38.8%	\$ 300,000	4.7%	\$ 2,799,628	4.9%
12A	Mississippi-Rideau SPR	\$ 2,442,000	26.6%	-	-	\$ 2,442,000	4.3%
11A	Quinte Region SPR	\$ 2,380,000	33.6%	-	-	\$ 2,380,000	4.2%
9A	Niagara Peninsula SPA	\$ 1,309,000	22.4%	\$ 720,000	12.3%	\$ 2,029,000	3.6%
14A	Raisin Region South Nation SPR	\$ 1,996,376	18.9%	-	-	\$ 1,996,376	3.5%
15A	Lakehead Region SPA	\$ 1,651,540	34.5%	-	-	\$ 1,651,540	2.9%
13A	Cataraqui Region SPA	\$ 1,496,800	26.2%	-	-	\$ 1,496,800	2.6%
19A	North Bay-Mattawa SPA	\$ 1,393,000	33.8%	-	-	\$ 1,393,000	2.4%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 1,243,000	13.1%	-	-	\$ 1,243,000	2.2%
17A	Mattagami Region SPA	\$ 1,025,000	26.5%	-	-	\$ 1,025,000	1.8%
3A	Ausable Bayfield Maitland Valley SPR	\$ 300,000	5.0%	-	-	\$ 300,000	0.5%
16A	Sault Ste Marie Region SPA	\$ 80,000	1.9%	-	-	\$ 80,000	0.1%

100.0%

**Notes:** TOTAL COSTS \$ 53,955,194 \$ 2,984,600 \$ 56,939,794

SPR - Source Protection Region

SPA - Source Protection Area

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for list.

**TABLE 11: Summary of Source Protection Plan Budget Requirements With Municipalities as Lead**

ID	SPA / SPR Name	Municipal Source Protection Plan Budget	Municipal Source Protection Plan Percent of Total Budget	Municipal Source Protection Plan Percentage Required
5A	Lake Erie SPR	\$ 1,709,600	6.8%	57.3%
9A	Niagara Peninsula SPA	\$ 720,000	12.3%	24.1%
18A	Greater Sudbury District SPA	\$ 300,000	4.7%	10.1%
10A	Trent Conservation Coalition SPR	\$ 195,000	0.3%	6.5%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 60,000	0.4%	2.0%
1A	Essex Region SPA	-	-	-
2A	Thames, Sydenham & Region SPR	-	-	-
3A	Ausable Bayfield Maitland Valley SPR	-	-	-
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	-	-	-
6A	South Georgian Bay Lake Simcoe SPR	-	-	-
8A	Halton-Hamilton SPR	-	-	-
11A	Quinte Region SPR	-	-	-
12A	Mississippi-Rideau SPR	-	-	-
13A	Cataraqui Region SPA	-	-	-
14A	Raisin Region South Nation SPR	-	-	-
15A	Lakehead Region SPA	-	-	-
16A	Sault Ste Marie Region SPA	-	-	-
17A	Mattagami Region SPA	-	-	-
19A	North Bay-Mattawa SPA	-	-	-

100.0%

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

**TOTAL COSTS \$ 2,984,600**



**TABLE 10: Summary of Source Protection Plan Budget Requirements With SPAs as Lead**

ID	SPA / SPR Name	SPA / SPR Source Protection Plan Budget	SPA / SPR Source Protection Plan Percent of Total Budget	SPA / SPR Source Protection Plan Percentage Required
10A	Trent Conservation Coalition SPR	\$ 11,612,000	19.9%	21.5%
1A	Essex Region SPA	\$ 4,585,000	46.8%	8.5%
5A	Lake Erie SPR	\$ 4,472,700	17.8%	8.3%
6A	South Georgian Bay Lake Simcoe SPR	\$ 4,324,900	23.5%	8.0%
2A	Thames, Sydenham & Region SPR	\$ 4,295,000	28.1%	8.0%
8A	Halton-Hamilton SPR	\$ 3,539,000	31.1%	6.6%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 3,310,250	22.1%	6.1%
18A	Greater Sudbury District SPA	\$ 2,499,628	38.8%	4.6%
12A	Mississippi-Rideau SPR	\$ 2,442,000	26.6%	4.5%
11A	Quinte Region SPR	\$ 2,380,000	33.6%	4.4%
14A	Raisin Region South Nation SPR	\$ 1,996,376	18.9%	3.7%
15A	Lakehead Region SPA	\$ 1,651,540	34.5%	3.1%
13A	Cataraqui Region SPA	\$ 1,496,800	26.2%	2.8%
19A	North Bay-Mattawa SPA	\$ 1,393,000	33.8%	2.6%
9A	Niagara Peninsula SPA	\$ 1,309,000	22.4%	2.4%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 1,243,000	13.1%	2.3%
17A	Mattagami Region SPA	\$ 1,025,000	26.5%	1.9%
3A	Ausable Bayfield Maitland Valley SPR	\$ 300,000	5.0%	0.6%
16A	Sault Ste Marie Region SPA	\$ 80,000	1.9%	0.1%
<b>TOTAL COSTS \$ 53,955,194</b>				<b>100.0%</b>

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

**TABLE 12: Summary of Total Budget and Percentage Requirements**

ID	SPA / SPR Name	SPA / SPR Grand Total	SPA / SPR Grand Total Percentage
10A	Trent Conservation Coalition SPR	\$ 58,497,622	25.3%
5A	Lake Erie SPR	\$ 25,144,700	10.9%
6A	South Georgian Bay Lake Simcoe SPR	\$ 18,441,200	8.0%
2A	Thames, Sydenham & Region SPR	\$ 15,268,149	6.6%
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 14,955,205	6.5%
8A	Halton-Hamilton SPR	\$ 11,364,500	4.9%
14A	Raisin Region South Nation SPR	\$ 10,581,729	4.6%
1A	Essex Region SPA	\$ 9,803,000	4.2%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 9,506,880	4.1%
12A	Mississippi-Rideau SPR	\$ 9,174,132	4.0%
11A	Quinte Region SPR	\$ 7,079,463	3.1%
18A	Greater Sudbury District SPR	\$ 6,448,716	2.8%
3A	Ausable Bayfield Maitland Valley SPR	\$ 6,035,000	2.6%
9A	Niagara Peninsula SPA	\$ 5,836,992	2.5%
13A	Cataraqui Region SPA	\$ 5,712,586	2.5%
15A	Lakehead Region SPA	\$ 4,785,178	2.1%
16A	Sault Ste Marie Region SPA	\$ 4,245,767	1.8%
19A	North Bay-Mattawa SPA	\$ 4,121,150	1.8%
17A	Mattagami Region SPA	\$ 3,873,741	1.7%

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

**TOTAL COSTS \$ 230,875,710**



TABLE 10: Summary of Source Protection Plan Budget Requirements (2015-2016)

Table 13: Percentage Summary of Assessment Report Tasks Completed / In Progress and Estimated

ID	SPA / SPR	SPA / SPR AR % Costs Completed / In Progress	SPA / SPR AR Estimated	Municipal AR % Costs Completed / In Progress	Municipal AR Estimated
18A	Greater Sudbury District SPA	81.2%	18.8%	-	-
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	76.7%	23.3%	82.9%	17.1%
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	71.8%	28.2%	85.7%	14.3%
5A	Lake Erie SPR	63.7%	36.3%	40.0%	60.0%
11A	Quinte Region SPR	61.8%	38.2%	68.9%	31.1%
12A	Mississippi-Rideau SPR	61.1%	38.9%	75.0%	25.0%
10A	Trent Conservation Coalition SPR	52.6%	47.4%	54.7%	45.3%
9A	Niagara Peninsula SPA	52.4%	47.6%	56.0%	44.0%
6A	South Georgian Bay Lake Simcoe SPR	50.3%	49.7%	25.5%	74.5%
2A	Thames, Sydenham & Region SPR	48.7%	51.3%	46.3%	53.7%
15A	Lakehead Region SPA	46.7%	53.3%	-	-
16A	Sault Ste Marie Region SPA	40.2%	59.8%	-	-
14A	Raisin Region South Nation SPR	30.0%	70.0%	-	-
3A	Ausable Bayfield Maitland Valley SPR	9.2%	90.8%	-	-
1A	Essex Region SPA	4.7%	95.3%	-	-
13A	Cataraqui Region SPA	4.3%	95.7%	-	-
17A	Mattagami Region SPR	4.2%	95.8%	52.4%	47.6%
8A	Halton-Hamilton SPR	2.6%	97.4%	100.0%	0.0%
19A	North Bay-Mattawa SPA	0.0%	100.0%	-	-

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for list.

**TABLE 14: Summary of Percentage Costs for Assessment Report and Source Protection Plan With SPA and Municipal Leads**

ID	SPA / SPR Name	SPA / SPR Assessment Report	SPA / SPR Source Protection Plan	Municipal Assessment Report	Municipal Source Protection Plan	SPR Grand Total
5A	Lake Erie SPR	48.3%	17.8%	27.1%	6.8%	\$ 25,144,700
6A	South Georgian Bay Lake Simcoe SPR	49.9%	23.5%	26.6%	-	\$ 18,441,200
10A	Trent Conservation Coalition SPR	49.9%	19.9%	29.9%	0.3%	\$ 58,497,622
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	50.4%	22.1%	27.1%	0.4%	\$ 14,955,205
9A	Niagara Peninsula SPA	52.3%	22.4%	13.0%	12.3%	\$ 5,836,992
1A	Essex Region SPA	53.2%	46.8%	-	-	\$ 9,803,000
18A	Greater Sudbury District SPA	56.2%	38.8%	0.4%	4.7%	\$ 6,448,716
11A	Quinte Region SPR	66.4%	33.6%	-	-	\$ 7,079,463
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	60.3%	13.1%	26.6%	-	\$ 9,506,880
8A	Halton-Hamilton SPR	63.3%	31.1%	5.5%	-	\$ 11,364,500
15A	Lakehead Region SPA	65.5%	34.5%	-	-	\$ 4,785,178
19A	North Bay-Mattawa SPA	66.2%	33.8%	-	-	\$ 4,121,150
2A	Thames, Sydenham & Region SPR	68.3%	28.1%	3.6%	-	\$ 15,268,149
12A	Mississippi-Rideau SPR	69.2%	26.6%	4.2%	-	\$ 9,174,132
17A	Mattagami Region SPA	71.4%	26.5%	2.2%	-	\$ 3,873,741
13A	Cataraqui Region SPA	73.8%	26.2%	-	-	\$ 5,712,586
14A	Raisin Region South Nation SPR	81.1%	18.9%	-	-	\$ 10,581,729
3A	Ausable Bayfield Maitland Valley SPR	95.0%	5.0%	-	-	\$ 6,035,000
16A	Sault Ste Marie Region SPA	98.1%	1.9%	-	-	\$ 4,245,767

**Notes:**

SPR - Source Protection Region

SPA - Source Protection Area

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

**TOTAL COSTS**

**\$ 230,875,710**



Table 15: Completed / In Progress and Estimated Costs and Percentage for Assessment Report and Source Protection Plan

ID	SPA / SPR	Assessment Report				Source Protection Plan		Totals
		Completed / In Progress	Percentage Completed / In Progress	Estimated	Percentage Estimated	Estimated	Percentage Estimated	
10A	Trent Conservation Coalition SPR	\$ 24,933,658	30.7%	\$ 21,756,964	23.5%	\$ 11,807,000	20.7%	\$ 58,497,623
5A	Lake Erie SPR	\$ 10,465,600	12.9%	\$ 8,496,800	9.2%	\$ 6,182,300	10.9%	\$ 25,144,700
7A	Credit Valley, Toronto and Region, Central Lake Ontario SPR	\$ 9,138,355	11.3%	\$ 2,446,600	2.6%	\$ 3,370,250	5.9%	\$ 14,955,205
4A	Saugeen, Grey Sauble, Northern Bruce Peninsula SPR	\$ 6,286,980	7.7%	\$ 1,976,900	2.1%	\$ 1,243,000	2.2%	\$ 9,506,880
6A	South Georgian Bay Lake Simcoe SPR	\$ 5,877,800	7.2%	\$ 8,238,500	8.9%	\$ 4,324,900	7.6%	\$ 18,441,200
2A	Thames, Sydenham & Region SPR	\$ 5,334,929	6.6%	\$ 5,638,220	6.1%	\$ 4,295,000	7.5%	\$ 15,268,149
12A	Mississippi-Rideau SPR	\$ 4,164,092	5.1%	\$ 2,568,040	2.8%	\$ 2,442,000	4.3%	\$ 9,174,132
11A	Quinte Region SPR	\$ 2,987,330	3.7%	\$ 1,712,133	1.8%	\$ 2,380,000	4.2%	\$ 7,079,463
18A	Greater Sudbury District SPA	\$ 2,967,704	3.7%	\$ 681,384	0.7%	\$ 2,799,628	4.9%	\$ 6,448,716
14A	Raisin Region South Nation SPR	\$ 2,573,732	3.2%	\$ 6,011,621	6.5%	\$ 1,996,376	3.5%	\$ 10,581,729
9A	Niagara Peninsula SPA	\$ 2,022,950	2.5%	\$ 1,785,042	1.9%	\$ 2,029,000	3.6%	\$ 5,836,992
16A	Sault Ste Marie Region SPA	\$ 1,673,657	2.1%	\$ 2,492,110	2.7%	\$ 80,000	0.1%	\$ 4,245,767
15A	Lakehead Region SPA	\$ 1,463,287	1.8%	\$ 1,670,351	1.8%	\$ 1,651,540	2.9%	\$ 4,785,178
3A	Ausable Bayfield Maitland Valley SPR	\$ 525,000	0.6%	\$ 5,210,000	5.6%	\$ 300,000	0.5%	\$ 6,035,000
1A	Essex Region SPA	\$ 244,000	0.3%	\$ 4,974,000	5.4%	\$ 4,585,000	8.1%	\$ 9,803,000
8A	Halton-Hamilton SPR	\$ 188,200	0.2%	\$ 7,637,300	8.2%	\$ 3,539,000	6.2%	\$ 11,364,500
13A	Cataraqui Region SPA	\$ 181,852	0.2%	\$ 4,033,934	4.3%	\$ 1,496,800	2.6%	\$ 5,712,586
17A	Mattagami Region SPR	\$ 160,565	0.2%	\$ 2,688,176	2.9%	\$ 1,025,000	1.8%	\$ 3,873,741
19A	North Bay-Mattawa SPA	-	-	\$ 2,728,150	2.9%	\$ 1,393,000	2.4%	\$ 4,121,150
	Totals	\$ 81,189,691	100.0%	\$ 92,746,225	100.0%	\$ 56,939,794	100.0%	\$ 230,875,712

35.2%  
of the total budget has been completed / in  
progress for the AR

40.2%  
of the total budget is estimated for the AR

24.7%  
of the total budget is estimated for the SPP

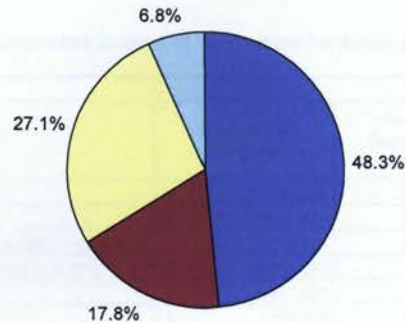
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## GRAPHS 5 to 23

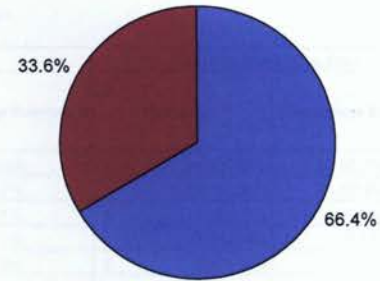
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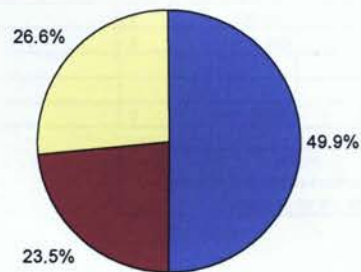
**Graph 5: Lake Erie Assessment Report and Source Protection Plan Budget Distribution**



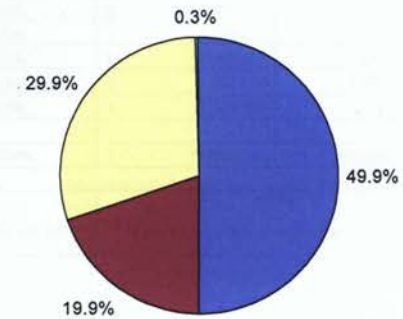
**Graph 6: Quinte Region Assessment Report and Source Protection Plan Budget Distribution**



**Graph 7: South Georgian Bay - Lake Simcoe Assessment Report and Source Protection Plan Budget Distribution**



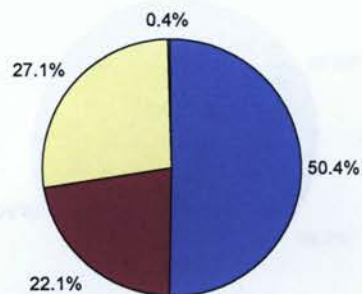
**Graph 8: Trent Conservation Coalition Assessment Report and Source Protection Plan Budget Distribution**



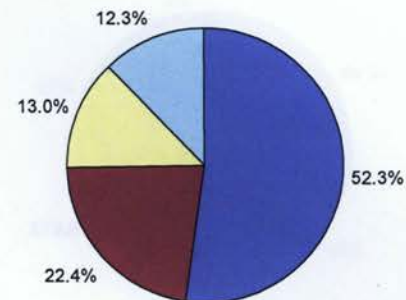
- SPR Assessment Report
- SPR Source Protection Plan
- Municipal Assessment Report
- Municipal Source Protection Plan

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

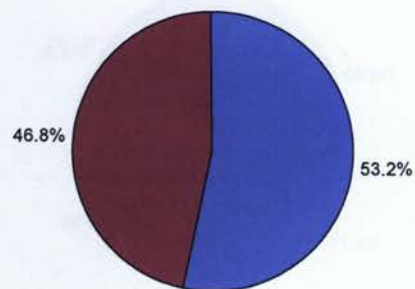
**Graph 9: Credit Valley, Toronto and Region, Central Lake Ontario Assessment Report and Source Protection Plan Budget Distribution**



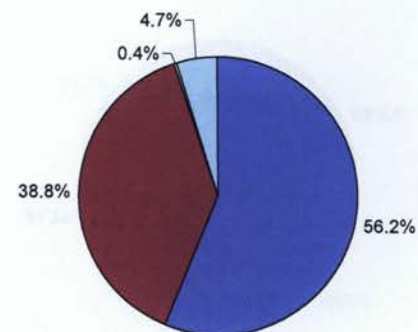
**Graph 10: Niagara Peninsula Assessment Report and Source Protection Plan Budget Distribution**



**Graph 11: Essex Region Assessment Report and Source Protection Plan Budget Distribution**



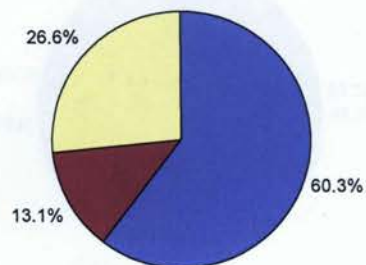
**Graph 12: Greater Sudbury District Assessment Report and Source Protection Plan Budget Distribution**



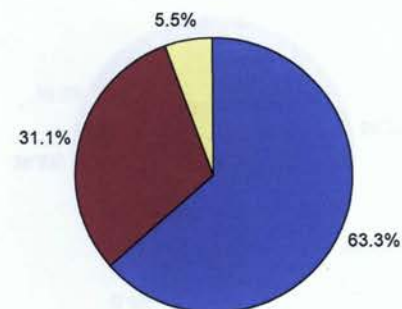
■ SPR Assessment Report  
■ SPR Source Protection Plan  
■ Municipal Assessment Report  
■ Municipal Source Protection Plan

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

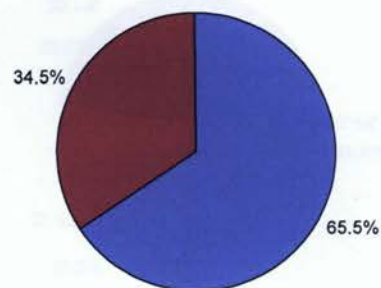
**Graph 13: Saugeen, Grey Sauble, Northern Bruce Peninsula Assessment Report and Source Protection Plan Budget Distribution**



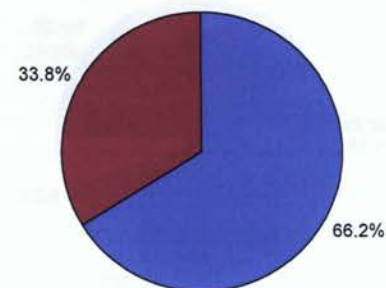
**Graph 14: Halton-Hamilton Assessment Report and Source Protection Plan Budget Distribution**



**Graph 15: Lakehead Region Assessment Report and Source Protection Plan Budget Distribution**



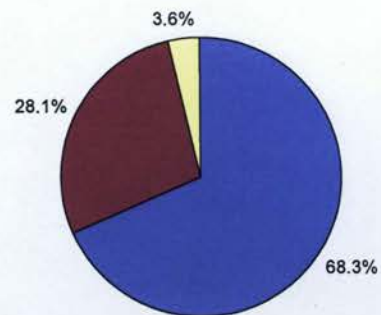
**Graph 16: North-Bay Mattawa Assessment Report and Source Protection Plan Budget Distribution**



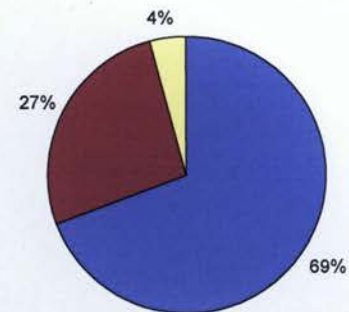
- SPR Assessment Report
- SPR Source Protection Plan
- Municipal Assessment Report
- Municipal Source Protection Plan

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

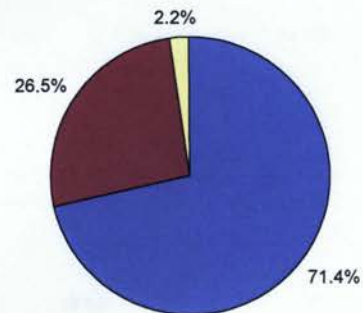
**Graph 17: Thames, Sydenham & Region Assessment Report and Source Protection Plan Budget Distribution**



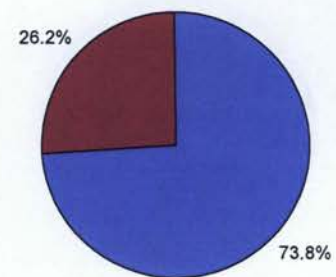
**Graph 18: Mississippi-Rideau Assessment Report and Source Protection Plan Budget Distribution**



**Graph 19: Mattagami Region Assessment Report and Source Protection Plan Budget Distribution**



**Graph 20: Cataraqui Region Assessment Report and Source Protection Plan Budget Distribution**



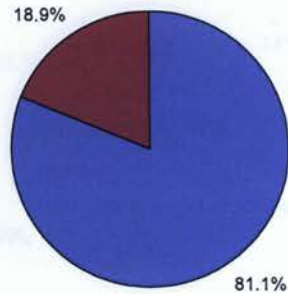
- SPR Assessment Report
- SPR Source Protection Plan
- Municipal Assessment Report
- Municipal Source Protection Plan

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.

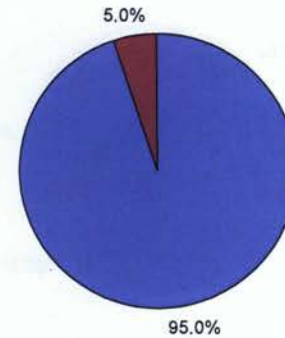


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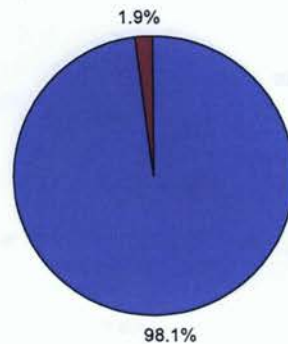
**Graph 21: Raisin Region Assessment Report and Source Protection Plan Budget Distribution**



**Graph 22: Ausable Bayfield Maitland Assessment Report and Source Protection Plan Budget Distribution**



**Graph 23: Sault Ste. Marie Assessment Report and Source Protection Plan Budget Distribution**



- SPR Assessment Report
- SPR Source Protection Plan
- Municipal Assessment Report
- Municipal Source Protection Plan

Source: Adapted from Source Protection Committee Terms of Reference Documents. See Bibliography for List.