



Terms of Reference

Halton Region Source Protection Area

Prepared by

Halton-Hamilton Source Protection Committee

**2008/08/07
Revised 2009/03/31**

**Approved by the Minister of the Environment
Notice Posted on the Environmental Registry May 25, 2009**



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Preface

This document is the Proposed Terms of Reference for the Halton Region Source Protection Area as prepared by the Halton-Hamilton Source Protection Committee in accordance with *Ontario Regulation 287/07* under the *Clean Water Act, 2006*, S.O. 2006, c. 22.

This is one of two Proposed Terms of Reference prepared for Source Protection Areas within the Halton-Hamilton Source Protection Region. A separate Proposed Terms of Reference has been prepared for the Hamilton Region Source Protection Area.

Comments on the Draft Proposed Terms of Reference for the Halton Region Source Protection Areas were sought until July 3, 2008.

Public Open Houses were held at the following dates, times, and locations:

	Hamilton	Halton
Date	Tuesday, June 17, 2008	Thursday, June 19, 2008
Time	6:00 p.m. to 9:00 p.m.	6:00 p.m. to 9:00 p.m.
Location	Dundas Lions Memorial Community Centre, 10 Market Street South, Dundas, Ontario L9H 5G4	Halton Region Conservation Authority Administrative Offices, 2596 Britannia Road West, Burlington, Ontario L9T 2X6

Comments made at the open houses and written comments received by July 3, 2008 were considered by the Halton-Hamilton Source Protection Committee when preparing the Proposed Terms of Reference for submission to the Minister of the Environment.

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EXECUTIVE SUMMARY

The Walkerton contaminated water incident in May, 2000 brought to light some important issues with respect to the protection and management of drinking water resources in the Province of Ontario. The Walkerton Inquiry, lead by the Honourable Dennis O'Connor, resulted in two reports containing 121 recommendations including:

1. Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds in Ontario.
2. The Ministry of the Environment should ensure that draft source protection plans are prepared through an inclusive process of local consultation. Where appropriate, this process should be managed by conservation authorities.

These reports also supported a multi-barrier approach to the protection of drinking water within the Province.

The Province responded by passing the *Clean Water Act* which established Source Protection Areas and Regions. Scientific investigation and policy formulation work is being led by Source Protection Committees with equal and local representation from three (3) sectors: (1) municipal government; (2) business; and (3) non-government environmental / public-at-large. The Halton-Hamilton Source Protection Region was established under the Act and the inaugural meeting of the sixteen (16) member Committee was held on December 5, 2007.

Under the *Clean Water Act*, Source Protection Committees across the Province are responsible for preparing three (3) key deliverables for each Source Protection Area:

1. Terms of Reference;
2. Assessment Report; and
3. Source Protection Plan.

Terms of Reference must be submitted to the Province for review and comment by October 20, 2008. The Terms of Reference for each Source Protection Area is to include:

1. Maps indicating the watershed and municipal boundaries for the Source Protection Areas and Region;
2. A list of the municipalities either partially or completely within the watershed;
3. A list of key information regarding municipal drinking water systems;
4. A work plan indicating the lead agency, timing and costs associated with each task necessary to produce the Assessment Reports and Source Protection Plans;
5. Municipal council resolutions:
 - a. If the municipality wants to have any non-municipal drinking water systems included in the Terms of Reference;
 - b. If the municipality wants any (part of) municipal drinking water systems excluded from the Terms of Reference; and

- c. If the municipality wants to take the lead on any of the tasks that need to be completed in the preparation of either the Assessment Report and/or Source Protection Plan; and
6. Identification of any common issues with adjoining Source Protection Committees.

Setting

The Halton-Hamilton Source Protection Region is characterized by a number of features that distinguish it from other parts of the Province. Of particular note are the spatial intersection of north, east, and south facing slopes of the Niagara Escarpment, the relatively sheltered western end of Lake Ontario, the protected waters of Hamilton Harbour and Cootes Paradise, and the rich arable lands located both above and below the Escarpment. All of these have influenced past growth and development in the area and are reflected in the social, cultural, economic, and environmental fabric enjoyed today.

Geographic Extents

The Halton Region Source Protection Area includes all of the lands under the jurisdiction of the Halton Region Conservation Authority. This includes three (3) major watersheds, 16 Mile Creek, Bronte Creek, and Grindstone Creek, as well as a number of smaller streams flowing directly into Lake Ontario.

Municipalities

There are ten (10) upper, lower, and/or single tier municipalities that are (partially) within the Halton Region Source Protection Area including the City of Hamilton, County of Wellington, Township of Puslinch, Region of Halton, Town of Oakville, City of Burlington, Town of Milton, Town of Halton Hills, Region of Peel, and City of Mississauga.

Municipal Drinking Water Systems

Most of the south portion of the Halton Region Source Protection Area obtains municipal drinking water through the South Halton Water Distribution System. This is supplied by three (3) surface water intakes in Lake Ontario associated with three (3) water treatment plants (Oakville, Burloak, and Burlington). There are also four (4) municipal well-based drinking water systems for the communities of Freelton, Carlisle, Campbellville and the Town of Milton. Part of the southwest portion of the Halton Region Source Protection Area receives water from the City of Hamilton which is then delivered through the Bridgeview, Snake Road, and North Aldershot water distribution systems.

Under the *Clean Water Act* municipalities are able to add non-municipal systems within the Terms of Reference. Municipalities also have the ability to exclude (parts of) existing municipal systems from the Terms of Reference. In order to add or exclude systems the municipality must pass a Council resolution to that effect. To date, no municipal council resolutions for either additions or exclusions have been passed by any municipality within the Halton Region Source Protection Area.

Work Lead

All work undertaken in the preparation of the Terms of Reference, Assessment Report, and Source Protection Plan is the responsibility of the Halton-Hamilton Source Protection Committee. Municipalities located (partially) within the Halton Region Source Protection Area have the ability to undertake any of the work necessary to complete the Assessment Report and/or Source Protection Plan. To date, the Halton-Hamilton Source Protection staff have initiated and/or completed a number of the required studies. The Region of Halton has taken a

lead role in the surface water vulnerability analysis and has been responsible for providing key information for the groundwater vulnerability analysis.

It will be necessary for municipalities to pass Council resolutions if they want to take on the lead role for any of the outstanding work required to prepare the Assessment Report and/or Source Protection Plan. Discussions with municipal staff have indicated that the Region of Halton is interested in taking a lead role on some tasks however no Council resolutions have been passed to date.

Common Issues

There are a few areas of concern that extend beyond the borders of the Halton Region Source Protection Area. These require coordination with neighbouring Source Protection Committees (SPC). The Credit-Toronto-Central Lake Ontario (CTC) Source Protection Committee will have to be consulted on Lake Ontario based threats and groundwater issues in the Georgetown / Acton area. The Lake Erie SPC will need to be consulted regarding groundwater movement in the Georgetown / Acton area.

Preliminary Detailed Work Plan and Budget

The main purpose of the Terms of Reference is to identify, for both the Assessment Report and the Source Protection Plan, the work that needs to be done, who is going to do the work, and the estimated costs. The total estimated cost of completing the requirements under the *Clean Water Act* for the Halton Region Source Protection Area is approximately \$6.8 million. The three (3) following tables provide a very high level summary of this information.

For all tables it is important to note that:

1. It is anticipated the majority of this work will be undertaken by the Halton-Hamilton Source Protection Committee and the Halton Source Protection Authority (Halton SPA) with a considerable amount of input (data, review and comment) from municipal staff
2. Each of the tasks listed below includes prorated staff wages, benefits, project support costs, and administrative support costs
3. All budget figures must be treated as preliminary until further direction is provided by the Province by way of final Regulations, Director's Rules, and/or Guidance documents

Overall Work Plan and Preliminary Budget				
Task	Description	Lead	Completion Date	Estimated Costs
AR	Assessment Report	Halton SPA	2010-04-30	4,991,800
SPP	Source Protection Plan	Halton SPA	2012-08-20	1,769,500
Total				6,761,300

Work Plan and Preliminary Budget for Assessment Report				
Task	Description	Lead	Completion Date	Estimated Costs
AR 01	Project Management	Halton SPA	2010-04-30	587,200
AR 02	Communications	Halton SPA	2010-04-30	321,800
AR 03	Information Management	Halton SPA	2010-04-30	474,600
AR 04	Watershed Characterization Report	Halton SPA	2008-03-31	32,400
AR 05	Conceptual Water Budget	Halton SPA	2008-03-31	61,700
AR 06	Tier 1 Analysis	Halton SPA	2009-07-15	50,500
AR 07	Tier 2 Analysis	Halton SPA	2009-08-21	379,200
AR 08	Tier 3 Analysis	Halton SPA	2010-06-30	2,000,000
AR 09	Delineate / Apply Vulnerability Scores to Highly Vulnerable Aquifers (HVAs)	Halton SPA	2009-09-30	94,800
AR 10	Assessing Risks in HVAs	Halton SPA	2009-06-15	50,500
AR 11	Apply Vulnerability Scores to SGRAs	Halton SPA	2009-06-15	94,800
AR 12	Assessing Risk in SGRAs	Halton SPA	2009-06-15	55,500
AR 13	Delineate / Apply Vulnerability Scores to WHPAs and IPZs	Halton Region	2009-04-30	396,400
AR 14	Identify Issues, Inventorying Threats, Assess Hazards in WHPAs or IPZs	Halton SPA	2009-06-30	294,300
AR 15	Assess Risk in WHPAs or IPZs	Halton SPA	2009-09-30	98,100
Total				4,991,800

Work Plan and Preliminary Budget for Source Protection Plan				
Task	Description	Lead	Completion Date	Estimated Cost
SPP 01	Project Management	Halton SPA	2012-08-20	450,300
SPP 02	Communications	Halton SPA	2012-08-20	274,100
SPP 03	Information Management	Halton SPA	2012-08-20	140,200
SPP 04	Drinking Water Threats Policies	HHSPC	2012-03-31	453,500
SPP 05	Monitoring Policies	Halton SPA	2012-06-30	55,200
SPP 06	Great Lakes Policies	HHSPC	2011-12-31	23,600
SPP 07	Assessment Phase	HHSPC	2012-03-31	175,000
SPP 08	Establish Policy Implementation Timelines	HHSPC	2012-06-30	39,400
SPP 09	Consultation on Proposed Source Protection Plan	Halton SPA	2012-07-31	51,900
SPP 10	Other Source Protection Plan Preparation Tasks	Halton SPA	2012-08-20	106,300
Total				1,769,500

Mission Statement

The goals of this source protection process are to:

- Outline in the **Terms of Reference** the steps to be taken and the estimated costs to develop an Assessment Report and a Source Protection Plan;
- Identify in the **Assessment Report** present and future municipal groundwater and surface water drinking water sources and identify vulnerabilities, assess threats, and evaluate issues regarding water quality and quantity; and
- Establish policies in the **Source Protection Plan** to reduce or eliminate significant drinking water threats.

Known and future suspected threats to municipal drinking water sources will be identified and evaluated in the Assessment Report and addressed in the Source Protection Plan based on science and the precautionary principle. Through its members and public interaction during the process, the Source Protection Committee will incorporate local knowledge and community-based information on mandatory and discretionary issues that are unique to the source protection area in each of the above three study stages. Public meetings will be held, contacts with local agencies maintained, and internet communications channels actively pursued as draft reports on each study stage are prepared.

Along with other topics and issues, the Source Protection Plan will consider impacts including cost implications of plan implementation; water use conservation targets; raw water quality information and objectives; and recommendations for objectives, budget and process for ongoing assessment of source water plan implementation of all multi-barrier levels.

1 Background

“In May 2000, Walkerton’s drinking water system became contaminated with deadly bacteria, primarily Escherichia coli O157:H7.1. Seven people died, and more than 2,300 became ill. The community was devastated. The losses were enormous. There were widespread feelings of frustration, anger, and insecurity.”

*Honourable Dennis R. O’Connor,
Commissioner, Walkerton Inquiry*

The Walkerton Inquiry resulted in two (2) major reports and included a total of 121 recommendations. Two key recommendations were:

Recommendation 1

Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds in Ontario.

Recommendation 2

The Ministry of the Environment should ensure that draft source protection plans are prepared through an inclusive process of local consultation. Where appropriate, this process should be managed by conservation authorities.

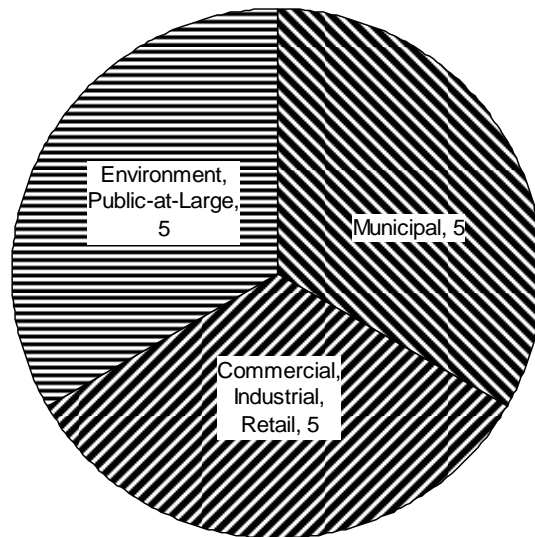
These recommendations, and many of the other 119 found within the reports, have been / are being implemented through legislation and other initiatives such as watershed-based source water protection activities.

One of the key initiatives on the part of the Province of Ontario was the passing of the *Clean Water Act*, 2006, S.O. 2006, c.22 (CWA). The CWA and associated Regulations came into force in July, 2007.

Under the CWA, Conservation Authority-based Source Protection Regions were formed and local citizen-based Source Protection Committees were struck. The Halton-Hamilton Source Protection Region (HHSPR) was established based on the watersheds under the jurisdiction of the Halton Region Conservation Authority and Hamilton Region Conservation Authority.

The Halton-Hamilton Source Protection Committee (HHSPC) was set up with fifteen (15) members plus the Chair. Under the Regulations the Committee was specifically designed to have representation based on 1/3 government (5 members), 1/3 business (5 members), and 1/3 public / non-government environmental organizations (5 members). This is represented in Figure 1.1A.

Figure 1.1A
Distribution of Representation on
Halton-Hamilton Source Protection Committee



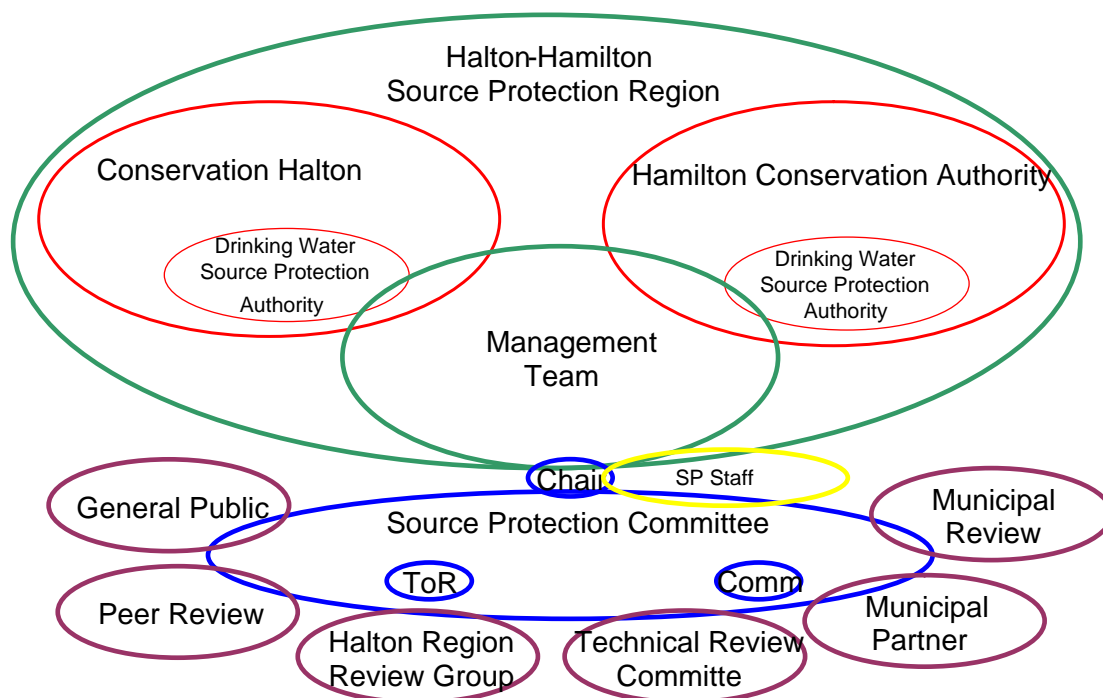
The membership of the HHSPC as of March 31, 2009 is shown in Table 1.1.

Table 1.1
Membership of the Halton-Hamilton Source Protection Committee
as of March 31, 2009

Sector	Group	Member
Chair		Doug Cuthbert
Municipal	Halton Region, Peel Region, Town of Oakville, City of Burlington, Town of Milton, Town of Halton Hills, City of Mississauga	Councilor Barry Lee
		Jacqueline Weston
Municipal	City of Hamilton, Niagara Region, Town of Grimsby	Councilor Margaret McCarthy
		Chris Shrive
Municipal	Wellington County, Puslinch Township	Councilor Susan Fielding
Agriculture, Industry, Commercial	Agriculture	Nick DiGirolamo
		Gavin Smuk
	Industrial (Aggregate)	Melanie Horton
	Commercial (Home Builder)	Peter Ashenhurst
Non-Government Environment / Public-at-Large	Commercial (Recreation – Golf)	Teri Yamada
Non-Government Environment / Public-at-Large	Environment	Betty Hansen
		Mark Sproule-Jones
	Members at Large	Dave Braden
		Adam Kuehnbaum
	Glenn Powell	

Figure 1.1B illustrates the relationships between the Halton-Hamilton Source Protection Committee and Conservation Authorities.

Figure 1.1B
Relationship Between Source Protection Committee and Conservation Authorities



Under the CWA, Source Protection Committees are responsible for three (3) key deliverables:

1. Terms of Reference;
2. Assessment Report; and
3. Source Protection Plan.

Timelines

The timelines for the submission of the three (3) key deliverables are outlined in the CWA and associated Regulations. These timelines are partially driven by the date of the appointment of the first Chair of each of the Source Protection Committees. Doug Cuthbert, the first Chair of the Halton-Hamilton Source Protection Committee, was appointed on August 20, 2007.

Section 1 (1) (a) of *Ontario Regulation 285/07* identifies the deadlines for the Terms of Reference:

Terms of reference

1. (1) *The source protection committee shall submit the proposed terms of reference to the source protection authority and take the other steps that are required to comply with section 9 of the Act not later than,*

(a) 12 months after the appointment of the first chair of the source protection committee, if clause (b) does not apply; or

(b) seven months after the date specified by the Minister under subsection 36 (1) of the Act, if the terms of reference are being prepared as part of the review of a source protection plan that is required under section 36 of the Act. O. Reg. 285/07, s. 1 (1).

This means the Proposed Terms of Reference for the Halton Region Source Protection Area must be submitted to the Halton Region Source Protection Authority no later than August 20, 2008.

The Halton Region Source Protection Authority then has two months to review, solicit comments on, and identify suggested changes to the Proposed Terms of Reference before it is required to submit it to the Minister for consideration / approval. There is no limit on the amount of time the Province can take to review the Proposed Terms of Reference. It is expected Provincial approval will occur by the end of 2008.

Upon approval of the Terms of Reference, Source Protection Committees have one (1) year to complete the Assessment Report and a maximum of five (5) years from the appointment of the first Chair of the Source Protection Committee to complete the Source Protection Plan.

Table 1.2, below, summarizes the timelines for the completion of the three (3) key deliverables by the Halton-Hamilton Source Protection Committee.

**Table 1.2
Timelines for Delivery of Key Deliverables by HHSPC**

Milestone	Date
Terms of Reference	August 20, 2008
Assessment Report	May 1, 2010 (estimated)
Source Protection Plan	August 20, 2012

Contents of the Terms of Reference

Section 3 of *Ontario Regulation 287/07* specifies the contents of the Terms of Reference. The mandatory contents include:

1. A map showing the boundaries of the Source Protection Area and the boundaries of every municipality within the boundaries of the Source Protection Area;
2. A map showing the boundaries of the Source Protection Region and the boundaries of all municipalities within the Source Protection Region if the Source Protection Area is part of a Source Protection Region;
3. A list of all of the municipalities (partially or wholly) within a Source Protection Area;
4. A copy of any resolutions passed by councils of municipalities identifying
 - a. non-municipal water systems to be included in the Terms of Reference,
 - b. any whole, or part of, municipal residential drinking water systems to be excluded from the Terms of reference, and
 - c. work to be lead by municipalities;
5. A table setting out
 - a. The drinking water system number,
 - b. The name of the drinking water system,
 - c. The owner of the drinking water system,
 - d. The operating authority for the drinking water system, and
 - e. Raw water source;
6. A list of matters that require consultation with neighbouring Source Protection Committees; and
7. A work plan that identifies all of the major tasks to be completed in the preparation of the assessment report and source protection plan including
 - a. The person or body responsible for performing the task,
 - b. An estimate of the date by which the task is expected to be completed, and
 - c. An estimate of the costs that are expected to be incurred in performing the task.

Other Requirements of the Terms of Reference When Submitted to the Minister

Section 9 of the *Clean Water Act* states:

9. *The source protection committee shall,*

- (a) submit proposed terms of reference to the source protection authority for the source protection area, together with a summary of any concerns that were raised by municipalities during consultations and that were not resolved to the satisfaction of the municipalities;*
- (b) give a copy of the proposed terms of reference to the clerk of each municipality in which any part of the source protection area is located; and*
- (c) publish the proposed terms of reference on the Internet and in such other manner as the source protection committee considers appropriate, together with an invitation to submit written comments to the source protection authority within the time period prescribed by the regulations. 2006, c. 22, s. 9.*

2 Source Protection Area

2.1 Maps

Sections 3 (1) 1 and 2 of *Ontario Regulation 287/07* regarding the 'Contents of terms of reference' require the Terms of Reference to include a map of the Source Protection Area(s) and Source Protection Region:

2.1.1 Source Protection Area

Section 3 (1) 1. of *Ontario Regulation 287/07* regarding the 'Contents of terms of reference' under the CWA states:

Contents of terms of reference

3. (1) *The terms of reference for a source protection area shall be in a form approved by the Director and shall contain the following:*

- 1. A map showing the boundaries of the source protection area and the boundaries of every municipality in which any part of the source protection area is located.*

Map 1 shows the boundaries of the Halton Region Source Protection Area as well as the upper, lower, and/or single tier municipalities.

2.1.2 Source Protection Region

Part II, and specifically Section 3(1) and Table 3 – 'Source Protection Regions' of *Ontario Regulation 284/07* identify the names of:

- Source Protection Regions;
- Source Protection Areas within each Source Protection Region; and
- The lead Source Protection Authority.

"PART II

SOURCE PROTECTION REGIONS

Source protection regions

3. (1) The source protection areas set out in Table 3 next to the name of a source protection region are consolidated into a drinking water source protection region with that name. O. Reg. 284/07, s. 3 (1).
- (2) The lead source protection authority for a source protection region is set out in Table 3 next to the source protection areas that are consolidated into the source protection region. O. Reg. 284/07, s. 3 (2).

**TABLE 3
SOURCE PROTECTION REGIONS**

<i>Item</i>	<i>Name of Source Protection Region</i>	<i>Source Protection Areas</i>	<i>Lead Source Protection Authority</i>
...			
3.	<i>Halton-Hamilton Source Protection Region</i>	<i>Halton Region Source Protection Area, Hamilton Region Source Protection Area</i>	<i>Halton Region Conservation Authority</i>

According to *Ontario Regulation 284/07*:

- The name of the Source Protection Region is the Halton-Hamilton Source Protection Region;
- The Halton Region Source Protection Area and the Hamilton Region Source Protection Area make up the Halton-Hamilton Source Protection Region; and
- The Halton Region Source Protection Authority is the Lead Source Protection Authority.

Map 2 shows the size and extents of the Halton-Hamilton Source Protection Region as required in the aforementioned Regulations.

2.1.3 Municipalities Within the Source Protection Area

Section 1 (4), and specifically Table 1 entitled 'Source Protection Areas Established Under Section 4 of the Act', under *Ontario Regulation 284/07* identifies the participating municipalities within each respective Source Protection Area:

**PART I
SOURCE PROTECTION AREAS**

...

**TABLE 1
SOURCE PROTECTION AREAS ESTABLISHED UNDER SECTION 4 OF THE ACT**

<i>Item</i>	<i>Name of Conservation Authority</i>	<i>Name of Source Protection Area</i>	<i>Participating Municipalities</i>
...			
11.	<i>Halton Region Conservation Authority</i>	<i>Halton Region Source Protection Area</i>	<i>City of Hamilton, Township of Puslinch, Regional Municipality of Halton, Regional Municipality of Peel</i>
12.	<i>Hamilton Region Conservation Authority</i>	<i>Hamilton Region Source Protection Area</i>	<i>City of Hamilton, Township of Puslinch</i>

It should be noted, however, that Section 3 of *Ontario Regulation 287/07* 'Contents of terms of reference' and in particular Section 3. (1) 3. states that the Terms of Reference shall contain the following:

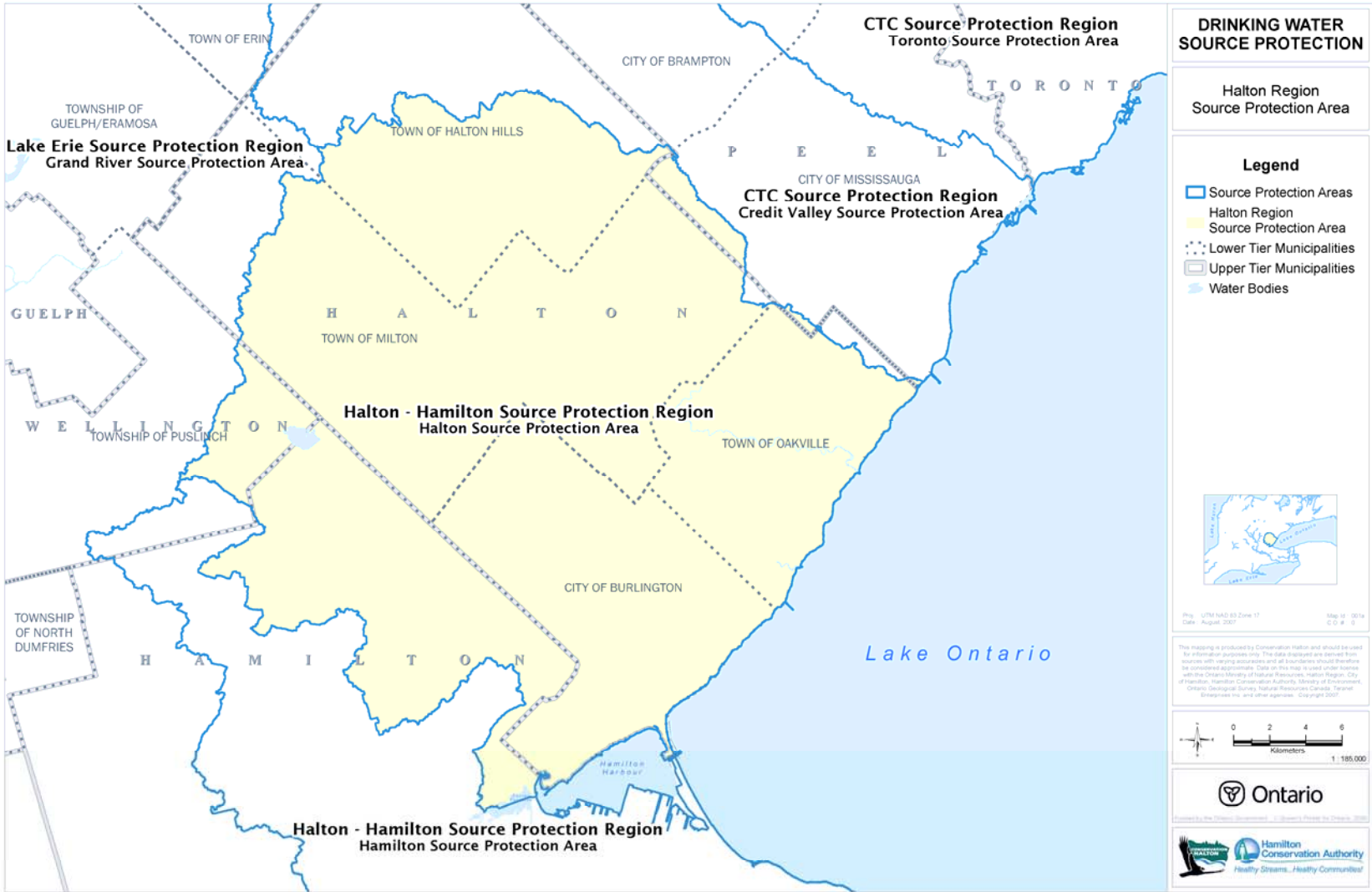
3. A list of all of the municipalities in which any part of the source protection area is located.

To ensure complete transparency, the Halton-Hamilton Source Protection Committee has decided to include the following municipalities in all of their official correspondence:

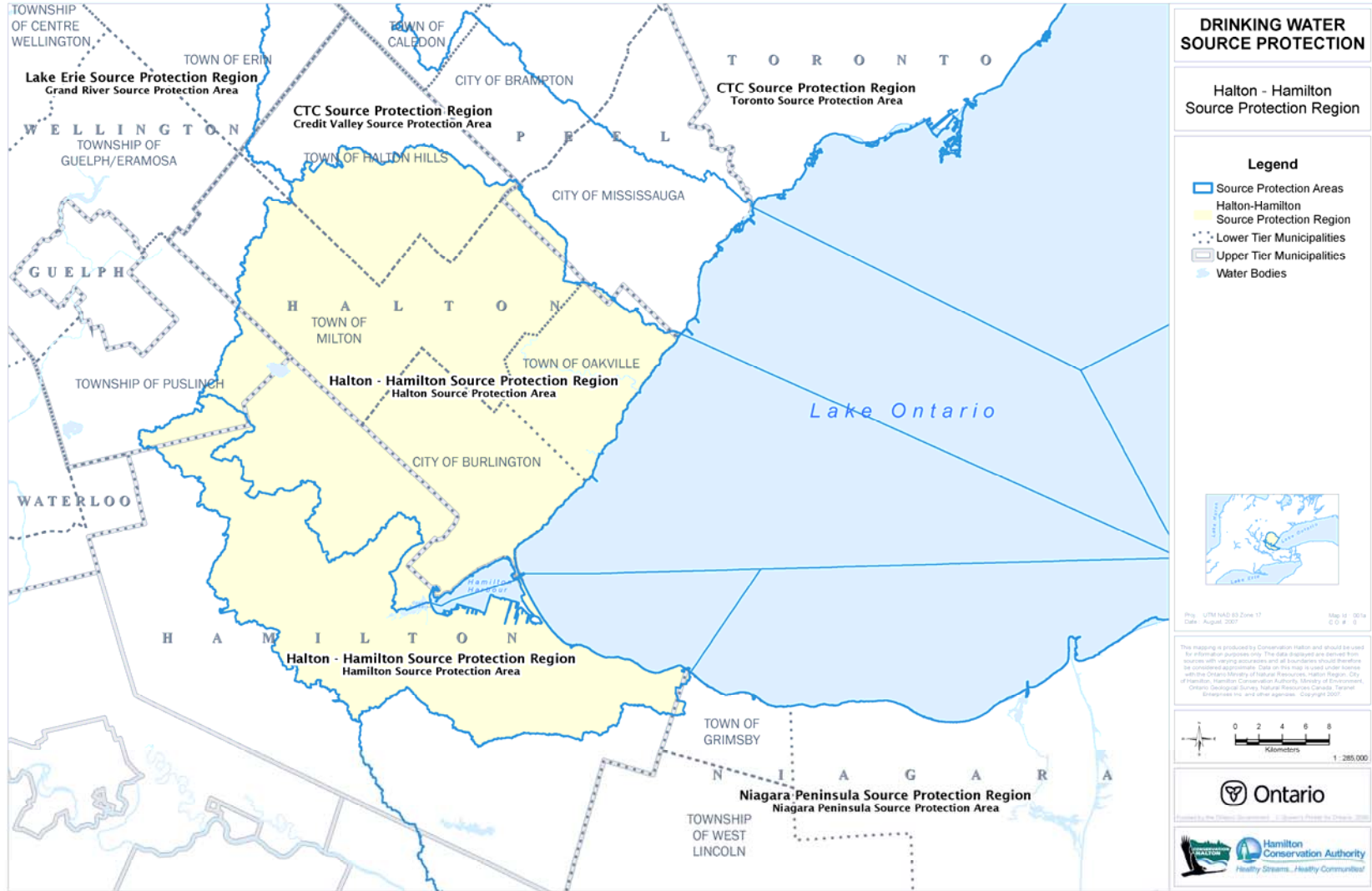
**Table 2.1.3
Municipalities Within the
Halton Region and Hamilton Region Source Protection Areas**

Item	Source Protection Region	Source Protection Area	Municipalities
1	<i>Halton-Hamilton Source Protection Region</i>	<i>Halton Region Source Protection Area</i>	<i>City of Hamilton County of Wellington Township of Puslinch Regional Municipality of Halton Town of Oakville City of Burlington Town of Milton Town of Halton Hills Regional Municipality of Peel City of Mississauga</i>
2	<i>Halton-Hamilton Source Protection Region</i>	<i>Hamilton Region Source Protection Area</i>	<i>City of Hamilton County of Wellington Township of Puslinch Regional Municipality of Niagara Town of Grimsby</i>

Map 1 Halton Region Source Protection Area



Map 2 Halton-Hamilton Source Protection Region



3 Municipal Drinking Water Systems

3.1 Existing and Planned Drinking Water Systems

Section 5 of *Ontario Regulation 287/07* 'Contents of terms of reference' states that the Terms of Reference must include:

5. A table setting out the following information for each existing and planned drinking water system to which clause 15 (2) (e) of the Act applies for the purpose of preparing the assessment report:
 - i. The drinking water system number of the drinking water system, if one has been assigned.
 - ii. The name of the drinking water system.
 - iii. The owner of the drinking water system.
 - iv. The operating authority for the drinking water system.
 - v. Whether the drinking water system obtains water from a raw water supply that is groundwater or surface water.

Existing Municipal Drinking Water Systems

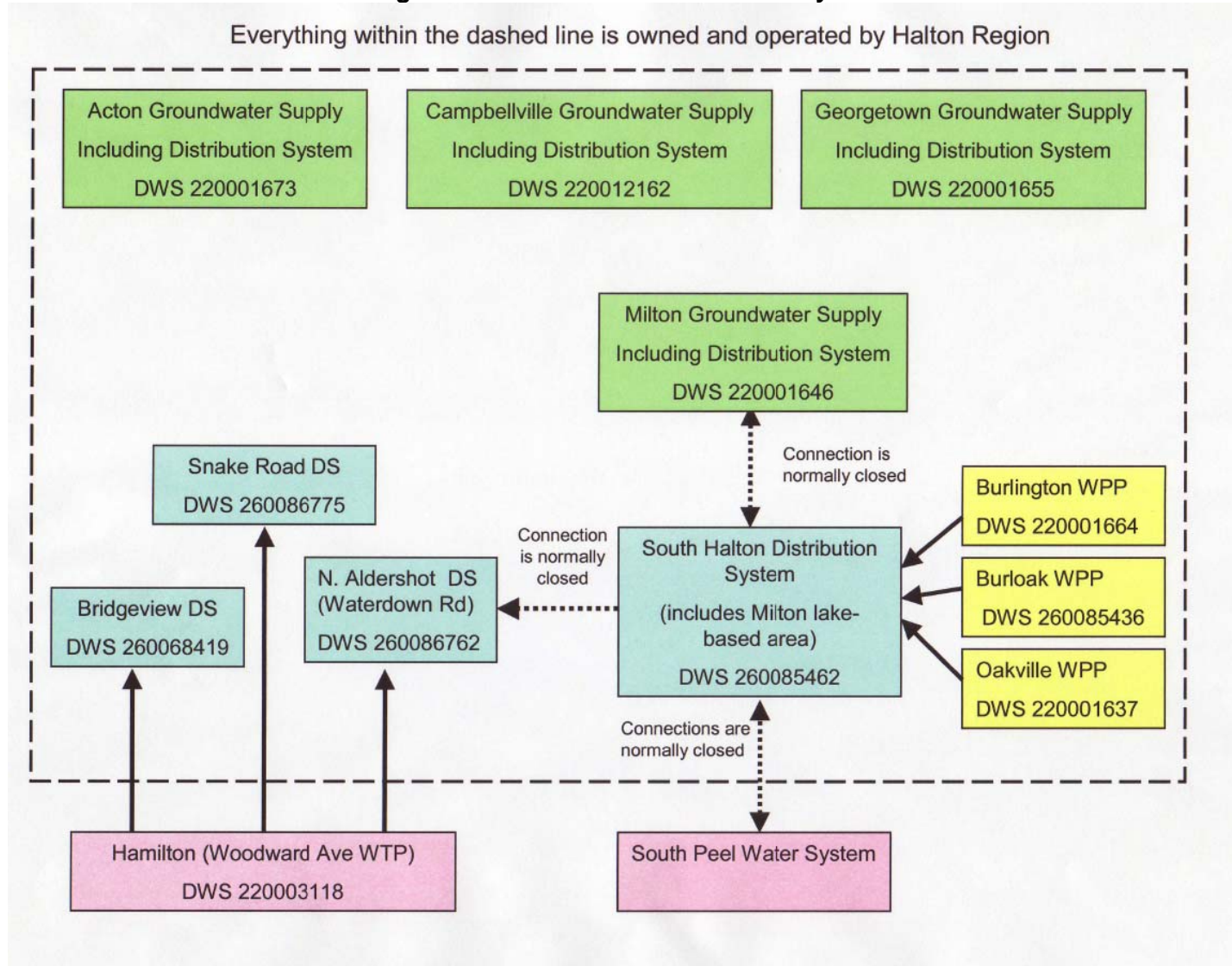
Table 3.1, below, lists the existing Municipal Residential Drinking Water systems in the Halton Region Source Protection Area:

Table 3.1
Existing Municipal Water Systems in Halton Region Source Protection Area

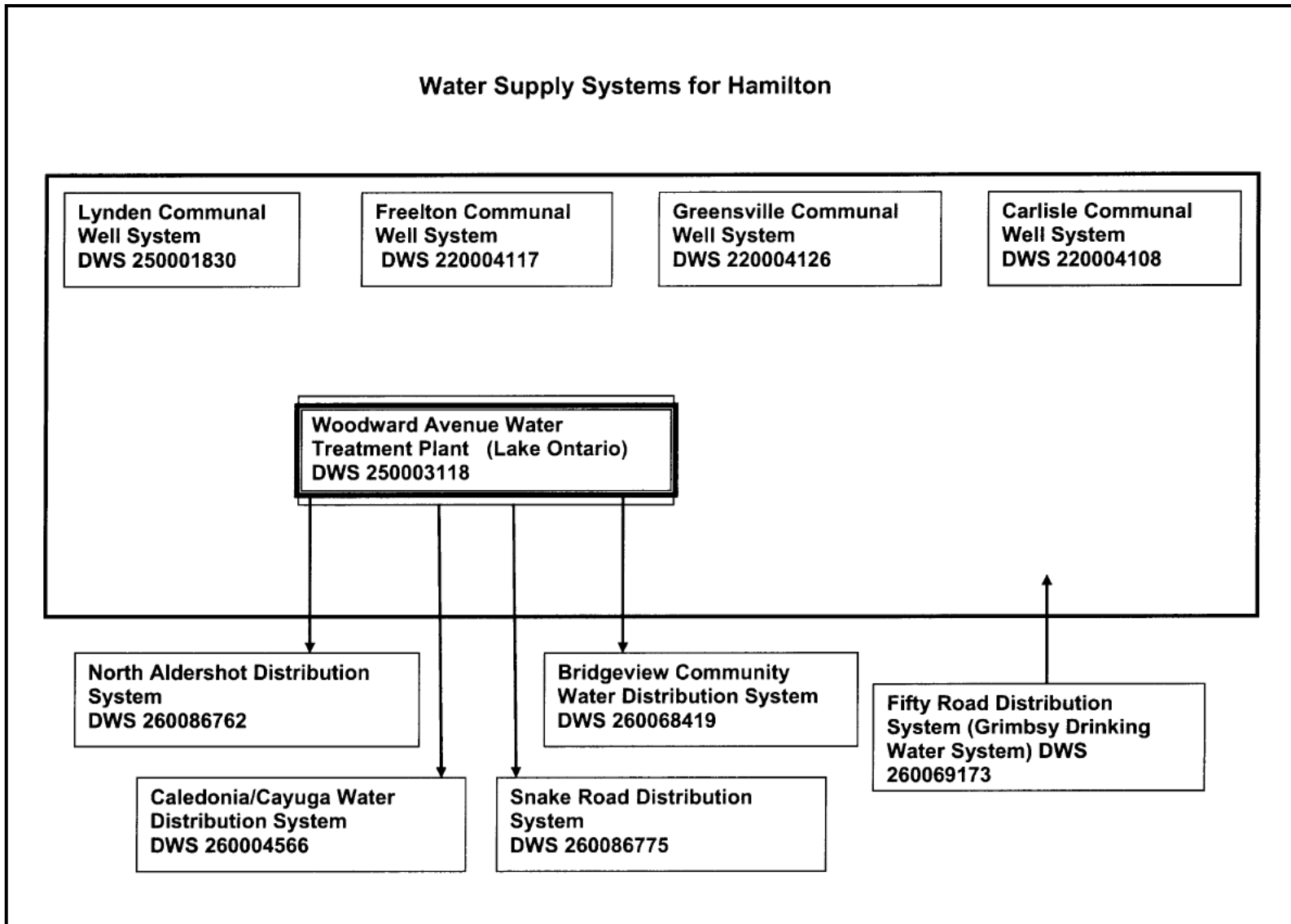
Number	Name	Owner	Operating Authority	Raw Water Supply
220001664	Burlington Water Purification Plant	Regional Municipality of Halton	Regional Municipality of Halton	Surface Water
260085436	Burloak Water Purification Plant	Regional Municipality of Halton	Regional Municipality of Halton	Surface Water
220001637	Oakville Water Purification Plant	Regional Municipality of Halton	Regional Municipality of Halton	Surface Water
220001646	Milton Groundwater Supply	Regional Municipality of Halton	Regional Municipality of Halton	Groundwater
220012162	Campbellville Groundwater Supply	Regional Municipality of Halton	Regional Municipality of Halton	Groundwater
220004108	Carlisle	City of Hamilton	City of Hamilton	Groundwater
220004117	Freelton	City of Hamilton	City of Hamilton	Groundwater

Figure 3.1A, below, is a schematic diagram of the Halton Region Water Distribution System. Figure 3.1B, below, is a schematic diagram of the Hamilton Water Distribution System.

Figure 3.1A
Region of Halton Water Distribution System



**Figure 3.1B
City of Hamilton Water Distribution System**



3.2 Additional or Excluded Drinking Water Systems

Under Section 3 of *Ontario Regulation 287/07* of the CWA, municipalities have the ability to:

1. add non-municipal drinking water systems to the Terms of Reference; and/or,
2. exclude (part of) existing municipal drinking water systems from the Terms of Reference.

3.2.1 Additional Designated Drinking Water Systems

Under Section 3 of *Ontario Regulation 287/07* of the CWA, municipalities have the option of including other types of drinking water systems through a municipal council resolution. Examples of non-municipal systems and the criteria to be used to determine if certain instances would be appropriate are provided in Table 3.2.1, below.

Table 3.2.1
Examples of Non-Municipal Drinking Water Systems That May Be Included in a Terms of Reference

No.	Example
1	<i>A non-municipal drinking-water system that serves six or more private residences or service connections and is operated year-round</i>
2	<i>A non-municipal drinking-water system that serves six or more private residences or service connections and is operated seasonally</i>
3	<i>A municipal drinking-water system that does not serve six or more private residences, is capable of supplying drinking water at a rate of more than 2.9 litres per second, and more than 2.9 litres per second is being used for drinking water purposes</i>
4	<i>A municipal drinking-water system that does not serve six or more private residences and: (i) is capable of servicing more than 2.9 litres per second, less than or equal to 2.9 litres per second is being used for drinking water purposes, and the system serves a designated* or public facility** OR (ii) is not capable of supplying drinking water at a rate of more than 2.9 litres per second and serves a designated facility* or public facility**</i>
5	<i>A non-municipal drinking-water system that does not supply six or more private residences or service connections capable of supplying drinking water at a rate of more than 2.9 litres per second, and more than 2.9 litres per second is being used for drinking water purposes</i>
6	<i>A non-municipal drinking-water system that does not serve six or more residences or service connections, is not capable of supplying drinking water at a rate of more than 2.9 litres per second, and serves a designated facility* or public facility**</i>
7	<i>Non-municipal serving one private residence and no other facility AND the well or intake is located within a cluster of six or more wells or intakes or the system is located within an area of settlement as defined in the Planning Act</i>
8	<i>Non-municipal serving one private residence and no other facility AND the private residence is a designated facility* or public facility**</i>
<i>1Note: this table is not an exhaustive list of all possible drinking water systems.</i>	
<i>2Note: Section 3 of O. Reg. 287/07 (Miscellaneous regulation) under the Clean Water Act outlines the types of systems that cannot be included in the terms of reference by either a Municipal Council Resolution or Minister's direction.</i>	
<i>*Designated Facility means: a children and youth care facility, a children's camp, a delivery agent care facility, a health care facility, a school or private school, a social care facility, or a university, a college of applied arts and technology, or an institution with authority to grant degrees (O. Reg. 170/03 under the Safe Drinking Water Act).</i>	
<i>**Public facility means: food service establishment, a place that operates primarily for the purpose of providing overnight accommodation to the traveling public, a trailer park or campground, a marina, a church, mosque, synagogue, temple or other place of worship, a recreational camp, a recreational or athletic facility, a place, other than a private residence, where a service club or fraternal organization meets on a regular basis, or any place where the general public has access to a washroom, drinking water fountain or shower (O. Reg. 170/03 under the Safe Drinking Water Act).</i>	
Source: Appendix A, Guidance on the Preparation of the Terms of Reference under the <i>Clean Water Act, 2006</i> and <i>Ontario Regulation 287/07 - Version 1.2</i> , Source Protection Programs Branch, Ontario Ministry of the Environment.	

The Region of Halton and the City of Hamilton are the only municipalities that currently provide municipal drinking water within the Halton Region Source Protection Area. At the time of the preparation of the Proposed Terms of Reference for the Halton Region Source Protection Area, no municipalities had indicated any intention to designate any additional drinking water systems under the *Clean Water Act* or its regulations.

On January 31, 2008, the Halton-Hamilton Source Protection Committee (HHSPC) sent out letters to all municipal Clerks within the Halton-Hamilton Source Protection Region. Attached to the letter was a short questionnaire asking whether the municipality intended to add any new municipal drinking water systems during the course of the preparation of the Source Protection Plan. No municipality indicated it was planning to add a new municipal drinking water source. This was confirmed with municipal representatives during the course of the preparation of the Proposed Terms of Reference.

No council resolutions have been received by the Halton-Hamilton Source Protection Committee indicating that a municipality wants to add a non-municipal drinking water system to the Proposed Terms of Reference.

3.3 Exempted Drinking Water Systems

Under Section 3 of *Ontario Regulation 287/07* of the CWA, municipalities have the ability to exclude a system (or part of a system) in the source protection planning process. This would usually be done when a municipality intends to discontinue the use of system (or part of the system) within five years. Sections 5. (1), (2), and (4) of *Ontario Regulation 286/07* outlines the conditions that must be met for such an exemption to apply.

Under Section 5 of *Ontario Regulation 286/07* an existing municipal drinking water system can be excluded if the Council of the municipality that own the system has:

- (a) passed a resolution stating that the municipality intends, within five years after the date the resolution is passed,*
 - (i) to discontinue the use of the drinking water system, and*
 - (ii) to make an application under the Safe Drinking Water Act, 2002 for the revocation of any approval, drinking water licence or permit that is applicable to the drinking water system;*
- (b) published notice of the resolution referred to in clause (a) in one or more newspapers that, in the opinion of the council of the municipality, are of sufficiently general circulation to bring the notice to the attention of the public in the municipality; and*
- (c) sent a copy of the resolution referred to in clause (a) to the source protection committee for the source protection area. O. Reg. 286/07, s. 5 (1).*

Furthermore, under Section 5 (2) of *Ontario Regulation 286/07*, the Act does not apply to a wellhead protection area or surface water intake protection zone that is related to a municipal drinking water system if the council of the municipality that owns the system has:

- (a) passed a resolution stating that the municipality intends, within five years after the date the resolution is passed,*
 - (i) to discontinue the use of the well or surface water intake to which the wellhead protection area or surface water intake protection zone relates, and*
 - (ii) to make an application under the Ontario Water Resources Act for the cancellation of any permit that is applicable to the well or surface water intake referred to in subclause (i);*

(b) published notice of the resolution referred to in clause (a) in one or more newspapers that, in the opinion of the council of the municipality, are of sufficiently general circulation to bring the notice to the attention of the public in the municipality; and

(c) sent a copy of the resolution referred to in clause (a) to the source protection committee for the source protection area. O. Reg. 286/07, s. 5 (2).

Finally, under Section 5. (4) of *Ontario Regulation 286/07*, the Act does not apply:

... to a planned municipal drinking water system if the council of the municipality that would own the system has,

(a) passed a resolution stating that the municipality does not intend to establish the drinking water system;

(b) published notice of the resolution referred to in clause (a) in one or more newspapers that, in the opinion of the council of the municipality, are of sufficiently general circulation to bring the notice to the attention of the public in the municipality; and

(c) sent a copy of the resolution referred to in clause (a) to the source protection committee for the source protection area. O. Reg. 286/07, s. 5 (4).

This same Regulation requires that the Terms of Reference document contain a copy of the municipal council resolution.

The Regional Municipality of Halton and the City of Hamilton are the only municipalities within the Halton-Hamilton Source Protection Region that currently provide municipal drinking water systems within the Halton Region Source Protection Area. At the time of the preparation of the Proposed Terms of Reference for the Halton Region Source Protection Area, no municipality had indicated any intention to exclude any drinking water systems under the *Clean Water Act* or its regulations.

On January 31, 2008, the Halton-Hamilton Source Protection Committee (HHSPC) sent out letters to all municipal Clerks within the Halton-Hamilton Source Protection Region. Attached to the letter was a short questionnaire asking whether the municipality intended to add any new municipal drinking water systems during the course of the preparation of the Source Protection Plan. No municipality indicated it was wanting to exclude any (part of) a municipal drinking water system. This was confirmed by municipal representatives during the course of the preparation of the Proposed Terms of Reference.

No council resolutions have been received by the Halton-Hamilton Source Protection Committee indicating that a municipality wants to exclude (any part of) a municipal drinking water system from the Proposed Terms of Reference.

4 Cross-Boundary Concerns

Section 3 (1) 8 of *Ontario Regulation 287/07* states that Source Protection Committees must consult with neighbouring Source Protection Committees on matters of mutual concern in the preparation of Assessment Reports and/or Source Protection Plans:

8. *A list of matters that require consultation with a source protection committee for another source protection area during the preparation of the assessment report and source protection plan, and, for each matter, the name of the other source protection area and a description of the matter.*

To date, discussions have been held with

1. Project Managers from neighbouring Source Protection Regions, and
2. Municipal staff

to identify areas of transboundary issues and concerns. Copies of Draft Proposed Terms of Reference from neighbouring SPR, if available, were also consulted.

There have been a number of cross / transboundary issues between the Halton-Hamilton Source Protection Committee and neighbouring Source Protection Areas.

Credit-Toronto-Central Lake Ontario (CTC) SPC

There are seven (7) known concerns with the Credit Valley Source Protection Area, part of the Credit-Toronto-Central Lake Ontario (CTC) Source Protection Region:

- 1. Concern: Shoreline Land Uses May Impact Lake-Based Intakes**
Possible contamination from land uses in Peel / Mississauga impacting lake-based water sources for the Oakville Water Treatment Plant located along the central portion of the Oakville shoreline.
- 2. Concern: Role of Buried Bedrock valley on Groundwater Flows**
Poor understanding of hydrogeologic importance of buried bedrock valley extending from Milton to Georgetown. Considered under the Town of Halton Hills Tier 3 Pilot Project.
- 3. Concern: Georgetown WHPA May Extend into HHSP**
Georgetown Wellhead Protection Area (WHPA) may extend beyond CVC boundaries into the Halton Region SPA portion of the HHSPR. Considered under the Town of Halton Hills Tier 3 Pilot Project.
- 4. Concern: Communities of Georgetown and Acton Have Water Quantity Stress**
Northeast portion of Halton Hills, along the northern border of the SPA, has a known water quantity stress and is currently undergoing a Tier 3 pilot project. Considered under the Town of Halton Hills Tier 3 Pilot Project.
- 5. Concern: Interconnection of Water Distribution Systems**
The South Halton (Water) Distribution System (DWS 260085462) and the South Peel Water System are interconnected however active flow of water is currently prevented by shut-off valves.
- 6. Concern: Threats Inventory**
Database of potential threats and issues for Acton and Georgetown area is being developed by Halton SPA on behalf of CTCSPR.
- 7. Concern: Edge Matching of Data Along Watershed Boundaries**
To help limit differences between both the results of scientific investigations and policy formulation between different Source Protection Committees, it is necessary to minimize any discrepancies along common boundaries between Source Protection Regions.

Lake Erie (LE) SPC

There are four (4) areas of concern involving the Lake Erie SPC:

1. Concern: Intra-Basin Transfer of Water

Raw water is taken from Lake Ontario via the Hamilton (Woodward) Water Treatment Plant in Hamilton, Ontario and pumped up over Niagara Escarpment and provided to communities in Town of Caledonia and Cayuga. Waste water is NOT returned to Lake Ontario basin but rather is treated and discharged into Lake Erie and/or the Grand River.

2. Concern: Impacts of Cross-Jurisdictional Decisions on Source Water Protection

Sources of groundwater-based drinking water may be located on lands outside of Source Protection Area (e.g. Guelph water supply in Town of Milton). Source Protection Plan policies may have direct land use economic impacts on lands located in neighbouring municipalities.

3. Concern: Edge Matching of Data Along Watershed Boundaries

To help limit differences between both the results of scientific investigations and policy formulation between different Source Protection Committees, it is necessary to minimize any discrepancies along common boundaries between Source Protection Regions.

5 Terms of Reference Consultation and Submission

Section 6 of *Ontario Regulation 287/07* lays out the requirements for consultations prior to the submission of a Terms of Reference. These are summarized below.

Prior to submitting a Terms of Reference to the Source Protection Authority, under Section 6 (1) of *Ontario Regulation 287/07* the Source Protection Committee shall prepare a Draft Proposed Terms of Reference and:

1. Publish the proposed draft on the internet;
2. Make it available for inspection by the public at one or more locations;
3. Give a copy to the clerk in each municipality lying within the Source Protection Area;
4. Consult with every person or body established pursuant to the Great Lakes Water Quality Agreement of 1978; and
5. Consult with those involved in the development of a remedial Action Plan (RAP) or lake-wide management plan.

Under Section 6 (2) of *Ontario Regulation 287/07*, as soon as the Draft Proposed Terms of Reference is published the SPC shall publish a notice in one or more newspapers and other locations as deemed appropriate by the SPC advising the public of the opportunity to:

- (a) view the draft on the Internet;
- (b) inspect the draft, during times specified in the notice, at a location specified in the notice;
- (c) attend a public meeting on the draft on a date, at a time and at a location specified in the notice; and
- (d) submit written comments on the draft to the source protection committee within 35 days after the notice is published. O. Reg. 287/07, s. 6 (2).

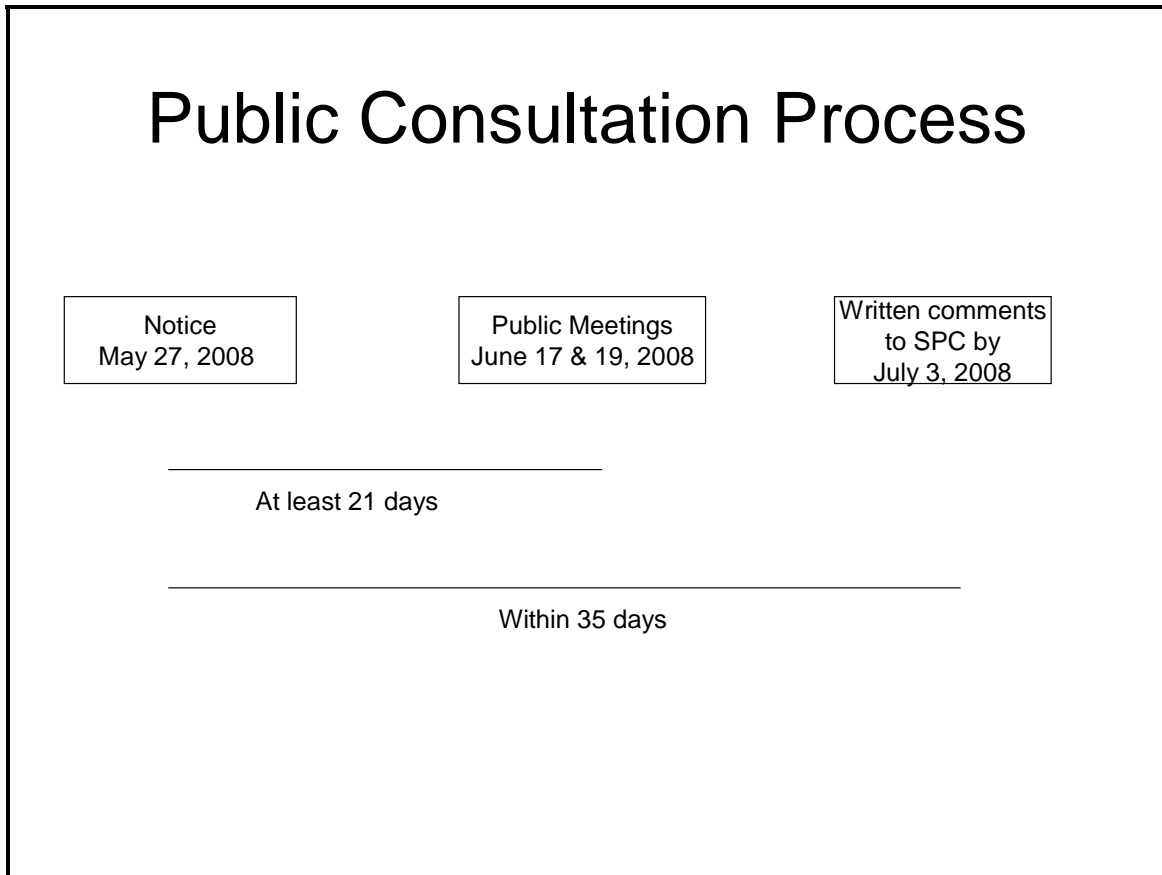
No sooner than twenty-one (21) days after publishing the notices the Source Protection Committee shall hold at least one public meeting for the purpose of giving the public an opportunity to review the draft, ask questions and make comments.

Finally, Section 6 (5) states that:

- (5) In finalizing the proposed terms of reference, the source protection committee shall consider,
 - (a) written comments on the draft that are submitted to the source protection committee within 35 days after the notice was published under subsection (2);
 - (b) comments made at the public meeting; and
 - (c) written comments on the draft that are submitted to the source protection committee in response to the giving of copies of the draft under clause (1) (b). O. Reg. 287/07, s. 6 (5).

Figure 5, below, summarizes the public consultation process for the Draft Proposed Terms of Reference for the Halton Region Source Protection Area indicating the date of notice, the dates of public open houses, and the final date for written comments.

Figure 5
Draft Proposed Terms of Reference Public Consultation Process



6 Amending the Terms of Reference

Terms of Reference may be amended under certain limited conditions as outlined in Section 9 of *Ontario Regulation 287/07*:

Amendments proposed by source protection committee

9. *For the purpose of subsection 13 (1) of the Act, the source protection committee may propose amendments to the terms of reference in the following circumstances:*

- 1. The boundaries of the source protection area for which the terms of reference were prepared have been altered.*
- 2. The council of a municipality in which any part of the source protection area is located has passed a resolution under subsection 8 (3) or (6) of the Act since the terms of reference were approved under section 10 of the Act.*
- 3. The council of a municipality in which any part of the source protection area is located has passed a resolution under subsection 5 (1), (2) or (4) of Ontario Regulation 286/07 (Miscellaneous) made under the Act since the terms of reference were approved under section 10 of the Act.*
- 4. The source protection committee is of the opinion that a significant change is required to the work plan that is included in the terms of reference, including a change to the portion of the work plan that identifies the body responsible for performing a task.*
- 5. The terms of reference contain an error that, if left uncorrected, will affect the preparation of the assessment report or source protection plan. O. Reg. 287/07, s. 9.*

When a Terms of Reference needs to be modified, the requirements under Sections 6 (1) to (5) of *Ontario Regulation 287/07* also apply. This is the Section that requires Consultation on the Terms of Reference and stipulates that the Source Protection Committee must:

- publish a draft on the internet;
- provide a copy of the draft to:
 - all municipal Clerks (partially) within the Source Protection Area;
 - the Chair of every other Source Protection Region for which a matter requiring consultation has been identified; and
 - those persons / groups associated with Great Lakes Agreements / Remedial Action Plans;
- hold at least one public open house; and
- solicit written comments from municipalities and written or verbal comments from the general public.

7 Great Lakes Agreements

Under Section 5 (1) of *Ontario Regulation 287/07*, it is a requirement to take into consideration any documents identified in Section 14 of the *Clean Water Act*.

Great Lakes-St. Lawrence River agreements

5. (1) If section 14 of the Act deems terms of reference to require consideration of documents referred to in that section, the terms of reference shall include a provision that requires consideration of those documents. O. Reg. 287/07, s. 5 (1).

Section 14 of the *Clean Water Act* stipulates that the Terms of Reference is required to include consideration for a number of documents related to Great Lakes Agreements:

Great Lakes agreements

14. (1) If a source protection area contains water that flows into the Great Lakes, the terms of reference for the preparation of an assessment report and source protection plan for the source protection area shall be deemed to require consideration of the following documents:

1. The Great Lakes Water Quality Agreement of 1978 between Canada and the United States of America, signed at Ottawa on November 22, 1978, including any amendments made before or after this section comes into force.
2. The Great Lakes Charter signed by the premiers of Ontario and Quebec and the governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin on February 11, 1985, including any amendments made before or after this section comes into force.
3. The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem 2002 entered into between Her Majesty the Queen in Right of Canada and Her Majesty the Queen in Right of Ontario, effective March 22, 2002, including any amendments made before or after this section comes into force.
4. Any other agreement to which the Government of Ontario or the Government of Canada is a party that relates to the Great Lakes Basin and that is prescribed by the regulations. 2006, c. 22, s. 14 (1).

Links to these documents can be found on the Halton-Hamilton Source Protection website at www.protectingwater.ca.

8 Requirements for Work Plan Within the Terms of Reference

It is the responsibility of the Source Protection Committee to ensure that all work necessary to complete the Terms of Reference, Assessment Report, and Source Protection Plan are undertaken. Municipalities have the first right of refusal to undertake any and all work. To do so, however, Section 4 (1) of *Ontario Regulation 287/07* requires that a Council must pass a resolution indicating the task(s) it wants to undertake:

Performance of tasks by municipality

4. (1) If the council of a municipality in which any part of a source protection area is located has passed a resolution consenting to perform a task identified by the source protection committee in connection with the preparation of the assessment report or source protection plan for the source protection area, the terms of reference shall require the municipality to perform the task.

To protect municipalities from being responsible for work identified in a Terms of Reference, Section 4 (3) stipulates that municipalities are not responsible for any work unless the Council has passed a resolution:

(3) The terms of reference shall not require a municipality to perform a task unless the council of the municipality has passed a resolution described in subsection (1).

Finally, should a municipality pass a resolution identifying task(s) it is interested in undertaking under Section 4 (4) of *Ontario Regulation 287/07*, it is incumbent upon the Source Protection Committee to consult with the municipality as to the delivery date and estimated costs:

(4) If the terms of reference require a municipality to perform a task, the source protection committee shall consult with the municipality on,

- (a) the estimated date by which the task is expected to be completed; and*
- (b) the estimated costs that are expected to be incurred in performing the task.*

9 Assessment Report Preparation

Assessment Reports are the second set of three (3) key sets of deliverables for Source Protection Committees across the Province of Ontario. Individual Assessment Reports must be prepared for each of the Source Protection Area(s) within each Source Protection Region.

In the case of the Halton-Hamilton Source Protection Region, this means an Assessment Report must be prepared for:

- Halton Region Source Protection Area; and
- Hamilton Region Source Protection Area.

9.1 Assessment Report Required Contents

The required contents for Assessment Reports are identified in Section 15 of the *Clean Water Act*. An Assessment Report shall:

- (a) identify all the watersheds in the source protection area;*
- (b) characterize the quality and quantity of water in each watershed identified under clause (a);*
- (c) set out a water budget for each watershed identified under clause (a) that,*
 - (i) identifies the different ways that water enters and leaves the watershed and quantifies the amount of water that enters or leaves in each way,*
 - (ii) describes the groundwater and surface water flows in the watershed,*
 - (iii) quantifies the existing and anticipated amounts of water taken from the watershed that require a permit under section 34 of the Ontario Water Resources Act,*
 - (iv) quantifies the existing and anticipated amounts of water taken from the watershed that do not require a permit under section 34 of the Ontario Water Resources Act, and*
 - (v) having regard to the information referred to in subclauses (i) to (iv), describes any existing or anticipated water shortages in the watershed;*
- (d) identify all the significant groundwater recharge areas and highly vulnerable aquifers that are in the source protection area;*

- (e) identify all the surface water intake protection zones and wellhead protection areas that are in the source protection area and that are related to,
 - (i) existing and planned municipal drinking water systems that serve or are planned to serve major residential developments,
 - (ii) existing and planned drinking water systems that, pursuant to resolutions passed under subsection 8 (3), the terms of reference provide for the assessment report to consider,
 - (iii) existing and planned drinking water systems that, pursuant to an amendment to the terms of reference that was required or made by the Minister under subsection 10 (6), the terms of reference provide for the assessment report to consider,
 - (iv) existing and planned drinking water systems prescribed by the regulations that serve or are planned to serve reserves as defined in the Indian Act (Canada);
- (f) describe the drinking water issues relating to the quality and quantity of water in each of the vulnerable areas identified under clauses (d) and (e);
- (g) list, for each vulnerable area identified under clauses (d) and (e),
 - (i) activities that are or would be drinking water threats, and
 - (ii) conditions that result from past activities and that are drinking water threats;
- (h) identify, within each vulnerable area identified under clauses (d) and (e),
 - (i) the areas where an activity listed under clause (g) is or would be a significant drinking water threat, and
 - (ii) the areas where a condition listed under clause (g) is a significant drinking water threat; and
- (i) contain such other information as is prescribed by the regulations. 2006, c. 22, s. 15 (2).

9.1.1 Timelines

Ontario Regulation 285/07 - Time Limits states that Assessment Reports are to be submitted no later than one (1) year after the approval of the Terms of Reference is published:

Assessment report

2. The source protection authority shall submit the proposed assessment report to the Director and take the other steps that are required to comply with subsection 17 (1) of the Act by a date that is not later than,

- (a) the first anniversary of the date that notice of the approval of the terms of reference is published under section 11 of the Act, if clause (b) does not apply; or
- (b) the second anniversary of the date specified by the Minister under subsection 36 (1) of the Act, if the assessment report is being prepared as part of the review of a source protection plan that is required under section 36 of the Act. O. Reg. 285/07, s. 2.

It is anticipated that approval of the Terms of Reference will occur by May 1, 2009. This means the Assessment Report will be due by May 1, 2010.

9.1.2 Public Consultation Process

There are a number of public consultation requirements for Assessment Reports outlined in a **draft** Regulation made under the *Clean Water Act*, 2006.

Notification of the availability of draft Assessment Reports must be:

1. published on the internet;

2. published in local newspapers;
3. sent to all municipal Clerks within the Source Protection Area;
4. sent to any / all Chiefs of bands in the Source Protection Area(s);
5. sent to every person or body:
 - a) established pursuant to the Great Lakes Water Quality Agreement of 1978;
 - b) involved in the development or implementation of a remedial action plan; and
 - c) involved in the development or implementation of a lake-wide management plan.

Copies of the draft Assessment Report must be made available for review and inspection:

1. on the internet;
2. at municipal offices in each Source Protection Area; and
3. at other locations deemed suitable by the Source Protection Committee.

Source Protection Committees must:

1. hold at least one (1) public meeting to present the draft Assessment Report and receive comments; and
2. hold the public meeting(s) at least 21 days after notification of the availability of the draft Assessment Report is placed in the local newspapers.

Source Protection Committees are also required to invite written comments up to 30 days after the publication of the proposed assessment report on the Internet.

In finalizing the proposed assessment report, the Source Protection Committee must consider:

1. written comments that are submitted to the Source Protection Committee;
2. comments made at the public meeting(s); and
3. Local community and aboriginal knowledge will also be used, where appropriate, to supplement standard technical information.

It should be noted these requirements are contained in draft regulations and therefore are subject to change.

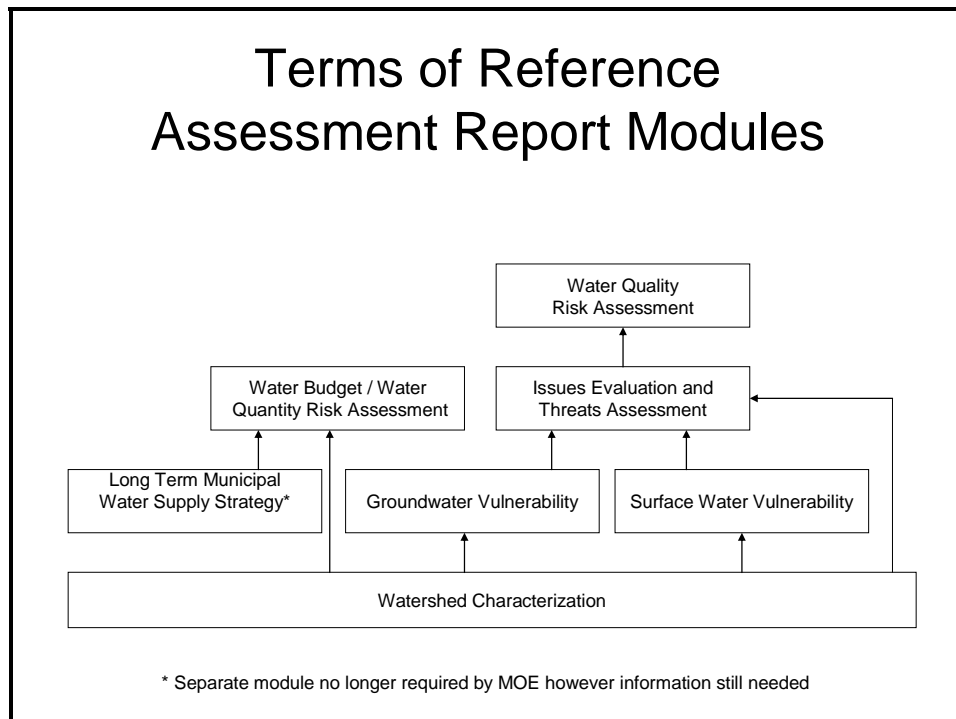
9.1.3 Assessment Report Components

The Ministry of the Environment developed a set of seven (7) modules to assist Source Protection Committees prepare their Assessment Reports. These modules include:

1. Watershed Characterization;
 2. Municipal Long-Term Water Supply*;
 3. Ground Water Vulnerability;
 4. Surface Water Vulnerability;
 5. Issues Evaluation / Threats Inventory;
 6. Water Quality Risk Assessment; and
 7. Water Budget / Quantity Risk Assessment.
- It should be noted that the Ministry of the Environment has recently removed the requirement to produce a 'Municipal Long-Term Water Supply Strategy' however most the components identified within the draft Guidance Module will need to be done for the other Modules.

Figure 9.1.3A (below) shows the relationship between the different modules.

Figure 9.1.3A
Relationship of Modules for Assessment Report



Over the past three (3) years the Halton-Hamilton Source Protection staff have been compiling a large and diverse amount of information and knowledge for the purposes of completing the requirements for each Assessment Report. As such, much of the work on each of these modules has already started. Figure 9.1.3B, below, shows a broad overview of the status of the work on each of the Modules as of March 31, 2009.

**Figure 9.1.3B
Current Status of Assessment Report Work as of March 31, 2009**

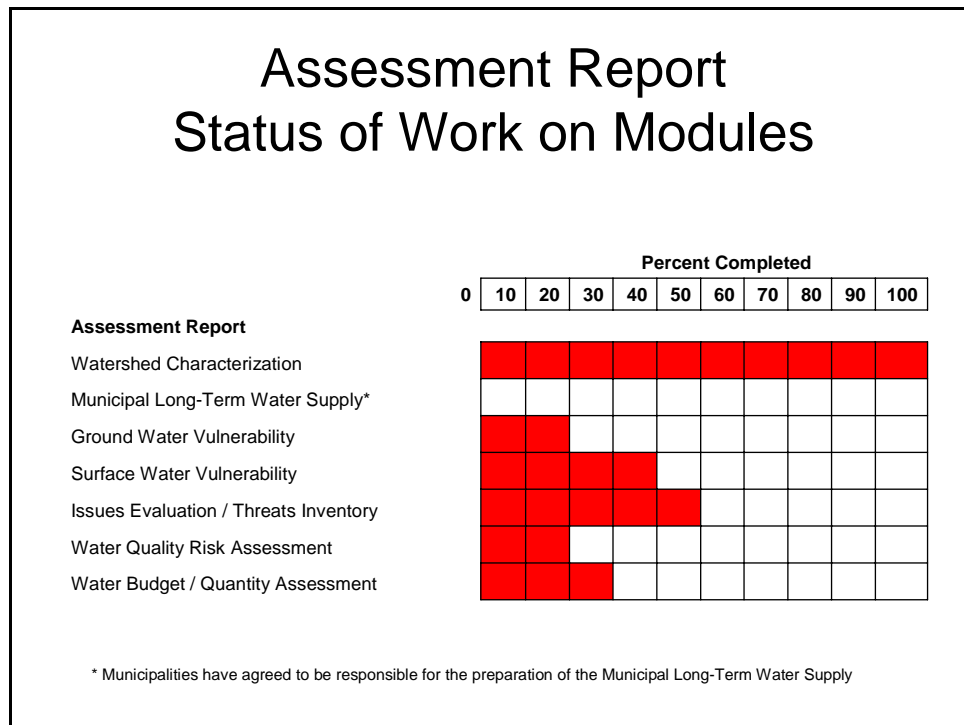


Table 9.1.3, below, summarizes the lead taken in each of these modules and the approximate percent completion.

**Table 9.1.3
Assessment Report Modules, Lead Organization, and Percent Complete
as of March 31, 2009**

Module	Lead	Percent Completed
Assessment Report (overall)	Halton SPA	10
Watershed Characterization	Halton SPA	100
Municipal Long-Term Water Supply*		n/a
Groundwater Vulnerability	Halton Region	50
Surface Water Vulnerability	Halton Region	40
Issues Evaluation / Threats Inventory	Halton SPA	50
Water Quality Risk Assessment	Halton SPA	20
Water Budget / Quantity Assessment	Halton SPA	30

* this Module is no longer required however the information will be incorporated into other modules

9.1.3.1 Watershed Characterization Reports (Module 1)

The intent of the Watershed Characterization reports is to provide:

... a description of the local watershed area. A 'watershed' is the entire area of land that is drained by a river and its tributaries.

Assessment Report: Guidance Module 1 - Watershed Characterization Module 1, Ontario Ministry of the Environment, October, 2006, p. 3)

The Watershed Characterization reports will include:

...a watershed description by accumulating all the available information about the area. It will include information on natural characteristics, the population distribution, and land use. Maps will be produced to provide a visualization of the watershed. The watershed characterization is the foundation for the tasks laid out in the rest of the guidance modules.

Assessment Report: Guidance Module 1 - Watershed Characterization Module 1, Ontario Ministry of the Environment, October, 2006, p. 3)

Watershed Characterization reports:

- *... describe the water quality conditions and trends in the watershed. Maps and graphics will be used to illustrate these trends ...*
- *... conduct an inventory of water use. It will show the current draw on the water, as well as historical takings, to illustrate where most of the water is going and at what times during the year ...*
- *... identify preliminary vulnerable areas in the watershed ...*
- *... identify a preliminary list of land use activities that are known to pose a threat to the quality or quantity of drinking water ...*
- *... produce a summary of the issues and concerns that exist in the watershed.*

Assessment Report: Guidance Module 1 - Watershed Characterization Module 1, Ontario Ministry of the Environment, October, 2006, pp. 3,4)

The Watershed Characterization Reports for the Halton Region Source Protection Area and the Hamilton Region Source Protection Area were completed in draft in June, 2007 by Halton-Hamilton Source Protection staff. These draft documents were then submitted to Conservation Ontario for review. Conservation Ontario assembled a technical peer review team charged with the responsibility of assessing the reports based on the deliverables identified in Module 1. Halton-Hamilton Source Protection Region staff received comments from the Provincial peer review team in January, 2008. There were of a number of comments however the vast majority of these were minor in nature. Halton-Hamilton Source Protection Region staff revised the Watershed Characterization reports based on the comments received from Conservation Ontario's review. In March, 2008, the final drafts of the Watershed Characterization Reports were circulated to the primary municipalities (City of Hamilton, Region of Halton) for their review and comment. Comments from the municipalities were received from the municipalities by April, 2008. These comments were reviewed and appropriate changes were made.

9.1.3.2 Long-Term Municipal Water Supply Strategies (Module 2)

The Ministry of the Environment has recently removed the requirement to produce a 'Municipal Long-Term Water Supply Strategy' however most of the components identified within the draft Guidance Module will need to be done for the other Modules. It is still useful, therefore, to identify the status of this data collection / analysis activity.

9.1.3.2.1 Halton

Currently the Region of Halton has a Long-Term Municipal Water Supply Strategy out to 2021. The Region is also currently undergoing a long-range planning exercise called 'Sustainable Halton' that will consider growth options out to 2031. This 2031 timeframe is in keeping with anticipated future analytical work to be undertaken as part of the Source Protection project.

According to the Region of Halton:

Halton Region is developing a plan for building sustainable and healthy communities for generations to come. This growth management initiative is called Sustainable Halton. Halton Region's efforts will mean less sprawl, greater protection of farmland, better infrastructure, more livable communities.

Provincial Requirements

Halton Region is working to craft a better future for all residents of the region which will be consistent with the expectations of the province. The provincial government has set a series of milestones that must be met by the region in order to meet OMB and provincial funding criteria. The Sustainable Halton Plan will help the Region meet the provincial requirements of the Greenbelt Plan and the Places to Grow Plan, and will help develop Halton's next Official Plan.

As the Sustainable Halton planning exercise proceeds the Halton-Hamilton Source Protection Region staff will update the anticipated location and amount of growth within the Region of Halton.

9.1.3.2.2 Hamilton

The Census of Canada indicates the population for the City of Hamilton was 504,559 in 2006.

The City has undertaken a number of long range studies that look at water demand, some of them to 2031:

Location	Study
Woodward	City of Hamilton Water and Wastewater Master Plan, Nov, 2006- specifically looks at the lake-based drinking water system including infrastructure, KMK
Freelton	Regional Municipality of Hamilton-Wentworth, Settlement Area of Freelton, Water Master Servicing Plan, 1997, Dillon
Lynden	Well-Water Master Servicing Plan for Lynden Rural Settlement Area, 2002, Totten Associates
Carlisle	Carlisle Water Supply System Master Plan and Class Environmental Assessment, 2004, Stantec
Greensville	Greensville-Mid Spencer Creek subwatershed study-ongoing

The City of Hamilton Transportation Services has also provided population forecasts out to 2031 based on traffic zones.

9.1.3.3 Groundwater Vulnerability (Module 3)

The purpose of the Groundwater Vulnerability module (Guidance Module 3) is to:

... address the intrinsic vulnerability of the groundwater aquifers across the Source Protection Area.

Assessment Report: Guidance Module 3 –Groundwater Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

The Groundwater Vulnerability Analysis requires the selection from among various approaches to:

... first identify the vulnerable areas, and second, to map the relative vulnerability of the aquifers within each vulnerable area. The vulnerable areas considered in the assessment include: Wellhead Protection Areas around municipal drinking water supply wells; Highly Vulnerable Aquifers; Significant Groundwater Recharge Areas; and Future Municipal Supply Areas. The relative vulnerability within each of these areas will be characterized as high, medium or low. In this context, the categorization is intended to reflect the susceptibility of the aquifer(s) in the vulnerable areas to surface (or near surface) sources of contamination. A vulnerability score is calculated from the mapping products, and this result, as well as the level of confidence in the assessment, is provided as input to the Water Quality Risk Assessment (Guidance Module 6) ...

and further

... The approaches selected to complete the assessment will be unique to each community and will be based on various local factors, including the existing hydrogeological conditions and land use activities. The initial assessment will be based on existing information from the provincial groundwater studies and, based on information gaps identified and the results of the risk assessment process, a continuous improvement plan will be developed to improve the confidence in the assessment in future source water planning cycles. The examination of groundwater quantity vulnerability is not addressed in this Guidance Module, but is central to the Water Quantity Risk Assessment (Guidance Module 7).

Assessment Report: Guidance Module 3 –Groundwater Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, pp. 3, 4)

The methodology to be used to evaluate Groundwater Vulnerability is outlined in a detailed work plan prepared by Halton-Hamilton Source Protection staff.

9.1.3.4 Surface Water Vulnerability Analysis (Module 4)

The purpose of the Surface Water Vulnerability Analysis is to:

... identify surface water areas that may be vulnerable to contamination.

Assessment Report: Guidance Module 4 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

This will require the identification of:

... 'intake' protection zones around the drinking water intakes on four types of water bodies: the Great Lakes, the Great Lakes connecting channels, inland rivers and streams, and inland lakes. For each of these water bodies, the team will set a minimum zone. Then, with the help of additional information, the team will refine the zone to derive a more precise zone that is based on a local scientific assessment.

Assessment Report: Guidance Module 4 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

Further, it will be necessary to assign:

... a vulnerability score for each of the drinking water intake zones. The score refers to the comparative likelihood of a contaminant of concern reaching an intake. The scores depend on various factors, such as the depth of the intake from the water's surface, the length of the intake from the shoreline, the size of the water body where the intake is located, and how water interacts within the zone.

Assessment Report: Guidance Module 4 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

Next it will be necessary to:

... analyze potential human-made pathways – called constructed preferential pathways – that may allow contaminants of concern to enter the water directly. These can include sewer discharge pipes, trenches, or open drainage ditches.

Assessment Report: Guidance Module 4 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

Finally, the Intake Protection Zones will be used to review the:

... vulnerable areas as part of the Water Quality Risk Assessment (Guidance Module 6) ...

and

... use the vulnerability scoring to help it rank threats to drinking water in the risk assessment.

Assessment Report: Guidance Module 4 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

In the Halton-Hamilton Source Protection Region there are a total of four (4) surface water intakes all of which are in Lake Ontario. Three (3) of these are located in the Halton Region Source Protection Area and are associated with the following water treatment plants:

1. Oakville;
2. Burloak; and
3. Burlington.

The work to protect of these sources of drinking water is being undertaken in two parts:

1. Delineation of the Intake Protection Zones; and
2. Threats Analysis to the Intake Protection Zones.

Part 1 – Delineation of Intake Protection Zones

In the western end of Lake Ontario all of the work for the delineation of the Intake Protection Zones (Part 1) was, by coincidence, undertaken by the same consultant (Stantec). In the case of the Credit-Toronto-Central Lake Ontario (CTC) Source Protection Region and the City of Hamilton, a collaborative approach was used with funding from the Province being managed by Peel Region. Halton Region and Niagara Region lead their own studies for their surface water-based municipal water systems. As of April, 2008, the consultants had released their final reports delineating the Intake Protection Zones 1 and 2.

Part 2 – Threats Assessment to Intake Protection Zones

For Part 2, it is the intention of the Province to administer one (1) contract for the Threats Assessment for the entire western end of Lake Ontario. It is anticipated funding will be managed by Peel Region. Discussions are currently underway with the Province to identify the deliverables for Part 2 of the project.

9.1.3.5 Issues Evaluation and Threats Inventory (Module 5)

According to Guidance Model 5 regarding Issues Evaluation and Threats Inventory:

Issues and Threats can be considered to be complementary parts of the source protection continuum. Issues are problems that currently exist in the source water, or that can be reasonably predicted to be a problem in the near term if rising trends continue. Threats are activities on the landscape that, if managed improperly, may cause an issue to occur in the future.

In consultation with the public and local stakeholders, drinking water issues and concerns that affect the quality of water in a vulnerable area will be identified and evaluated, as well as the drinking water threats that may be causing the issue. In situations where several issues exist, the list of drinking water issues to be evaluated would have to be prioritized. Priority would be given to those that are deemed to, either directly or indirectly, pose the greatest danger to human health. Contaminants of concern are associated with each drinking water issue. The list of issues is also used to help prioritize drinking water threats for risk management. Where the source of an issue can be linked to a drinking water threat on the landscape, these threats would be deemed significant drinking water threats.

Assessment Report: Guidance Module 5 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 3)

It will be necessary to:

... create an inventory of drinking water threats that may potentially adversely affect the quality of a drinking water source. Threats may include landfills, activities resulting in the transport, disposal, or generation of hazardous waste, and land application of materials such as manure or pesticides. In particular, the inventory will focus on the identification of threats in vulnerable areas because these areas have the greatest potential to allow contaminants to travel and impact sources of drinking water. For groundwater, vulnerable areas include wellhead protection areas, highly vulnerable aquifers, significant groundwater recharge areas and future municipal supply areas. For surface water, the vulnerable areas are designated as the surface water Intake Protection Zones (IPZs). The team will then assign hazard ratings for each contaminant of concern associated with the identified threats. A hazard rating 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. The rating gives each contaminant of concern a high, medium, or low ranking. There are two types of hazard ratings: chemical and pathogenic.

Assessment Report: Guidance Module 5 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, pp. 3, 4)

In addition, it will be necessary to:

... identify "constructed preferential pathways" that can move a contaminant more quickly toward a drinking water sources.

The inventories and evaluation of drinking water threats and issues and associated hazard ratings will be used as an input to the Water Quality Risk Assessment (Guidance Module 6).

Assessment Report: Guidance Module 5 –Surface Water Vulnerability Analysis, Ontario Ministry of the Environment, October, 2006, p. 4)

The Halton-Hamilton Source Protection staff contracted Waterloo Hydrogeologic Incorporated (WHI) to undertake the initial threats assessment for all areas within the Halton Region Source Protection Area and the Hamilton Region Source Protection Area. This information has been received in draft.

As new / revised Regulations, Director's Rules and Guidance Modules under the *Clean Water Act* become available it will be important to understand the potential impacts on individual landowners within Source Protection Area. As the Assessment Report, and in particular the Source Protection Plan, are drafted it is the intention of the Source Protection Committee to keep property owners within wellhead protection areas (WHPA) and intake protection zones (IPZ) advised of the status this work and identify any and all support mechanisms available to assist individual property owners.

9.1.3.6 Water Quality Risk Assessment (Module 6)

The purpose of Guidance Module 6 regarding Water Quality Risk Assessment is to:

... determine the risk of specific threats entering drinking water [where] ... A drinking water threat is an existing or future activity or existing condition that results from a past activity that is impacting or has the potential to impact a drinking water source.

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, p. 2)

The process will involve reviewing:

... the list of threats generated in the preceding threats inventory (Issues Evaluation/Threats Inventory Guidance Module). The threats inventory is focused within vulnerable areas identified in the Groundwater Vulnerability Analysis (Guidance Module 3) and the Surface Water Vulnerability Analysis (Guidance Module 4).

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, p. 2)

Groundwater threats will be assessed in the wellhead protection area (WHPA) whereas threats to surface water will be concentrated on the Intake Protection Zones (IPZ). The Guidance Module goes on to note that:

Threats inventoried within other vulnerable areas, such as highly vulnerable aquifer areas and significant recharge areas, will also be assessed for risk.

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, p. 2)

The risks associated with each threat will be scored:

... based on two factors: its hazard to human health, and the vulnerability of the drinking water source ...

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, p. 2)

thereby enabling each threat to be placed

... in one of four risk categories: significant risk, moderate risk, low risk, or negligible risk. If the risk is negligible, no further action is needed. Threats that fall into the other categories may be passed on to the risk management component of source water protection planning or may be reassessed, depending on the quality of information available to undertake the initial risk assessment.

After the initial risk assessment ... the degree of uncertainty associated with the data ...

and must be considered along with

... the methods used to assess the hazard associated with the threat and the vulnerability of the underlying water source.

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, pp. 2, 3)

Therefore, the ranking depends largely on how much trust there is in the quality of the information. If the uncertainty and risk are evaluated to be either moderate or high it will be necessary to conduct a second assessment for the threat:

... using improved data to re-assess the risk. The second assessment may yield a different risk rating for a threat, or confirm the previous assessment results. If a threat poses little risk (low or negligible), no further risk assessment is required.

Assessment Report: Guidance Module 6 –Water Quality Risk Assessment, Ontario Ministry of the Environment, October, 2006, p. 3)

9.1.3.7 Water Budget and Quantity Risk Assessment (Module 7)

Guidance Module 7 - Water Budget and Water Quantity:

... outlines the steps to: 1) estimate the quantity of water flowing through a watershed, 2) understand the pertinent processes and pathways water follows, and 3) assess the reliability of water supply sources from a quantity perspective. The goals of this assessment are to identify watershed communities where the reliability of water supplies is questionable and to highlight key factors that may limit the reliability, such that appropriate risk management activities can be completed.

The guidance outlines the proposed stages of assessment, which range from the development of a conceptual water budget understanding, to successively more detailed assessments of quantity reliability. The water budget conceptual understanding will build upon the watershed characterization reporting by describing the known or expected climate, surface water and groundwater processes; this understanding creates the basis for further refined assessments with greater certainty of the quantity reliability. All watershed communities will complete a conceptual understanding prior to proceeding with a Tier 1 stress assessment. Watershed communities that do not obtain water supplies from local groundwater or surface water sources must contact the province for direction once the conceptual understanding has been completed.

Building upon the conceptual understanding, a 3 tiered assessment approach with each tier of the framework being more detailed with greater certainty than the previous is provided. This tiered process will guide watershed communities to complete the degree of assessment consistent with local water quantity issues. In areas where the availability of water far outweighs the demand, a simplified approach (Tier 1) may be sufficient for decision-making and further efforts are not required. Highly developed areas that obtain water supply from local resources may require significantly more advanced and detailed assessments (Tiers 2 and 3). Detailed assessments are focused on better quantifying the availability of water for water supply (in relation to other permitted and ecological requirements) and the consumptive demand.

Assessment scenarios are designed to assess the reliability of supplies under current, future and drought conditions. The decision criteria outlined in this document are designed to guide source water protection teams to continue through the tiered process until they have completed the appropriate level of assessment. Those communities with a moderate to significant degree of subwatershed stress continue through the tiered approach. The understanding gained through this assessment process will prepare communities to deal with potential water quantity reliability issues.

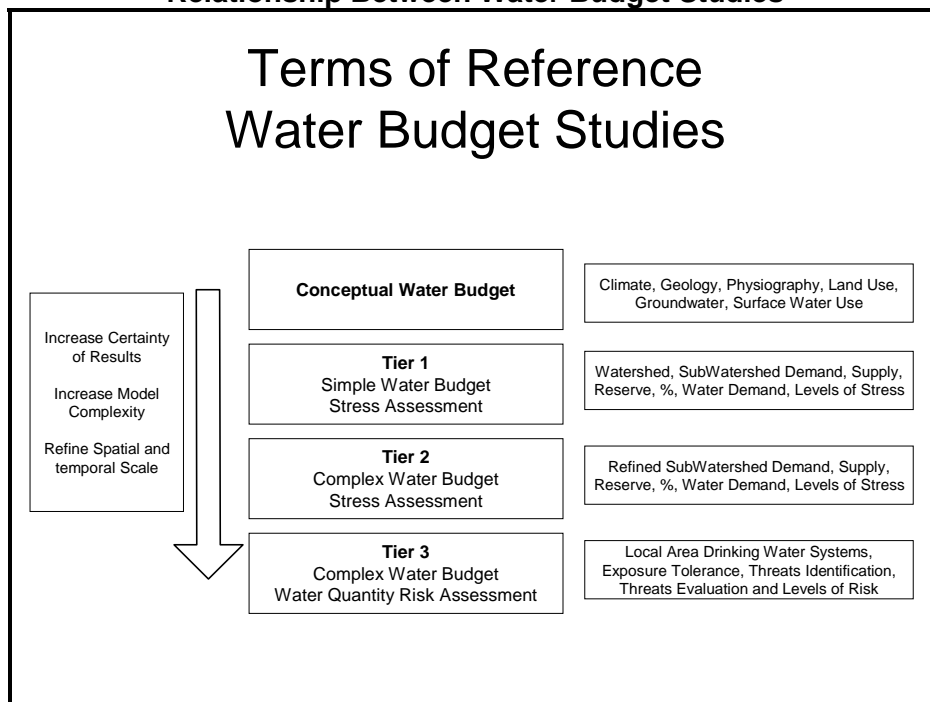
Assessment Report: Guidance Module 7 - Water Budget and Water Quantity Risk Assessment, Ontario Ministry of the Environment March 30, 200, pp. 5,6)

There are four (4) levels of water budget and quantity risk assessment prescribed by the Province. These include:

1. Conceptual Water Budget;
2. Tier 1;
3. Tier 2; and
4. Tier 3.

The level of detail increases and geographic area(s) become more focused as studies progress from the Conceptual Water Budget report towards a Tier 3 level of study.

**Figure 9.1.3.7
Relationship Between Water Budget Studies**



9.1.3.7.1 Conceptual Water Budget Report

Conceptual Water Budget reports are required for all Source Protection Areas. Over the past two (2) years the Halton-Hamilton Source Protection staff prepared Conceptual Water Budget reports for both the Halton Region Source Protection Area and the Hamilton Region Source Protection Area.

The documents were reviewed both by the Technical Working Group and a Peer Review Group. Comments from members of both groups have been received and incorporated into the final draft documents.

Copies of the Conceptual Water Budget reports have been distributed to members of the Halton-Hamilton Source Protection Committee for their review.

9.1.3.7.2 Tier 1

The purpose of Tier 1 analysis is to identify, at a preliminary level, stresses at a watershed and subwatershed level. There are several approaches that can be used in this analysis.

Until recently, the Region of Halton had a groundwater model based on a 1995 dataset. The Region of Halton retained the services of Earthfx to update the groundwater model within the Region. Outputs from this work were received in January, 2008 and documentation of the modeling exercise was received in May, 2008.

The City of Hamilton currently has a limited groundwater model for the areas surrounding the four (4) groundwater sources (Lynden, Greensville, Carlisle, and Freelon). Only the last three (3) are within the Halton-Hamilton Source Protection Region. The City of Hamilton has also recently retained the services of Earthfx to update and refine their groundwater model. Delivery of the initial model.

9.1.3.7.3 Tier 2

Based on current information provided by the City of Hamilton and the Region of Halton, it appears at this time that there are four (4) subwatersheds that will require Tier 2 level work:

**Table 9.1.3.7.3
Anticipated Tier 2 Watersheds**

Watershed	SubWatershed	Location	Initial Stress Level
Sixteen Mile Creek	Upper West Branch	Kelso, Campbellville wells	Significant
Bronte Creek	Flamboro Creek	Carlisle wells	Moderate
	Limestone Creek	Walkers Line wells	Moderate

This is based only on the stresses calculated as part of municipal water takings and limited non-municipal water takings. As further work is undertaken and other water takings are taken into account, this list may be revised.

The major milestones within a Tier 2 analysis are:

1. Preparation and agreement on Methodology;
2. Data Collection;
3. Data Analysis and Interpretation;
4. Preparation of Draft Report;
5. Peer Review of Draft Report;
6. Revision of Draft Report based on Peer Review; and
7. Final Report.

9.1.3.7.4 Tier 3

The major milestones within a Tier 3 analysis are:

1. Preparation and Agreement on Methodology;
2. Data Collection;
3. Data Analysis and Interpretation;
4. Preparation of Draft Report;
5. Peer Review of Draft Report;
6. Revision of Draft Report Based on Peer Review; and
7. Final Report.

Currently there are a few Tier 3 Pilot Projects underway. One, in the Orangeville area, is nearly complete. A second, in the Georgetown and Acton areas of the Town of Halton Hills, is of particular interest to the Halton-Hamilton Source Protection Committee because this area lies just outside the Halton Region Source Protection Area. Halton-Hamilton Source Protection staff are represented on both the Management Team and Technical Advisory Team. This will provide additional insight in the requirements for the completion of a Tier 3 study should one become necessary.

As the water budget analysis moves from the general to the specific, a number of other factors will have to be taken into consideration. Among these are:

- relationship and integration with the Low Water Response Program;
- the impacts of population growth and the resultant land use changes;
- refinement in the level of detail used in the analysis such as using actual water taking volumes as opposed to permitted water taking volumes ; and
- other long term factors such as the impacts of climate change.

The Region of Halton has started a Tier 3 Pilot Project in the Town of Halton Hills. The two largest urban centres, the communities of Georgetown and Acton, are currently experiencing restricted growth due to potential limited groundwater supply. The Tier 3 study will collect additional field data, refine the conceptual knowledge of the hydrogeologic features and processes, develop more detailed ground and surface water models, and identify various municipal water supply options for the future.

10 Source Protection Plan Preparation

At the time of the preparation of the Terms of Reference no Provincial Regulations, Director's Rules, or Guidance Documents had been issued by the Province of Ontario on the requirements for the Source Protection Plan. As a result, the information provided below, and elsewhere in this document and other supporting documents, on the Source Protection Plan should be considered as DRAFT until such time as further direction is available from the Province of Ontario.

10.1 Contents

The following items are expected to be part of the Source Protection Plan:

- Summary of the Assessment Report;
- Policies Regarding:
 - Significant Drinking Water Threats;
 - Drinking Water Targets;
 - Content of Risk Management Plans; and
 - Lake Ontario Drinking water Supplies;
- Recommendation of public bodies to be responsible for various monitoring:
 - Significant Drinking Water Threats;
 - Drinking Water Threats in Vulnerable Areas;
 - Monitoring Effectiveness of Policies; and
 - Drinking Water Issues (limited circumstances).

This is based on Section 22 (1) and (2) of the *Clean Water Act* 21006, S.O. 2006, c. 22 which provides a general indication of the intended scope and nature of Source Protection Plans:

22. (1) The source protection committee for a source protection area shall, in accordance with the regulations and the terms of reference, prepare a source protection plan for the source protection area. 2006, c. 22, s. 22 (1).

Contents

(2) A source protection plan shall, in accordance with the regulations, set out the following:

- 1. The most recently approved assessment report.*
- 2. Policies intended to achieve the following objectives for every area identified in the assessment report as an area where an activity is or would be a significant drinking water threat:
 - i. Ensuring that the activity never becomes a significant drinking water threat.*
 - ii. Ensuring that, if the activity is being engaged in, the activity ceases to be a significant drinking water threat.**
- 3. Policies intended to assist in achieving every target established under section 85 for the source protection area, if the Minister has directed under subsection 85 (6) that a report be prepared that recommends policies that should be set out in the source protection plan to assist in achieving the target.*
- 4. Policies governing,
 - i. the monitoring, in every area that is identified in the assessment report as an area where an activity is or would be a significant drinking water threat, of the activity, and**

- ii. the monitoring, in every area that is identified in the assessment report as an area where a condition is a significant drinking water threat, of the condition.
- 5. Policies governing,
 - i. the monitoring of an activity in an area, if the area is identified in the assessment report as a vulnerable area, the activity is listed in the assessment report as an activity that is or would be a drinking water threat, subparagraph 4 i does not apply and the monitoring of the activity is advisable to assist in preventing the activity from becoming a significant drinking water threat, and
 - ii. the monitoring of a condition in an area, if the area is identified in the assessment report as a vulnerable area, the condition is listed in the assessment report as a condition that is a drinking water threat, subparagraph 4 ii does not apply and the monitoring of the condition is advisable to assist in preventing the condition from becoming a significant drinking water threat.
- 6. Policies governing monitoring to assist in implementing and in determining the effectiveness of every policy set out in the source protection plan under paragraph 3.
- 7. Policies governing the monitoring of a drinking water issue identified in the assessment report, if the monitoring of the drinking water issue is advisable.
- 8. Any other matter required by the regulations. 2006, c. 22, s. 22 (2).

As indicated, the specific requirements will be identified in Regulations and associated Director's Rules and Guidance documents.

10.2 Timelines

Section 3 of *Ontario Regulation 285/07 – Timelines* states that Source Protection Plans shall be submitted no later than the fifth (5th) anniversary of the appointment of the first (1st) Chair of the Source Protection Committee:

Source protection plan

- 3. The source protection authority shall submit the proposed source protection plan to the Minister and take the other steps that are required to comply with section 25 of the Act by a date specified in the terms of reference that is not later than,
 - (a) the fifth anniversary of the appointment of the first chair of the source protection committee, if clause (b) does not apply; or
 - (b) the fifth anniversary of the date specified by the Minister under subsection 36 (1) of the Act, if a review of a source protection plan is being conducted under section 36 of the Act. O. Reg. 285/07, s. 3.
- 4. OMITTED (PROVIDES FOR COMING INTO FORCE OF PROVISIONS OF THIS REGULATION). O. Reg. 285/07, s. 4.

This means that the Halton Region Source Protection Plan will be due on August 20, 2012.

10.3 Open Public Process

One of the cornerstones of the Source Protection Plan process will be an open and transparent process. In order to complete the Source Protection Plan it will be necessary for the Halton-Hamilton Source Protection Committee to solicit information, comments and review from as many different groups and individuals as possible including, but not limited to:

- Conservation Authorities, including SPA;
- Various levels of government (international, federal, provincial, regional, and local (municipal));

- Special interest groups;
- Regulated persons and groups; and
- General public.

At the present time there are no Regulations, Director's Rules or even Guidance documents outlining the required public consultation process for Source Protection Plans. However, the process required for the preparation of the Terms of Reference and the draft Regulations for the Assessment Report have many common elements. In general it is anticipated the public consultation process for the Source Protection Plan **may** require:

Notification of the availability of draft Source Protection Plans be:

1. published on the internet;
2. published in local newspapers;
3. sent to all municipal Clerks within the Source Protection Area;
4. sent to any / all Chiefs of bands in the Source Protection Area(s);
5. sent to every person or body:
 - a. established pursuant to the Great Lakes Water Quality Agreement of 1978;
 - b. involved in the development or implementation of a remedial action plan; and
 - c. involved in the development or implementation of a lake-wide management plan .

Copies of the draft Source Protection Plans be made available for review and inspection:

1. on the internet;
2. at municipal offices in each Source Protection Area; and
3. at other locations deemed suitable by the Source Protection Committee.

Source Protection Committees:

1. hold at least one (1) public meeting to present the draft Source Protection Plan and receive comments;
2. hold the public meeting(s) at least 21 days after notification of the availability of the draft Source Protection Plans is placed in the local newspapers; and
3. invite written comments up to 30 days after the publication of the proposed Source Protection Plans on the Internet.

In finalizing the proposed Source Protection Plans, the Source Protection Committee consider,

1. written comments that are submitted to the Source Protection Committee; and

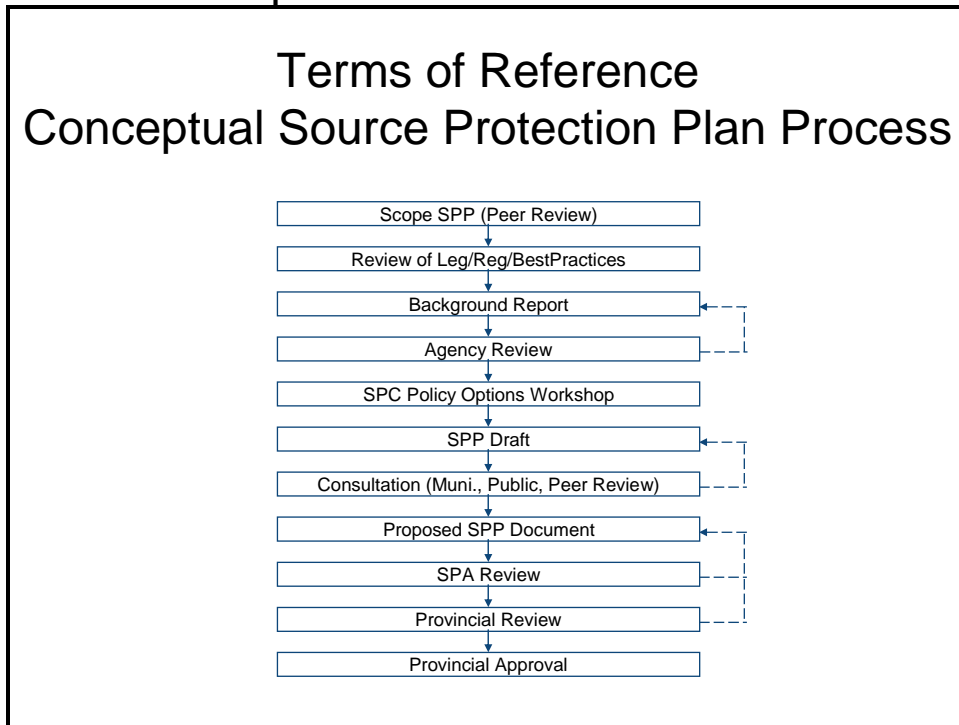
- 2. comments made at the public meeting(s).

It should be noted these requirements will be contained in future regulations and, therefore, are subject to change.

10.4 Conceptual Source Protection Plan Consultation and Submission Process

Figure 10.4 shows a conceptual process flow diagram for the preparation of the Source Protection Plan. This process will have to be reviewed and adjusted when further guidance and direction on the Source Protection Plan is available from the Province.

**Figure 10.4
Conceptual Source Protection Plan Process**



11 Preliminary Work Plans

A requirement of the Terms of Reference is the completion of work plans indicating the:

- task(s) to be undertaken;
- lead agency for each task;
- estimated date of completion; and
- estimated cost for each task.

The work plans provided below should be considered preliminary for a number of reasons:

- The requirements are based on draft guidance documents and therefore are subject to change;
- Not all final regulations, Director's rules, and guidance documents were available during the preparation of the Terms of Reference;
- Some work will require external resources that have not been fully priced;
- It is assumed the current level of administrative and technical resources is carried through to the end of the project; and
- Some tasks are dependent on the results of preceding tasks.

It is for these, and other, reasons that the work plans provided below should be viewed as preliminary and subject to change as new and better information becomes available.

11.1 Preliminary Work Plan for Assessment Report

Table 11.1, below, is the proposed work plan for the work associated with the development of the Assessment Report for the Halton Region Source Protection Area.

Table 11.1 Work Plan for Assessment Report				
Task	Description	Lead	Completion Date	Estimated Costs
AR 01	Project Management <ul style="list-style-type: none"> • Project Management • Includes staff wages / benefits, support costs, training • Includes Source Protection Committee 	Halton SPA	2010/04/30	587,200
AR 02	Communications <ul style="list-style-type: none"> • Produce newsletters, printed materials • Attend various meetings, open houses • Includes staff wages / benefits, support costs, training, program costs 	Halton SPA	2010/04/30	321,800
AR 03	Information Management <ul style="list-style-type: none"> • Identification, collection, organization, and integration of data resources • Work undertaken by HHSP staff • Some data collection through external consultants • Includes staff wages / benefits, support, training costs • Includes hardware, software purchase / maintenance costs 	Halton SPA	2010/04/30	474,600
AR 04	Watershed Characterization Report <ul style="list-style-type: none"> • Identify and describe watershed in the source protection area • Work undertaken by HHSP staff • Peer review through Conservation Ontario • Includes staff wages / benefits, support, training costs 	Halton SPA	2008/03/31	32,400
AR 05	Conceptual Water Budget <ul style="list-style-type: none"> • Describe overall flow system dynamics for each watershed in the source protection area taking into consideration surface water and groundwater features, land cover (e.g. proportion of urban vs. rural uses), human-made structures (e.g. dams, channel diversions, water crossings), and water takings. • Work undertaken by HHSP staff • External peer review, review by municipalities • Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2008/03/31	61,700

**Table 11.1
Work Plan for Assessment Report**

Task	Description	Lead	Completion Date	Estimated Costs
AR 06	Tier 1 Analysis <ul style="list-style-type: none"> Water budget analysis, stress assessment, delineation of significant groundwater recharge areas, identify water quantity concerns, and analysis of uncertainty on watershed-wide basis Groundwater model prepared by consultant through municipalities (CoH, RoH) Analysis undertaken by HHSP staff Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/07/15	50,500
AR 07	Tier 2 Analysis <ul style="list-style-type: none"> Requirement identified in Tier 1 Analysis (4 subwatersheds) water budget analysis, stress assessment, refine delineation of significant groundwater recharge areas WHPA identified by consultant through municipalities (CoH, RoH) Analysis and report by HHSP staff Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/08/21	379,200
AR 08	Tier 3 Analysis <ul style="list-style-type: none"> Requirement based on results of Tier 2 Analysis For Kelso, Walkers Line, and Campbellville well fields 	Halton SPA	2010/06/30	2,000,000
AR 09	Delineate / Apply Vulnerability Scores to Highly Vulnerable Aquifers (HVAs) <ul style="list-style-type: none"> Delineate location and extent of Highly Vulnerable Aquifers in the source protection area, apply vulnerability scores, and undertake uncertainty analysis. Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/30	94,800
AR 10	Assessing Risks in HVAs <ul style="list-style-type: none"> Identify significant, moderate, low, and negligible drinking water threats, undertake issues evaluation, and analyze uncertainty in highly vulnerable aquifers Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/15	50,500
AR 11	Apply Vulnerability Scores to SGRAs <ul style="list-style-type: none"> Apply vulnerability scores to significant groundwater recharge areas in the source protection area (delineated in the water budget process) Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/15	94,800
AR 12	Assessing Risk in SGRAs <ul style="list-style-type: none"> Identify significant, moderate, low, and negligible drinking water threats, undertake issues evaluation, and analyze uncertainty in significant groundwater recharge areas Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/15	55,500
AR 13	Delineate / Apply Vulnerability Scores to WHPAs or IPZs <ul style="list-style-type: none"> Delineate location and extent of the vulnerable areas around drinking water systems (wellhead protection areas for groundwater systems; intake protection zones for surface water systems), apply vulnerability score and uncertainty analysis 	Halton Region	2009/06/30	396,400

Table 11.1 Work Plan for Assessment Report				
Task	Description	Lead	Completion Date	Estimated Costs
	<ul style="list-style-type: none"> • Peer review • Consult with property owners/residents/stakeholders affected by the delineation and scoring for these two vulnerable areas • Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA		
AR 14	Identify Issues, Inventorying Threats, Assess Hazards in WHPAs or IPZs <ul style="list-style-type: none"> • List / describe drinking water quality issues • Inventorying threats and assess hazards (including uncertainty analysis) in wellhead protection areas and/or intake protection zones • Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/30	294,300
AR 15	Assess Risk in WHPAs or IPZs <ul style="list-style-type: none"> • Identify significant, moderate, low, and negligible drinking water threats Undertake an issues evaluation • Analyze uncertainty in wellhead protection areas or intake protection zones • Consult with stakeholders impacted by significant drinking water threats scoring • Consult with adjacent source protection areas / regions may also be required for shared Great Lakes drinking water issues • Includes staff wages / benefits, support, training costs, external consultants, peer review 	Halton SPA	2009/06/30	98,100
Total				4,991,800
Notes:				
<ol style="list-style-type: none"> 1. It is anticipated the majority of this work will be undertaken by the Halton-Hamilton Source Protection staff with a considerable amount of input (data, review and comment) from municipal staff (planning and public works). 2. Each of the tasks listed above includes pro-rated HHSP staff wages, benefits, project support costs, and administrative support costs. 3. All budget figures must be treated as preliminary until further direction (Director's Rules, Guidance documents) are provided by the Province. 				

11.2 Preliminary Work Plan for Source Protection Plan

Table 11.2, below, is the proposed work plan for the work associated with the development of the Source Protection Plan for the Halton Region Source Protection Area.

Table 11.2 Work Plan for Source Protection Plan				
Task	Description	Lead	Completion Date	Estimated Cost
SPP 01	Project Management <ul style="list-style-type: none"> • Undertaking administrative support, staffing, management support, and training necessary to provide project coordination for the source protection plan components and direct support to the source protection committee. • Includes staff time / costs, training, CA charge backs, SPC costs 	Halton SPA	2012/08/20	450,300
SPP 02	Communications <ul style="list-style-type: none"> • Produce newsletters, printed materials • Organize various meetings, open houses • Includes staff time / costs, training, publication costs, and advertising costs 	Halton SPA	2012/08/20	274,100
SPP 03	Information Management <ul style="list-style-type: none"> • Identification, collection, organization, and integration of data resources • Work undertaken by HHSP staff • Some data collection through external consultants • Includes staff time / costs; hardware, software, network purchase / maintenance 	Halton SPA	2012/08/20	140,200
SPP 04	Drinking Water Threats Policies <ul style="list-style-type: none"> • Policy development to address drinking water threats • Includes staff time / costs, training 	HHSPC	2012/03/31	453,500
SPP 05	Monitoring Policies <ul style="list-style-type: none"> • Policy development for monitoring activities (where required, advisable and/or permissible in the Act and source protection plan regulation), including determining who is responsible for implementing these policies. • Includes staff time / costs 	Halton SPA	2012/06/30	55,200
SPP 06	Great Lakes Policies <ul style="list-style-type: none"> • Policy development for Great Lakes associated elements (where directed by the Minister and required or permissible in the Act and source protection plan regulation), including monitoring policies to assist in implementing and determining the effectiveness of achieving Great Lake target(s) policies, determining who is responsible for implementing those policies, and determining the need to identify 	HHSPC	2011/12/31	23,600

**Table 11.2
Work Plan for Source Protection Plan**

Task	Description	Lead	Completion Date	Estimated Cost
	any of these policies as "designated Great Lakes policies". • Includes staff time / costs			
SPP 07	Assessment Phase Undertake assessment of impacts of draft policies	HHSPC	2012/03/31	175,000
SPP 08	Establish Policy Implementation Timelines • Establish timelines for policy implementation after all policies for the SPP are developed, giving consideration to the policies developed, key players affected, capacity for implementation, the assessed risks, and natural, social, and economic considerations, including local community interests/needs • Includes staff time	HHSPC	2012/06/30	39,400
SPP 09	Consultation on Proposed Source Protection Plan • Consultation and submission process of the overall proposed source protection plan. • Includes staff time / costs, consultation meeting costs	Halton SPA	2012/07/31	51,900
SPP 10	Other Source Protection Plan Preparation Tasks	Halton SPA	2012/08/20	106,300
Total				1,769,500
Notes:				
1. It is anticipated the majority of this work will be undertaken by the Halton-Hamilton Source Protection Committee (HHSPC) and the Halton-Hamilton Source Protection staff with a considerable amount of input (data, review and comment) from municipal staff (planning and public works).				
2. Each of the tasks listed above includes pro-rated HHSP staff wages, benefits, project support costs, and administrative support costs.				
3. All budget figures must be treated as preliminary until further direction (Regulations, Director's Rules, Guidance documents) are provided by the Province.				

