Terms of Reference (Work Plan)

for

Development of the Assessment Report & Source Protection Plan:

Severn Sound Source Protection Area

by

South Georgian Bay-Lake Simcoe Source Protection Committee

Under the Clean Water Act, 2006

Approved July 13, 2009

PROGRAM OVERSIGHT

Source Protection Plans, intended to prevent the overuse and contamination of Ontario's drinking water supplies, are being developed by multi-stakeholder Source Protection Committees, formed under the *Clean Water Act*, 2006. Locally, the South Georgian Bay-Lake Simcoe Source Protection Committee is comprised of 22 local stakeholders and a Chair, who are municipal, industry, First Nation and public representatives that act like a Board of Directors, and are responsible for the development of the Terms of Reference (work plan), technical Assessment Reports, and ultimately Source Protection Plans. Details pertaining to each of the Source Protection Committee members are located at http://www.ourwatershed.ca/committees/spcmembers.php.

It is the objective of the Source Protection Committee to develop Source Protection Plans that include policies and strategies to protect our drinking water by preventing, reducing or eliminating significant threats to those water resources. Through development of the Source Protection Plans, the role of the Committee is to:

- Ensure that public concerns are heard and taken into consideration;
- Consult with impacted landowners;
- Establish policies based on the best available science and mindful of the precautionary principle;
- Consider all economic impacts; and
- Make decisions that are fair and reasonable through an open and transparent process.

SOURCE PROTECTION COMMITTEE MISSION STATEMENT

The Source Protection Committee exists to ensure an open process is followed in the development of reasonable, science based policies that protect municipal sources of drinking water now and into the future.

NOTE:

The Ministry of the Environment has passed an additional regulation under the Clean Water Act that outline the technical requirements of the Assessment Report. It is anticipated that additional regulations will be drafted to outline the requirements of the Source Protection Plans. These regulations, once finalized may require amendments to be made to this Terms of Reference (Work Plan).

EXECUTIVE SUMMARY

BACKGROUND

The Clean Water Act was introduced by the Ontario Government in 2006. In July 2007, the Act, along with the first five associated regulations, came into effect. The intent of this legislation is to ensure communities are able to protect their municipal drinking water supplies now and in the future from overuse and contamination. These goals are to be pursued through the development of technical Assessment Reports describing vulnerable areas and risks to drinking water, and Source Protection Plans with recommendations regarding land use planning policies and risk reduction strategies.

In order to achieve these Source Protection Plans, Terms of Reference documents have been drafted and are presented in Appendix A in each of the three reports that represent the Source Protection Areas in the South Georgian Bay-Lake Simcoe Source Protection Region. These Terms of Reference documents are essentially the work plans to be followed, and describe the following program details:

1. The technical projects or tasks required to develop an understanding of the vulnerable areas and risks to drinking water sources;
2. The projects or tasks required to develop land use planning policies, risk reduction strategies, and monitoring activities that will be recommended in the source protection plans;
3. Consultation efforts with stakeholders and the public on the development and results of the technical and planning products completed;
4. Whether the tasks from 1, 2 and 3 above will be coordinated by municipalities, source protection / conservation authority staff, or some combination thereof (a partnership); and finally
5. Cost estimates and timelines for task completion.

GEOGRAPHY

The Province has organized the Source Protection Program using watershed boundaries as opposed to municipal boundaries, which is appropriate for a water management exercise given that water flows across municipalities. The South Georgian Bay-Lake Simcoe Source Protection Region is one of 19 watershed areas across the Province. Within the source protection region, there are smaller watershed units that are more manageable and less diverse than the large (>10,000 km^2) source protection region. These smaller management units are referred to as Source Protection Areas in the Clean Water Act, and separate products will be established for each. As a result there are three sets of these Terms of Reference documents for the South Georgian Bay Lake Simcoe Source Protection Region. A separate document is drafted for each of:

- The Lakes Simcoe and Couchiching / Black River Source Protection Area;
- The Nottawasaga Valley Source Protection Area; and
- The Severn Sound Source Protection Area.

This document constitutes Draft 2 of the Terms of Reference for the Severn Sound Source Protection Area. The Terms of Reference documents for the other Source Protection Areas have been prepared under separate cover.

The Severn Sound Source Protection Area is comprised of the Severn Sound watershed. The municipalities within these watersheds include upper tier, lower tier and single tier municipalities.

Municipal drinking water supplies within this Source Protection Area include both surface water (Georgian Bay / Severn Sound) and groundwater (a series of municipal wells).

TERMS OF REFERENCE / WORKPLAN

PREPARATION

This Draft 2 of the Terms of Reference has been prepared in accordance with the Clean Water Act and Terms of Reference regulation with input from municipal staff regarding the status of relevant technical work, a municipal working group, and a technical working group. This document was prepared using an electronic tool developed by the MOE to ensure consistency between regions across the Province, and to ensure the document contains all required information.

PURPOSE AND ORGANIZATION

The Terms of Reference is a workplan that outlines who will be responsible for specific tasks leading to the Source Protection Plan, how the work will be conducted, when various projects will be finished, and for what cost. The Draft 2 Terms of Reference is organized to outline the following items:

- The technical, planning and communications tasks relevant to the completion of Source Protection Plans (Tasks and Methodology);
- How the task will be completed (Tasks and Methodology);
- Who will take the lead on task coordination, either the municipality, source protection region / conservation authority staff, or some combination thereof (a partnership) (Task Lead);
- When the tasks will be conducted (Timeline); and
- Estimated cost associated with each of the tasks (Budget).

TASKS AND METHODOLODY

The MOE previously published a series of Draft Guidance Modules, numbered 1 through 7, to assist in the development of the Assessment Report. The Guidance Modules were drafted to provide a level of standardization and consistency across the province in the way in which the technical tasks are completed. ***Table 1*** summarizes the MOE Draft Guidance Modules. It should be noted that, while these modules are good technical references, they have been formally replaced and are superceded by the Technical Rules: Assessment Report (December 12, 2008).

TABLE 1

Table 1 summaries the tasks within the MOE Guidance Modules by providing a description of each as well as the methodologies utilized.

Module	Tasks	Description	Methodologies
1	Watershed Characterization	A description of the water use and hydrology within the watersheds in the source protection region, including natural characteristics, land uses, water quality, location of municipal drinking water systems and a preliminary list of threats. The development of the Assessment Report will be based on the watershed characterization.	Compile and analyze existing information provided by Conservation Authorities, Municipalities, Provincial Ministries, Federal Departments, and other non-governmental organizations.
3	Wellhead Protection Areas (WHPA) Delineation	A delineation of the location and extent of the vulnerable areas around a drinking water system (WHPAs for groundwater systems and IPZs for surface water systems) in a source protection area. A vulnerability score is applied to the WHPAs and IPZs according to their susceptibility to become contaminated. For both groundwater and surface water, this task includes identifying preferential pathways. Some groundwater pathways include quarries, abandoned wells, underground utilities, karst topography, etc. Some surface water pathways include sewers, drainage areas, watercourses, subsurfacing tiling, etc. Essenitally these pathways have the potential to allow (contaminated) groundwater and/or surface water to migrate at a faster rate towards the well and/or surface water intake. Highly vulnerable aquifer areas and significant recharge areas are also delineated in this module.	Various - including: Regional-scaled, local-scaled, and sub-regional numerical models. Analytical solutions and fixed radius methods were used in data-poor portions of the region.
	Groundwater Vulnerability Ranking		Various - Aquifer Vulnerability Index (AVI) and Intrinsic Susceptibility Index methods. Numerical model estimates of vertical travel time. Hydrogeological assessment.
4	Intake Protection Zones (IPZ) Delineation and Surface Water Vulnerability Ranking		Numerical models. (GEMS or Mike 3 lake models) for surface water.

TABLE 1

Table 1 summaries the tasks within the MOE Guidance Modules by providing a description of each as well as the methodologies utilized.

Module	Tasks	Description	Methodologies
5	Issues Evaluation	The identification and description of drinking water quality issues, inventory of threats and assessment of the hazards in vulnerable areas (WHPAs and IPZs). Threats are defined as activities or conditions that have the potential to harm the quality or quantity of water that is or may be used as a source of drinking water. Threats and issues that require further assessment are conducted to determine if they represent a significant threat to a drinking water source. In which case, a policy in the source protection plan would be required to reduce or eliminate the threat.	Water quality trends and adverse impact analysis of raw water.
	Issues Assessment		
	Threats Inventory		Assessment of existing information regarding potential contaminant sources.
	Hazard Ranking		MOE has evaluated the potential hazard associated with various generic land uses.
6	Water Quality Risk Assessment Based on Threats	Identify threats in Wellhead Protection Areas and Intake Protection Zones based on the regulated Tables of Drinking Water Threats and classify the threats in terms of their potential to affect municipal drinking water source as significant, moderate, or low based on the vulnerability scores of each WHPA and IPZ. In the event that a potential threat to drinking water supplies that is not considered in the Tables of Drinking Water Threats is identified, the Source Protection Committee shall request that these threats be evaluated using the risk assessment methodology outlined in the Technical Rules: Assessment Report. The outcome of this evaluation will be a classification of additional threat(s) to municipal drinking water sources as significant, moderate, or low.	Database calculation (vulnerability x hazard) scoring.
			Site scale assessment per MOE guidance to refine hazard ranking and risk assessment.
	Water Quality Risk Assessment in Significant Groundwater Recharge Areas	The level of risk that an identified threat represents is determined and included on a map based on a vulnerabilty of high, medium, or low for significant groundwater recharge areas. There is also a map of highly vulnerable aquifers based on high, medium, or low vulnerability. If a significant threat is found, a policy in the source protection plan would be required to address it.	Assess existing information regarding potential contaminant sources. The MOE is proposing a semi-quantitative approach to evaluate drinking water threats to water quality in the delineated vulnerable areas.
	Water Quality Risk Assessment in Highly Vulnerable Aquifers		

TABLE 1

Table 1 summaries the tasks within the MOE Guidance Modules by providing a description of each as well as the methodologies utilized.

Module	Tasks	Description	Methodologies
7	Conceptual Water Budget	A description of the 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.	Compile and analyze existing information provided by Conservation Authorities, Municipalities, Provincial Ministries, Federal Departments, and other non-governmental organizations.
	Tier 1 Water Budget	A quantification of the various components of the hydrological cycle and estimation of water quantity stresses on a subwatershed basis. Significant recharge areas are estimated within this process.	Analyses using available monitoring data.
	Tier 2 Water Budget	In those subwatersheds where a quantity stress is identified, a Tier 2 Water Budget analysis involves using more sophisticated methods to estimate water supply and demand. This process also results in refining the delineation of significant recharge areas.	Numerical Modeling methods.
	Tier 3 Water Budget - Water Quantity Risk Assessment	If determined necessary from a Tier 2 Water Budget, this process examines the long-term viability of specific municipal water supplies.	Advanced numerical modeling.
No number associated with these tasks.	Coordinating and Supporting	Administrative support, staffing, management support, and training necessary to provide project coordination for the Assessment Report and Source Protection Plan components and direct support to the Source Protection Committee.	Per MOE guidance.
	Communication Initiatives	Local area engagement, outreach and creation of communications products that support the Assessment Report and Source Protection Plan processes.	Per MOE guidance.
	Information Management	Conduct overall data management, data sharing agreements, standards, mapping, software, maintenance and data upgrading for continual improvement.	Per MOE guidance.

TASK LEADS

All of the municipalities within the Severn Sound Source Protection Authority have expressed interest in participating in the Source Protection Plan development in various capacities. The Severn Sound Source Protection Authority and the Lakes Simcoe and Couchiching / Black River Source Protection Authority are coordinating the development of the Assessment Report and Source Protection Plan with input from:

- The City of Orillia;
- The District Municipality of Muskoka;
- The Township of Georgian Bay (District Municipality of Muskoka);
- The Town of Midland (Simcoe County);
- The Township of Oro-Medonte (Simcoe County);
- The Town of Penetanguishene (Simcoe County);
- The Township of Severn (Simcoe County);
- The Township of Springwater (Simcoe County);
- The Township of Tay (Simcoe County); and
- The Township of Tiny (Simcoe County).

TIMELINE

The timeline for the tasks presented above as well as the tasks that have been completed is presented in ***Table 2***.

BUDGET

The estimated budget is summarized in ***Table 3***.

TABLE 2

The timeline for the tasks presented above (to be completed) are presented in Table 2 (2008 to 2012).

Deliverable Category	Tasks	2005	2006	2007	2008	2009	2010	2011	2012
		J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Legislative Responsibilities	TOR Development								
	Submission of Terms of Reference to Minister								
	Submission of Assessment Report to Director								
	Submission of Source Water Protection Plan to Minister								
Watershed Characterization	Interim Watershed Characterization								
	Peer Review of Watershed Characterization								
	Final Watershed Characterization								
Water Budget	Conceptual Water Budget								
	Tier 1 - Water Budget								
	Tier 2 - Water Budget								
	Tier 3 - Water Budget (Quantity Risk Assessment)								
Surface Water Vulnerability Analysis	Intake Protection Zone (IPZ) Delineation								
	Vulnerability scoring								
Groundwater Vulnerability Analysis	Significant Groundwater Recharge Areas (SGRA) delineation & vulnerability scores								
	Highly Vulnerable Aquifer area (HVA) delineation & vulnerability scores								
	Delineation and vulnerability scores for Wellhead Protection Area (WHPA)								
	Vulnerability scoring of HVA and SGRA								
Planned Wells & Intakes Including Technical Tasks	York Region Wells and City of Barrie Well and Surface Water Intake								
Threats Inventory and Issues Evaluation	Threats Inventory and Issues Evaluation in WHPAs or IPZs								
	Threats Inventory and Issues Evaluation in SGRA and HVA								
Water Quality Risk Assessment	Water Quality Risk Assessment Based on Threats (WHPA, IPZ, HVA, SGRA)								
	Water Quality Risk Assessment - Additional Threats (WHPA, IPZ)								
Assessment Report	Information management								
	Coordination and communication								
	Consultation on report								
Source Protection Plan Development	Coordination & communication for source protection plans								
	Policy development & timelines								
	Impact Assessment								
	Risk reduction strategy development - policy development for threats								
	Monitoring recommendations & corresponding policy								
	Consultation on plan development								

TABLE 3

The estimated costs for the Severn Sound Source Protection Area and the estimated total cost is presented in Table 3.

Tasks for Assessment Report Completion	Estimated SSSPA Subtotal	ESTIMATED REGIONAL SUBTOTAL
Coordinating and supporting projects for the assessment report	$ 1,619,000	$ 4,857,000
Undertaking communications initiatives for the assessment report	$ -	$ -
Information management for the assessment report preparation	$ -	$ -
Undertaking a watershed characterization	$ 30,100	$ 90,300
Completing a conceptual water budget	$ 193,600	$ 580,800
Conducting a Tier 1 water budget analysis	$ 43,800	$ 131,400
Conducting a Tier 2 water budget analysis (for those subwatersheds identified as stressed in Tier 1 analysis)	$ 188,500	$ 679,000
Conducting a Tier 3 Water Budget - Water Quantity Risk Assessment	$ -	$ 2,395,000
Delineating and applying vulnerability scores to Highly Vulnerable Aquifer areas	$ -	$ -
Delineating and applying vulnerability scores for Significant Recharge Areas	$ -	$ -
Identifying issues, inventorying threats and assessing hazards in Significant Recharge Areas	$ 66,700	$ 200,100
Peer review of the Highly Vulnerable Aquifer Areas and Significant Recharge Areas	$ 33,300	$ 99,900
Planned well and associated Assessment Report tasks.	$ -	$ 58,400
Planned surface water intake and associated Assessment Report tasks.	$ -	$ 60,000
Delineating and applying vulnerability scores for Intake Protection Zones	$ 81,200	$ 588,600
Delineating and applying vulnerability scores to Wellhead Protection Areas	$ 199,800	$ 882,900
Identifying issues, inventorying threats and assessing hazards in Wellhead Protection Areas or Intake Protection Zones	$ 345,900	$ 1,403,500
Identifying threats in Wellhead Protection Areas and Intake Protection Zones based on the regulated Tables of Drinking Water Threats and classifying them	$ 190,400	$ 699,400
Risk assessment in the event that a potential threat is not considered in the Tables of Drinking Water Threats. The SPC shall request that this assessment be conducted	$ 215,000	$ 1,100,000
Refine Wellhead Protection Areas for GUDI systems	$ 110,000	$ 290,000
ESTIMATED TOTAL COSTS - ASSESSMENT REPORT TASKS	**$ 3,317,300**	**$ 14,116,300**

Tasks for Source Protection Plan Completion	Estimated Subtotal	ESTIMATED REGIONAL SUBTOTAL
Coordinating and supporting projects for the source protection plan (SPP)	$ 1,200,000	$ 3,600,000
Undertaking communications initiatives for the source protection plan	$ -	$ -
Undertaking an impact assessment to evaluate the social, economic and environmental impacts of proposed policies and risk reduction strategies.	$ 75,000	$ 325,000
Policy development to address existing drinking water threats and risks	$ 133,300	$ 399,900
Policy development for managing vulnerable areas	$ -	$ -
Establishing timelines for policy implementation	$ -	$ -
ESTIMATED TOTAL COSTS - SOURCE PROTECTION PLAN TASKS	**$ 1,408,300**	**$ 4,324,900**
		$ -
ESTIMATED TOTAL COSTS	**$ 4,725,600**	**$ 18,441,200**

PUBLIC COMMENT

The first draft of the Terms of Reference / workplan was posted in early May and comments were received until July 4th, 2008. This document has been revised to reflect the Source Protection Committee's consideration of the comments submitted.

Comments on the revised Terms of reference / workplan are invited between the posting (August 15th, 2008) and the **closing date of September 26, 2008**.

Please forward formal comments c/o;

Source Protection Program
Lake Simcoe Region Conservation Authority
120 Bayview Parkway, Box 282
Newmarket, ON
L3Y 4X1

Comments can also be:

- faxed to - 905-853-5881 (attention Source Protection Program)

OR

- emailed to – swp@lsrca.on.ca

Please see www.ourwatershed.ca for further details.

APPENDIX A

The following pages constitute the formatted version of the Terms of Reference / Workplan that was generated using the provincial template.

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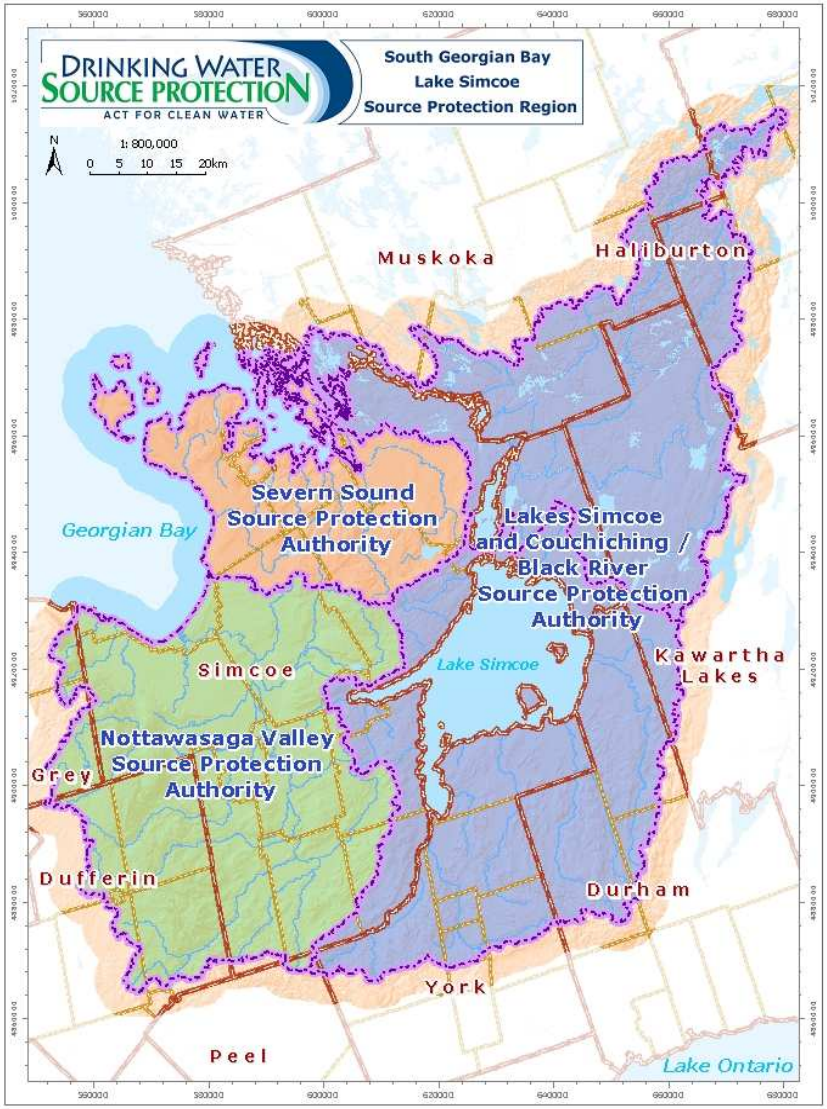
Map of Source Protection Area

This map illustrates the Severn Sound Source Protection Area in relation to the South Georgian Bay Lake Simcoe Source Protection Region.

Map of Source Protection Region



This map illustrates the three Source Protection Areas in the South Georgian Bay Lake Simcoe Source Protection Region. These three Areas are:

- Lakes Simcoe and Couchiching / Black River;
- Nottawasaga Valley; and
- Severn Sound.

List of Municipalities Located in the Severn Sound Source Protection Area

This section lists the Municipalities located within the Severn Sound Source Protection Area and whether they are upper tier, lower tier or single tier. Lower tier municipalities are a part of a higher level of municipal or upper tier government such as a county, region or district. A single tier municipality exists when there is only one level of municipal government in an area.

Legal Name of Municipality and Tier	
CITY OF ORILLIA	(single tier)
COUNTY OF SIMCOE	(upper tier)
TOWN OF MIDLAND	(lower tier)
TOWN OF PENETANGUISHENE	(lower tier)
TOWNSHIP OF ORO-MEDONTE	(lower tier)
TOWNSHIP OF SEVERN	(lower tier)
TOWNSHIP OF SPRINGWATER	(lower tier)
TOWNSHIP OF TAY	(lower tier)
TOWNSHIP OF TINY	(lower tier)
DISTRICT MUNICIPALITY OF MUSKOKA	(upper tier)
TOWNSHIP OF GEORGIAN BAY	(lower tier)

List of Municipal Residential Drinking Water System(s)

This section presents details pertaining to all the specific existing groundwater and surface drinking sources by listing the owner, operating authority drinking water system number, system name, number of wells for groundwater, number of intake cribs for surface water and the source of the water. There are a few groundwater systems that are referred to as GUDI systems, which is groundwater under direct influence of surface water (*note* * GUDI = groundwater under direct influence of surface water). Intake cribs are offshore structures that collect water from a surface water body.

Type of System	Owner	Operating Authority	Drinking Water System Number	Drinking Water System Name	Number of Wells	Number of Intake Cribs	Type of Source Water
Existing	CITY OF ORILLIA	CITY OF ORILLIA	220001183	ORILLIA WATER SUPPLY SYSTEM	3 (2 in LS-BR SPA and 1 in SS SPA)	0	Groundwater
Existing	TOWN OF MIDLAND	TOWN OF MIDLAND	220001156	MIDLAND WELL SUPPLY	14	0	Groundwater (GUDI)
Existing	TOWN OF PENETANGUISHENE	TOWN OF PENETANGUISHENE	220006838	LEPAGE SUBDIVISION (PENETANGUISHENE) WELL SUPPLY	2	0	Groundwater
Existing			220001147	PAYETTE (PENETANGUISHENE) WELL SUPPLY	3	0	Groundwater
Planned			TO BE DETERMINED	ROBERT STREET WEST SUPPLY WELL	2	0	Groundwater
Existing	TOWNSHIP OF ORO-MEDONTE	TOWNSHIP OF ORO-MEDONTE	250001402	HORSESHOE HIGHLANDS SUBDIVISION WELL SUPPLY	2	0	Groundwater
Existing			220003920	MEDONTE HILLS WELL SUPPLY	2	0	Groundwater
Existing			220010752	ROBIN CREST WELL SUPPLY	2	0	Groundwater

Type of System	Owner	Operating Authority	Drinking Water System Number	Drinking Water System Name	Number of Wells	Number of Intake Cribs	Type of Source Water
Existing	TOWNSHIP OF ORO-MEDONTE	TOWNSHIP OF ORO-MEDONTE	220001518	SUGAR BUSH WELL SUPPLY	3	0	Groundwater
Existing			220005125	WARMINSTER WELL SUPPLY	2	0	Groundwater
Existing	TOWNSHIP OF SEVERN	TOWNSHIP OF SEVERN	220005143	BASS LAKE WOODLANDS WELL SUPPLY	3	0	Groundwater
Existing			220001110	COLDWATER WELL SUPPLY	3	0	Groundwater
Existing	TOWNSHIP OF SPRINGWATER	ONTARIO CLEAN WATER AGENCY, GEORGIAN BAY HUB	220000700	ELMVALE WELL SUPPLY	2	0	Groundwater
Existing			220003911	HILLSDALE WELL SUPPLY	3	0	Groundwater
Existing	TOWNSHIP OF TAY	TOWNSHIP OF TAY	220011323	ROPE SUBDIVISION WATER TREATMENT PLANT	0	1	Surface Water
Existing			220001076	VICTORIA HARBOUR WATER TREATMENT PLANT	0	1	Surface Water
Existing	TOWNSHIP OF TINY	TOWNSHIP OF TINY	220005269	BLUEWATER WELL SUPPLY	3	0	Groundwater
Existing			220005278	COOKS LAKE WELL SUPPLY	2	0	Groundwater
Existing			220005287	GEORGIAN BAY ESTATES WELL SUPPLY	3	0	Groundwater (GUDI)
Existing			220005296	GEORGIAN HIGHLANDS WELL SUPPLY	1	0	Groundwater
Existing			220005303	GEORGIAN SANDS WELL SUPPLY	4	0	Groundwater
Existing			220005321	LEFAIVE WELL SUPPLY	2	0	Groundwater

Type of System	Owner	Operating Authority	Drinking Water System Number	Drinking Water System Name	Number of Wells	Number of Intake Cribs	Type of Source Water
Existing	TOWNSHIP OF TINY	TOWNSHIP OF TINY	220006277	LAFONTAINE WELL SUPPLY	2	0	Groundwater
Existing			220005358	PENNORTH WELL SUPPLY	2	0	Groundwater
Existing			220005544	PERKINSFIELD WELL SUPPLY	4	0	Groundwater
Existing			220005367	RAYKO WATER SYSTEM WELL SUPPLY	2	0	Groundwater
Existing			220005376	SAND CASTLE WELL SUPPLY	2	0	Groundwater
Existing			220006259	SAWLOG BAY WELL SUPPLY	2	0	Groundwater
Existing			220005394	TEE PEE POINT WELL SUPPLY	2	0	Groundwater
Existing			220006268	THUNDER BAY WELL SUPPLY	2	0	Groundwater
Planned			TBD	TINY COVE ESTATES	2	0	Groundwater
Existing			220005401	VANIER WOODS WELL SUPPLY	2	0	Groundwater
Existing			220007481	WHIP-POOR-WILL II WELL SUPPLY	2	0	Groundwater
Existing			260002330	WOODLAND BEACH WELL SUPPLY	2	0	Groundwater
Existing			220005410	WYEVALE WELL SUPPLY	5	0	Groundwater

The Clean Water Act requires the inclusion of Municipal Residential Drinking Water Systems in the Source Protection Planning process, where the vulnerability of the water supply and risks to it are assessed. The Clean Water Act also allows for a variety of systems that are not Municipal Residential Systems to be included either by the choice of Municipal or First Nations councils, and for systems to be excluded from the process if they are due to be decommissioned within a reasonable time frame. This page of the Terms of Reference describes the systems that are to be included and/or omitted from the process for the reasons listed.

List of Drinking Water System(s) Included by Municipal Council Resolution

(Not Municipal Residential Drinking Water Systems)

None included to date

List of Drinking Water Systems Serving Reserve(s)

(Not Municipal Residential Drinking Water Systems)

None included to date

List of Fully or Partially Exempted Municipal Residential Drinking Water System(s)

None included to date

List of Drinking Water System(s) Included by Minister of the Environment

(Not Municipal Residential Drinking Water Systems**)**

None included to date

The Work Plan to Complete the Assessment Report

This section presents the components of the Assessment Report that will be led by the Lakes Simcoe and Couchiching/Black River Source Protection Area with support from the Nottawasaga Valley and Severn Sound Source Protection Areas. The tasks, costs for work completed or in progress, estimated costs for remaining work (rounded to the nearest $100); start date and estimated completion date are presented below. The costs are estimates and may need to be revised following the enactment of the Assessment Report regulation.

ASSESSMENT REPORT: WATERSHED-WIDE TASK DESCRIPTION **Assigned Lead: Lakes Simcoe & Couchiching / Black River SPA with support from Nottawasaga Valley and Severn Sound SPAs**	**Costs for work completed or In Progress**	**Estimated Costs for remaining work**	**Start Date & Estimated Completion Date**
Coordinating and supporting projects for the assessment report. Undertaking administrative support, staffing, management support, and training necessary to provide project coordination for the Assessment Report components and direct support to the source protection committee. The SPC operating funds are included in these costs.	$819,000	$800,000	2005-Jan-1 to 2009-Sep-30
Undertaking communications initiatives for the assessment report. Consultation on the overall proposed assessment report Meeting the legislative and regulatory requirements on the consultation and submission process of the proposed Assessment Report as per regulation. (Local area engagement, outreach and creation of communications products that support the Assessment Report process).	Included in coordination costs above.		
Information management for the assessment report preparation. Conducting overall data management, data sharing agreements, standards, mapping, software and maintenance.			
Undertaking a watershed characterization. Identifying and describing watersheds in the source protection area.	$30,100	$ -	2005-Jan-1 to 2008-Jun-30
Completing a conceptual water budget. Describing the overall flow system for each watershed in SPA, taking into consideration SW and GW features, land cover, human-made structures (dams, channel diversions, water crossings) and water takings.	$193,600	$ -	2005-Jan-1 to 2008-Mar-31
Conducting a Tier 1 water budget analysis. Using simple methods, quantifying available water supply and demand using available information and assessing potential water quantity stress.	$43,800	$ -	2007-Dec-1 to 2008-Jul-31
Conducting a Tier 2 water budget analysis (for those subwatersheds identified as stressed in Tier 1 analysis). Using complex methods (numerical groundwater and surface water models), refine estimates of available water supply. Refine demand through consultation with water users. Re-assess water quantity stress based on refinements.	$ -	$ 188,500	2008-May-1 to 2009-Sep30

ASSESSMENT REPORT: WATERSHED-WIDE TASK DESCRIPTION **Assigned Lead: Lakes Simcoe & Couchiching / Black River SPA with support from Nottawasaga Valley and Severn Sound SPAs**	**Costs for work completed or In Progress**	**Estimated Costs for remaining work**	**Start Date & Estimated Completion Date**
Delineating and applying vulnerability scores to Highly Vulnerable Aquifer areas. The Aquifer vulnerability index methodology will be applied to interpreted geological surfaces to delineate vulnerable areas, with consideration of hydraulic setting. Vulnerability ranking to be completed using methods described in Regulation and Technical rules: Assessment Report.	Included in Water Budget and coordination costs above		2007-Jun-1 to 2008-Sep-30
Delineating and applying vulnerability scores for Significant Recharge Areas. Significant recharge areas will be estimated using a simple water balance approach (estimating recharge across a watershed, and designating as significant those portions where 15% above average recharge occurs. This estimation will be refined for those areas where a Tier 2 water budget is completed using the modeling tools developed/refined for those Tier 2 assessments.			2006-Jun-1 to 2009-Mar-31
Identifying issues, inventorying threats and assessing hazards in Significant Recharge Areas and Highly Vulnerable Aquifer Areas. Hazard ranking will be accomplished through the assessment of existing threats data (from municipal, provincial, and federal sources of information); using methods described in Regulation and Technical Rules: Assessment Report.	$ -	$66,700	2008-Jun-1 to 2009-May-31
Assess Risk in Significant Recharge Areas and Highly Vulnerable Aquifer Areas.	Included in Identifying Issues and Assessing Hazards costs above		2008-Jun-1 to 2009-Aug-31
Peer review on the groundwater vulnerability analysis of Highly Vulnerable Aquifer areas and Significant Recharge Areas. A qualified expert will be retained to verify the estimations of Significant Recharge and Vulnerable Aquifer areas.	$ -	$33,300	2009-Apr-1 to 2009-Jun-1
Delineating and applying vulnerability scores for Intake Protection Zones. For the Township of Tay intakes in Georgian Bay/Severn Sound, the Intake Protection Zones are being delineated using a hydrodynamic model. Vulnerability ranking will be completed using available provincial guidance material (scores assessed based upon proximity to intake and flow conditions). Preferential Pathways will be assessed for these Intake Protection Zones.	$66,200	$ 15,000	2006-Jun-1 to 2008-Jul-31

ASSESSMENT REPORT: WATERSHED-WIDE TASK DESCRIPTION **Assigned Lead: Lakes Simcoe & Couchiching / Black River SPA with support from Severn Sound and Nottawasaga Valley SPAs**	**Costs for work completed or In Progress**	**Estimated Costs for remaining work**	**Start Date & Estimated Completion Date**
Delineating and applying vulnerability scores to Wellhead Protection Areas. For the municipal residential groundwater supplies in Oro-Medonte, Severn, Springwater, and Orillia, the vulnerability of Wellhead Protection Areas will be assessed using the aquifer vulnerability index methodology (using the vulnerability scores for the municipal aquifer). *The original delineations of these Wellhead Protection Areas were completed and funded through the 2002 municipal groundwater studies.	$ -	$80,000	2007-Jun-1 to 2009-Jun-30
Identifying issues, inventorying threats and assessing hazards in Wellhead Protection Areas or Intake Protection Zones. For the Wellhead Protection Areas in Oro-Medonte, Severn, Springwater, and Orillia, and the Intake Protection Zones in Tay, an assessment of existing threats data (from municipal, provincial, and federal sources of information) is underway. Also included in this study is an evaluation of existing raw water quality issues. Hazard rankings will be assigned to each threat using methods described in Regulation and Technical Rules: Assessment Report.	$143,500	$ -	2006-Jun1 to 2009-Mar-31
Identify threats in Wellhead Protection Areas and Intake Protection Zones based on the regulated Tables of Drinking Water Threats and classify the threats in terms of their potential to affect municipal drinking water source as significant, moderate, or low based on the vulnerability scores of each WHPA in Oro-Medonte, Severn, Springwater, and Orillia, and the Intake Protection Zones in Tay.	$66,200	$ -	
In the event that a potential threat to drinking water supplies that is not considered in the Tables of Drinking Water Threats is identified, the Source Protection Committee shall request that these threats be evaluated using the risk assessment methodology outlined in the Technical Rules: Assessment Report. The outcome of this evaluation will be a classification of additional threat(s) to municipal drinking water sources as significant, moderate, or low.	$ -	$75,000	2009-Apr-1 to 2012-Mar-31

The Work Plan to Complete the Assessment Report

This section presents the components of the Assessment Report that will be led by the Severn Sound Source Protection Authority with support from the Lakes Simcoe and Couchiching/Black River Source Protection Authority. The tasks, costs for work completed or in progress, estimated costs for remaining work (rounded to the nearest $100); start date and estimated completion date are presented below. The costs are estimates and may need to be revised following the enactment of the Assessment Report regulation.

ASSESSMENT REPORT: WATERSHED-WIDE TASK DESCRIPTION **Assigned Lead: Severn Sound SPA with support from the Lakes Simcoe & Couchiching / Black River**	**Costs for work completed or In Progress**	**Estimated Costs for remaining work**	**Start Date & Estimated Completion Date**
Delineating and applying vulnerability scores to Wellhead Protection Areas. For the municipal residential groundwater supplies in Penetanguishene, Midland and Tiny the vulnerability of Wellhead Protection Areas will be assessed using the aquifer vulnerability index methodology (using the vulnerability scores for the municipal aquifer). Refinement of wellhead protection areas will be conducted for additional wells within existing water system(s). *The original delineations of these Wellhead Protection Areas were completed and funded through the 2002 municipal groundwater studies.	$44,900	$ 74,900	2007-Jun-1 to 2009-Jun-30
Refine Wellhead Protection Areas to Address Surface Water Influence (GUDI). Wellhead Protection Areas will be revised to include/add an Intake Protection Zone-2 for the surface water body influencing the well (two wellheads in the Midland Well Supply system and two wells in the Georgian Bay Estates Well Supply system in the Township of Tiny.	$ -	$110,000	2008-Jun-1 to 2009-Jun-30
Identifying issues, inventorying threats and assessing hazards in Wellhead Protection Areas or Intake Protection Zones. For the Wellhead Protection Areas in Penetanguishene, Midland and Tiny, and the Intake Protection Zones in Tay, an assessment of existing threats data (from municipal, provincial, and federal sources of information) is underway. Also included in this study is an evaluation of existing raw water quality issues. Hazard rankings will be assigned to each threat using methods described in Regulation and Technical Rules: Assessment Report.	$91,100	$ 111,300	2006-Jun1 to 2009-Mar-31

ASSESSMENT REPORT: WATERSHED-WIDE TASK DESCRIPTION **Assigned Lead: Severn Sound SPA with support from the Lakes Simcoe & Couchiching / Black River**	**Costs for work completed or In Progress**	**Estimated Costs for remaining work**	**Start Date & Estimated Completion Date**
Identify threats in Wellhead Protection Areas and Intake Protection Zones based on the regulated Tables of Drinking Water Threats and classify the threats in terms of their potential to affect municipal drinking water source as significant, moderate, or low based on the vulnerability scores of each WHPA in Penetanguishene, Midland and Tiny, and the Intake Protection Zones in Tay.	$62,100	$ 62,100	2006-Jun1 to 2009-Mar-31
In the event that a potential threat to drinking water supplies that is not considered in the Tables of Drinking Water Threats is identified, the Source Protection Committee shall request that these threats be evaluated using the risk assessment methodology outlined in the Technical Rules: Assessment Report. The outcome of this evaluation will be a classification of additional threat(s) to municipal drinking water sources as significant, moderate, or low.	$ -	$140,000	2009-Apr-1 to 2012-Mar-31

The Work Plan to Complete the Source Protection Plan

This section presents the components of the Source Protection Plan, which will be led by the Lakes Simcoe and Couchiching/Black River Source Protection Area with support from the Nottawasaga Valley and Severn Sound Source Protection Areas for the entire Source Protection Region. The Source Protection Plan tasks are conducted following the completion of the Assessment Report. The tasks, estimated costs, start date and estimated completion date are presented below. The costs are estimated and may need to be revised following the enactment of the Source Protection Plan regulation.

SOURCE PROTECTION PLAN: WATERSHED WIDE TASK DESCRIPTION **Assigned Lead: Lakes Simcoe & Couchiching / Black River SPA with support from Severn Sound and Nottawasaga Valley SPAs**	**Estimated Cost**	**Start Date & Estimated Completion Date**
Coordinating and supporting projects for the source protection plan (SPP). 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. The SPC operating funds are included in these costs.	$1,200,000	2009-Oct-1 to 2012-Aug-20
Undertaking communications initiatives for the source protection plan. Consultation on the overall proposed Source Protection Plan meeting the legislative and regulatory requirements on the consultation and submission process as per regulation (Local area engagement, outreach and creation of communications products that support the Source Protection Plan process).	Included in coordination cost above.	
Undertaking an impact assessment to evaluate the social, economic and environmental impacts of proposed policies and risk reduction strategies. This assessment would likely be undertaken by a consultant and working group to evaluate a range of policy options for consideration as well as aid in the selection process of the most appropriate and feasible strategy.	$75,000	
Policy development to address existing drinking water threats and risks. A centrally coordinated planning study will be completed to compile and/or develop recommendations regarding best management practices, education initiatives, monitoring strategies, and other means to reduce existing risks identified with due consideration of impacted communities in the Assessment Report. This study will be directed by a planning working group comprised of municipal planners and members of the Source Protection Committee. The working group will consider the number and extent of identified risks relative to proposed risk reduction strategies, as well as forthcoming guidance in Regulation and Directors Rules, to ensure that the recommendations included in the Plan can be effectively implemented.	$133,300	

SOURCE PROTECTION PLAN: WATERSHED WIDE TASK DESCRIPTION **Assigned Lead: Lakes Simcoe & Couchiching / Black River SPA with support from Severn Sound and Nottawasaga Valley SPAs**	**Estimated Cost**	**Start Date & Estimated Completion Date**
Policy development for managing vulnerable areas. A centrally coordinated planning study will be completed to compile and/or develop recommendations regarding land use planning policies to prevent new risks in the vulnerable areas identified in the Assessment Report. This study will be directed by a planning working group comprised of municipal planners and members of the Source Protection Committee. The working group will consider the number and extent of identified risks relative to proposed risk reduction strategies, as well as forthcoming guidance in Regulation and Directors Rules, to ensure that the recommendations can be effectively implemented with due consideration of impacted communities in the Assessment Report.	Included in policy task cost above	2009-Oct-1 to 2012-Aug-20
Policy Development for Great Lakes targets. In the event that the Minister sets water quality targets for Lake Huron, policy development to address those targets will be co-managed by the South Georgian Bay-Lake Simcoe Source Protection Region and a planning working group.		
Policy development will be **co-managed** by the South Georgian Bay-Lake Simcoe Source Protection Region and a planning working group comprised of municipal staff, South Georgian Bay-Lake Simcoe staff and SPC members. This task will involve establishing and maintaining a municipal working group to provide input to the policy development tasks above.		
Establishing timelines for policy implementation The Source Protection Plan will include recommendations regarding timelines for implementation, as well as timelines for plan updates per the Regulation and Directors Rules.		

Summary of Costs

The following tables summarize the costs presented above for the Assessment Report and Source Protection Plan based on the estimated costs of the tasks led by Lakes Simcoe and Couchiching/Black River Source Protection Authority with support from the Nottawasaga Valley and Severn Sound Source Protection Authorities. There are no estimated costs associated with a Municipal lead.

Tasks for Assessment Report Completion	Estimated Total Costs (Lakes Simcoe & Couchiching/ Black River SPA Lead)	Estimated Total Costs (Severn Sound SPA Lead)	Estimated Total Costs (Municipal Lead)	Subtotal
Coordinating and supporting projects for the assessment report.	$ 1,619,000	$ -	$ -	**$ 1,619,000**
Undertaking communications initiatives for the assessment report.	$ -	$ -	$ -	**$ -**
Information management for the assessment report preparation.	$ -	$ -	$ -	**$ -**
Undertaking a watershed characterization.	$ 30,100	$ -	$ -	**$ 30,100**
Completing a conceptual water budget.	$ 193,600	$ -	$ -	**$ 193,600**
Conducting a Tier 1 water budget analysis.	$ 43,800	$ -	$ -	**$ 43,800**
Conducting a Tier 2 water budget analysis (for those subwatersheds identified as stressed in Tier 1 analysis).	$ 188,500	$ -	$ -	**$ 188,500**
Conducting a Tier 3 water budget analysis - water quantity risk assessment.	$ -	$ -	$ -	**$ -**
Delineating and applying vulnerability scores to highly vulnerable aquifer areas.	$ -	$ -	$ -	**$ -**
Delineating and applying vulnerability scores for significant recharge areas.	$ -	$ -	$ -	**$ -**
Identifying issues, inventorying threats and assessing hazards in significant recharge areas and highly vulnerable aquifer areas.	$ 66,700	$ -	$ -	**$ 66,700**
Peer review of the highly vulnerable aquifer areas and significant recharge areas.	$ 33,300	$ -	$ -	**$ 33,300**
Delineating and applying vulnerability scores for intake protection zones.	$ 81,200	$ -	$ -	**$ 81,200**
Delineating and applying vulnerability scores to wellhead protection areas	$ 80,000	$ 119,800	$ -	**$ 199,800**
Identifying issues, inventorying threats and assessing hazards in wellhead protection areas or intake protection zones.	$ 143,500	$ 202,400	$ -	**$ 345,900**
Identifying threats in Wellhead Protection Areas and Intake Protection Zones based on the regulated Tables of Drinking Water Threats and classifying them.	$ 66,200	$ 124,200	$ -	**$ 190,400**
Risk assessment in the event that a potential threat is not considered in the Tables of Drinking Water Threats. The SPC shall request that this assessment be conducted.	$ 75,000	$ 140,000	$ -	**$ 215,000**
Refine wellhead protection areas for GUDI systems.	$ -	$ 110,000	$ -	**$ 110,000**
TOTAL COSTS - ASSESSMENT REPORT			**$**	**3,317,300**

Tasks for Source Protection Plan Completion	Estimated Costs (Source Protection Authority Lead)	Estimated Costs (Severn Sound Lead)	Estimated Costs (Municipal Lead)	Subtotal
Coordinating and supporting projects for the source protection plan (SPP)	$ 1,200,000	$ -	$ -	$ 1,200,000
Undertaking communications initiatives for the source protection plan	$ -	$ -	$ -	$ -
Undertaking an impact assessment to evaluate the social, economic and environmental impacts of proposed policies and risk reduction strategies	$ 75,000	$ -	$ -	$ 75,000
Policy development to address existing drinking water threats and risks	$ 133,300	$ -	$ -	$ 133,300
Policy development for managing vulnerable areas	$ -	$ -	$ -	$ -
Establishing timelines for policy implementation	$ -	$ -	$ -	$ -
TOTAL COSTS - SOURCE PROTECTION PLAN				**$ 1,408,300**

TOTAL COSTS - SOURCE PROTECTION AREA	**$ 4,725,600**

As presented in the table above, the estimated costs for the completion of the Assessment report are approximately $3,317,300 and the costs for the completion of the Source Protection Plan are approximately $1,408,300. In total, to complete both the Assessment Report and Source Protection Plan for the Severn Sound Source Protection Authority the cost is approximately $4,725,600.

It is important to state that the regulations for the Assessment Report have been drafted and are currently under review, which may result in revisions for the final version. The regulations for the Source Protection Plan are not yet drafted by the MOE, as such additional funds may be required in order to adequately protection source water in the Severn Sound Source Protection Area.

This Terms of Reference was prepared as accurately as possible with the information available at the time of compiling this report in order to meet the timelines prescribed in Ontario Regulation 285/07 - Time Limits under the Clean Water Act. However, amendments may be required to this document based on the contents of the regulations to be drafted.