

MUNICIPALITY OF CHATHAM-KENT
PUBLIC UTILITIES COMMISSION

TO: Mayor and Members of Council

FROM: Tom Kissner
General Manager
Chatham-Kent Public Utilities Commission

DATE: September 22, 2008

SUBJECT: Source Water Protection

RECOMMENDATION:

It is recommended:

1. That the Municipality of Chatham-Kent consents to perform the drinking water source protection work required under the Clean Water Act related to the following systems:

Groundwater Supply for the community of Highgate
(Drinking Water System #260015587)

Groundwater Supply for the community of Ridgetown
(Drinking Water System #220003369)
2. That the work including any data compiled while undertaking the drinking water source protection work, required by the Clean Water Act be shared with the Source Protection Committee so that it may be included in the Assessment Report for the Source Protection Area.
3. That the Municipality of Chatham-Kent will, for the systems identified in recommendation Number 1 and upon full funding approval from the Province, undertake all work related for the completion of tasks as outlined in the Thames-Sydenham and Region Terms of Reference.

BACKGROUND

Protecting source waters from contaminants is a major priority in the protection of public health through ensuring a clean, safe drinking water supply. All drinking water sources are vulnerable to a variety of contaminants from a variety of activities. Our municipal water comes from lakes, rivers and underground sources. All of these sources can be

linked in a watershed through the water cycle. Drinking water sources can be easily contaminated and long-term problems can develop that are costly or even impossible to correct.

Clean and plentiful water supplies are among the most important natural resources. As population grows and development increases, the challenge to maintain a high quality water supply becomes more complex. The protection of source areas for water is critical. It is for this reason that the Ontario Clean Water Act was passed in October, 2006.

The Clean Water Act applies primarily to municipal drinking water supplies and not to private well water systems. It will help prevent contamination before it poses a risk to human health. The Clean Water Act sets out a new process for source protection planning that requires collaboration among local municipalities, conservation authorities, provincial ministries, communities and stakeholders to identify and work to prevent source water contamination. Every community will be involved in developing an individualized plan to protect its drinking water.

Actions to protect drinking water sources include:

- identifying threats to water quality and quantity;
- taking action on existing and potential threats; and
- involving the whole community in finding effective solutions.

The Source Protection Process:

The source protection process will help inform governments, local authorities and residents about the risks to drinking water sources. This information will be used to make informed decisions about what activities to allow, as well as how to manage activities in vulnerable areas around a drinking water source.

The source protection planning process involves the following steps:

- establishing source protection authorities and source protection committees;
- preparing the terms of reference;
- mapping municipal wellhead protection areas and intake protection zones;
- assessing threats to determine whether they pose a negligible, low, moderate or significant risk; and,
- developing source protection plans that ensure significant risks to drinking water are managed so that they are no longer significant, and that moderate risks do not become significant.

Source Water Protection Committees:

Local source water protection committees will be responsible for preparing the terms of reference, the assessment report and the source protection plan. There have been

opportunities for the public to participate in working groups that were established to tackle a particular issue or area of concern.

The terms of reference outline the steps to be taken to develop and implement a source protection plan. They set out roles and responsibilities of municipalities, source protection authorities, source protection committees and others. The terms of reference are prepared by the source protection committee and submitted for approval to the Ministry of the Environment by the source protection authority

The assessment report is a science based report developed locally for each source protection area. It identifies the risks to be addressed in source protection plans. It documents vulnerable areas, including present and future municipal groundwater and surface water sources, areas where large regional aquifers are being recharged, and aquifers that are vulnerable to contamination. It also involves measuring how much water exists, both at the surface and below ground, how it moves, and how much water is withdrawn, so that it identifies areas where there may be water shortages.

The source protection plan establishes policies on how significant drinking water threats will be reduced or eliminated, identifies who is responsible for taking action, sets timelines and describes how progress will be measured. Plans will build on work currently underway and will recognize or reinforce existing management practices that help protect source water quality and quantity.

COMMENTS

The Thames-Sydenham and Region 'Draft Proposed Terms of Reference' has been completed. The Terms of Reference documents describe work to be undertaken by the Source Protection Committee, Municipalities and Conservation Authorities to complete the Assessment Report and Source Protection Plans. It identifies tasks to be completed, leads for the tasks, estimated costs and estimated start and end dates for tasks. As well, the terms of reference contain work which has already been undertaken or in progress through Ministry of the Environment technical studies funding. Therefore council resolutions are required for any work shown in the terms of reference as having been lead by the Municipality, including that which has been completed or is in progress. The following table includes all work that the Municipality of Chatham-Kent will lead and has either been completed or is in progress.

Defined Geographic Area	Task	Estimated Start & End Date	Est. Cost
Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA	Delineating and applying vulnerability scores to Well Head Protection Areas	April 1, 2006 to March 31, 2009	\$45,873

Defined Geographic Area	Task	Estimated Start & End Date	Est. Cost
Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA	Identifying issues, inventorying threats and assessing hazards in Well Head Protection Areas	April 1, 2006 to March 31, 2009	\$74,067
Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA	Assess risk in Well Head Protection Areas	April 1, 2006 to June 30, 2009	\$89,967

Previous to the Clean Water Act being passed, Dillon Consulting Ltd. had been retained by the PUC to complete a hydrogeological study for the Ridgetown well system in order to finalize an Environmental Study Report for construction purposes. Because of Dillon's knowledge of the Ridgetown well system, they have been asked to complete the work that is listed in the terms of reference for both the Ridgetown and Highgate well systems, on behalf of the Municipality.

COMMUNITY STRATEGIC PLAN

The recommendations in this report support the following objectives and strategic directions:

A: Health- We are a healthy community

A2: Exceed standards for health protection and promotion.

Desired Outcomes/Proposed Activities

- Increase user satisfaction.

CONSULTATIONS

Chris Tasker, Source Protection Project Manager, Thames-Sydenham and Region Drinking Water Source Protection

FINANCIAL IMPLICATIONS

There are no financial implications resulting from the recommendation. The Province of Ontario has already provided \$110,000 in funding and will provide additional funding, most likely through the lead Conservation Authority, for the completion of tasks as outlined in the Clean Water Act, Source Water Protection Terms of Reference.

Prepared by:

Reviewed by:

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Reviewed by:

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Chief Administration Officer

Attachments (1)

Thames-Sydenham and Region Draft Proposed Terms of Reference

Terms of Reference for Lower Thames Valley Source Protection
Area

Thames-Sydenham and Region Source Protection Committee

2008-Aug-12

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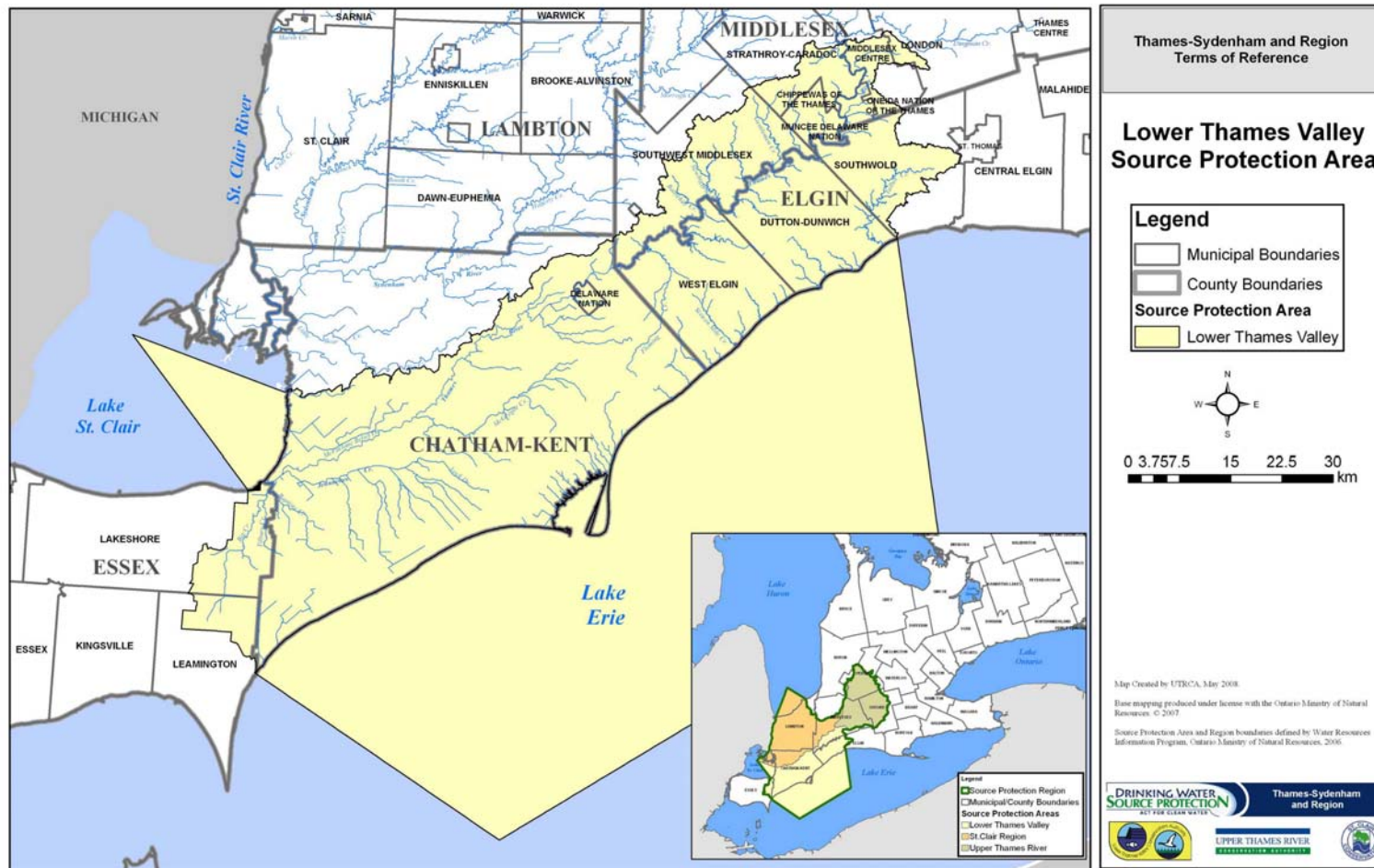
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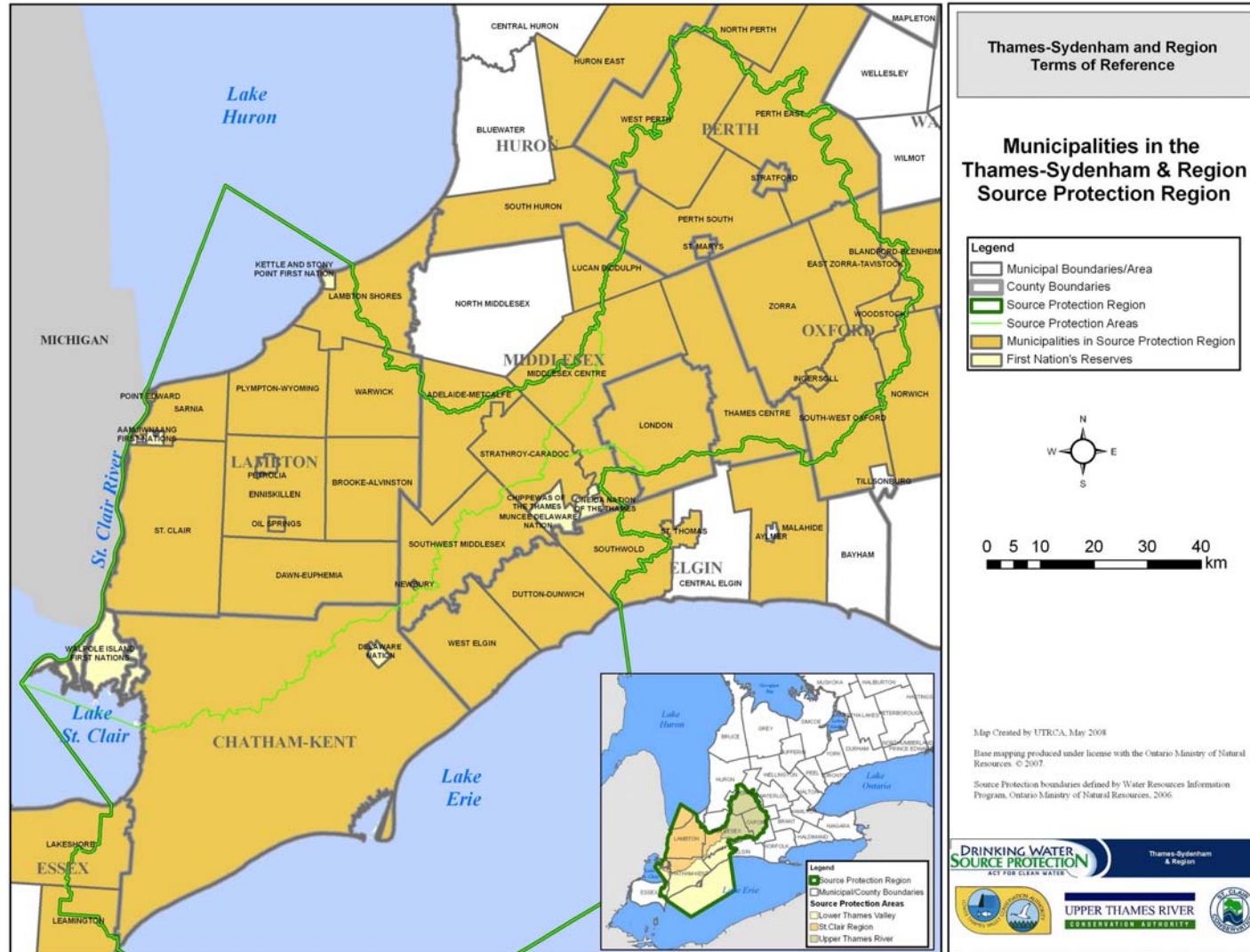
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Map of Source Protection Area



Map of Source Protection Region



List of Municipalities Located in the Lower Thames Valley Source Protection Area

Legal Name of Municipality
Chatham-Kent, Municipality of
Elgin, County of
Essex, County of
Middlesex, County of
Dutton/Dunwich, Municipality of
Southwold, Township of
St. Thomas, City of
West Elgin, Municipality of
Lakeshore, Town of
Leamington, Municipality of
London, City of
Middlesex Centre, Municipality of
Newbury, Village of
Southwest Middlesex, Municipality of
Strathroy-Caradoc, Municipality of

List of Municipal Residential Drinking Water System(s)

Type of System (existing or planned)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Type of Source Water (surface, ground, both)
Existing	220003378	Chatham Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water
Existing	260015587	Highgate Well Supply	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface and Groundwater
Existing	220003369	Ridgetown Well Supply	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Groundwater
Existing	260024999	South Chatham-Kent Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water
Existing	220002949	West Elgin Water Treatment Plant	Municipality of West Elgin	Ontario Clean Water Agency	Surface Water
Existing	220003332	Wheatley Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water

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

(Not Municipal Residential Drinking Water Systems)

Type of System (existing or planned)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Type of Source Water (surface, ground, both)	Title of Council Resolution
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No systems included.

List of Drinking Water Systems Serving Reserve(s)

(Not Municipal Residential Drinking Water Systems)

Type of System (existing or planned)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Type of Source Water (surface, ground, both)	Regulation Reference
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No systems included.

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

Type of System (existing or planned)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Type of Source Water (surface, ground, both)	Title of Council Resolution
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No systems exempted.

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

(Not Municipal Residential Drinking Water Systems)

Type of System (existing or planned)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Type of Source Water (surface, ground, both)
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No systems included.

List of Matter(s) that Affect Other Source Protection Committees

Source Protection Committees Affected	Source Protection Area	Description of Matter
Essex Region SPC	Essex Region Source Protection Area	The Wheatley Water Treatment Plant (WTP) is situated in the Lower Thames Valley SPA of the Thames-Sydenham and Region Source Protection Region. This WTP is owned by The Municipality of Chatham-Kent and the Public Utilities Commission and serves parts of the Town of Lakeshore. However, it supplies water to parts of the Municipality of Leamington that lie in the Essex Region Source Protection Area and the IPZ extends into the Essex Region Source Protection Area. Although the work will be undertaken by the Thames-Sydenham and Region SPR, consultation with the Essex Region SPA and the supplied municipalities within the Essex Region SPA needs to be undertaken in developing the Assessment Report and Source Protection Plan as they relate to this supply.
Essex Region SPC	Essex Region Source Protection Area	The Town of Lakeshore and the Municipality of Leamington, although primarily within the Essex Region Source Protection Area, have areas extending into the jurisdiction of the Thames-Sydenham and Region Source Protection Region. A coordinated approach to technical studies and source protection planning policies must be considered.
Essex Region SPC	Essex Region Source Protection Area	The Stoney Point Water Treatment Plant is located in the Town of Lakeshore in the Essex Region SPA. It takes surface water from Lake St. Clair and serves the north-eastern portion of the Town of Lakeshore, including parts in the Lower Thames Valley SPA. Although the work will be undertaken by the Essex Region SPA, consultation with the Thames-Sydenham and Region SPR and the supplied municipalities within the Thames-Sydenham and Region SPR needs to be undertaken in developing the Assessment Report and Source Protection Plan as they relate to this supply.
Essex Region SPC	Essex Region Source Protection Area	The Union Water Treatment Plant is located in the Town of Kingsville, west of Leamington in the Essex Region SPA. It takes surface water from Lake Erie and serves the Town of Leamington and parts of the Town of Lakeshore including parts in the Lower Thames Valley SPA. Although the work will be undertaken by the Essex Region SPA, consultation with the Thames-Sydenham and Region SPR and the supplied municipalities within the Thames-Sydenham and Region SPR needs to be undertaken in developing the Assessment Report and Source Protection Plan as they relate to this supply.
Essex Region SPC	Essex Region Source Protection Area	The Minister may direct a Source Protection Authority to prepare and submit a report on any matter relating to the use of the Great Lakes as a source of drinking water or to assist another Source Protection Authority in preparing a report. In addition, the Minister may establish targets relating to the use of the Great Lakes as a source of drinking water for

Terms of Reference

		one or more source protection areas that contribute water to the Great Lakes. There will be a need to consult with the Essex Region SPA on Great Lakes issues.
Lake Erie SPC	Lake Erie Source Protection Region	The Minister may direct a Source Protection Authority to prepare and submit a report on any matter relating to the use of the Great Lakes as a source of drinking water or to assist another Source Protection Authority in preparing a report. In addition, the Minister may establish targets relating to the use of the Great Lakes as a source of drinking water for one or more source protection areas that contribute water to the Great Lakes. There will be a need to consult with the Lake Erie SPR on Great Lakes issues.
Lake Erie SPC	Lake Erie Source Protection Region	The Elgin Area Primary Water Supply System (EAPWSS) services communities in the Lower Thames Valley SPA of the Thames-Sydenham and Region SPR including the City of London, Municipality of Dutton/Dunwich and Township of Southwold. The Water Treatment Plant is located east of the village of Port Stanley in Central Elgin on Lake Erie, in the Lake Erie Source Protection Region. Although the work will be undertaken by the Lake Erie SP Region, consultation with the Thames-Sydenham and Region SPR and the supplied municipalities within the Thames-Sydenham and Region SPR needs to be undertaken in developing the Assessment Report and Source Protection Plan as they relate to this supply.
Ausable Bayfield-Maitland Valley SPC	Ausable Bayfield-Maitland Valley Source Protection Region	The Lake Huron Primary Water Supply System (LHPWSS) services the City of London and parts of the Municipalities of Middlesex Centre and Strathroy-Caradoc in the Lower Thames Valley SPA of the Thames-Sydenham and Region SPR. The Water Treatment Plant is located north of the community of Grand Bend on Lake Huron, in the Ausable Bayfield-Maitland Valley Source Protection Region. Although the work will be undertaken by the Ausable Bayfield-Maitland Valley (ABMV) SPR, consultation with the Thames-Sydenham and Region SPR and the supplied municipalities within the Thames-Sydenham and Region SPR needs to be undertaken in developing the Assessment Report and Source Protection Plan as they relate to this supply.
Essex Region SPC	Essex Region Source Protection Area	Water Budget work needs to consider groundwater flow into and out of each region. Consultation with neighbouring regions will be required to ensure that groundwater flow between regions is consistently represented in the water budget products of each region.
Lake Erie SPC	Lake Erie Source Protection Region	Water Budget work needs to consider groundwater flow into and out of each region. Consultation with neighbouring regions will be required to ensure that groundwater flow between regions is consistently represented in the water budget products of each region.
Lake Erie SPC	Lake Erie Source Protection Region	Edge matching of map products, of the Assessment Report and SP Plan, such as Significant Groundwater Recharge Areas and Highly Vulnerable Aquifers need to be undertaken. Consultation on the methods employed and products produced will be necessary.
Essex Region SPC	Essex Region Source Protection	Edge matching of map products, of the Assessment Report and SP Plan, such as

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	Area	Significant Groundwater Recharge Areas and Highly Vulnerable Aquifers need to be undertaken. Consultation on the methods employed and products produced will be necessary.
Lake Erie SPC	Lake Erie Source Protection Region	The City of London, City of St. Thomas, Township of Southwold (in Elgin County) and Municipality of Middlesex Centre (in Middlesex County) straddle the watershed divide between the Lower Thames Valley SPA of the Thames-Sydenham and Region SPR and the Lake Erie SPR. A coordinated approach to technical studies and source protection planning policies must be considered. Consultation on consistent policies within these shared municipalities needs to be considered.

The Work Plan to Complete the Assessment Report

By Source Protection Area/ Drinking Water System Name	Task	Assigned Lead(s)	Estimated Completion Date	Estimated Cost
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to HVAs	Upper Thames River Conservation Authority	2008-Dec-31	
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in HVAs	Upper Thames River Conservation Authority	2009-Jun-01	
Lower Thames Valley Source Protection Area	Assessing risks in HVAs	Upper Thames River Conservation Authority	2009-Aug-01	
Lower Thames Valley Source Protection Area	Applying vulnerability scores to SGRAs	Upper Thames River Conservation Authority	2008-Dec-01	
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in SGRAs	Upper Thames River Conservation Authority	2009-Jun-01	
Lower Thames Valley Source Protection Area	Assessing risk in SGRAs	Upper Thames River Conservation Authority	2009-Aug-01	
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Essex Region Conservation Authority	2009-May-31	\$482,500
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Upper Thames River Conservation Authority	2009-Jun-01	
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Municipality of Chatham-Kent	2009-Mar-31	\$45,873
Lower Thames Valley Source	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Essex Region Conservation Authority	2009-Jun-30	\$194,000

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Protection Area				
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Municipality of Chatham-Kent	2009-Mar-31	\$74,067
Lower Thames Valley Source Protection Area	Assess risk in WHPAs or IPZs	Essex Region Conservation Authority	2009-Oct-31	\$90,500
Lower Thames Valley Source Protection Area	Assess risk in WHPAs or IPZs	Municipality of Chatham-Kent	2009-Jun-30	\$89,967
Lower Thames Valley Source Protection Area	GUDI IPZ Study - Preliminary Screening, Vulnerability Assessment, Threats Inventory and Risk Assessment	Upper Thames River Conservation Authority	2009-Mar-31	
Municipal Residential Drinking Water Systems				
West Elgin Water Treatment Plant	Delineating and applying vulnerability scores to WHPAs or IPZs	Municipality of West Elgin	2009-Oct-31	\$65,000
West Elgin Water Treatment Plant	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Municipality of West Elgin	2009-Jun-30	\$66,280
West Elgin Water Treatment Plant	Assess risk in WHPAs or IPZs	Municipality of West Elgin	2009-Jun-30	\$38,900
Drinking Water Systems By Municipal Resolution				
Drinking Water Systems By Band Resolution				
Fully or Partially Exempt Drinking Water Systems				
Drinking Water Systems Included By Minister				

The Work Plan to Complete the Source Protection Plan

By Source Protection Area/ Drinking Water System Name	Task	Assigned Lead(s)	Estimated Completion Date	Estimated Cost
Lower Thames Valley Source Protection Area	Policy development for Great Lakes elements (where required/permisible in Act & Regs)	Source Protection Committee	2012-Aug-20	\$65,000
Municipal Residential Drinking Water Systems				
Drinking Water Systems By Municipal Resolution				
Drinking Water Systems By Band Resolution				
Fully or Partially Exempt Drinking Water Systems				
Drinking Water Systems Included By Minister				

The Date the Source Protection Plan is to be Submitted to the Minister for Approval by the Lower Thames Valley Conservation Authority:

2012-Aug-20

Council Resolution(s) to Include Drinking Water System(s)

No systems included.

Council Resolution(s) to Exempt Municipal Residential Drinking Water System(s)

No systems exempted.

Detailed Information

Detailed Information on Municipal Residential Drinking Water System(s)

Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	260015587	Highgate Well Supply	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface and Groundwater	2
Number of Surface Water Intakes	Comments					
0						

Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	220003369	Ridgetown Well Supply	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Groundwater	6
Number of Surface Water Intakes	Comments					
0						

Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	220002949	West Elgin Water Treatment Plant	Municipality of West Elgin	Ontario Clean Water Agency	Surface Water	0
Number of Surface Water Intakes	Comments					
1	The West Elgin WTP also has an emergency shoreline intake that has been used in the past when frazzle ice conditions occurred. It is yet to be determined if the intake is still available for use.					

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Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	220003378	Chatham Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water	0
Number of Surface Water Intakes	Comments					
1	The Chatham WTP shares an intake with the South Chatham-Kent WTP.					

Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	260024999	South Chatham-Kent Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water	0
Number of Surface Water Intakes	Comments					
1	The Chatham WTP shares an intake with the South Chatham-Kent WTP.					

Drinking Water System Type (planned or existing)	Drinking Water System Number	Drinking Water System Name	Owner	Operating Authority	Source Water Type (surface, ground, both)	Number of Wells
Existing	220003332	Wheatley Water Treatment Plant	Municipality of Chatham-Kent	Chatham-Kent Public Utilities Commission	Surface Water	0
Number of Surface Water Intakes	Comments					
2	The Wheatley WTP has 2 intakes, one of which is an emergency intake used when frazzle ice conditions occur.					

Detailed Information on Drinking Water System(s) Included by Municipal Council Resolution

(Not Municipal Residential Drinking Water Systems)

No systems included.

Detailed Information on Drinking Water System(s) Included by Bands Serving Reserve(s)

(Not Municipal Residential Drinking Water Systems)

No systems included.

Detailed Information on Fully or Partially Exempted Municipal Residential Drinking Water System(s)

No systems exempted.

Detailed Information on Drinking Water System(s) Included by the Minister of the Environment

(Not Municipal Residential Drinking Water Systems)

No systems included.

Detailed Work Plan to Complete the Assessment Report

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to HVAs	Upper Thames River Conservation Authority	2008-May-01	2008-Dec-31
Comments		Defined Geographic Area		Estimated Cost
<p>Intrinsic Susceptibility Index scores have been completed through past groundwater studies across the region. The mapping products from these separate county based studies have been compiled into a single mapping product, however there are issues with conflicting scoring at areas of overlap. This was to be expected as each study relied on the interpretation of data from within their study area. Near the edges of the study area different interpolation and extrapolations results should be expected based on the use of different data points near the boundaries. The work proposed under this task includes the mapping of ISI, based on the same methodologies employed in the groundwater studies, but utilizing a single data set across the entire region. Based on this scoring HVA will be delineated and vulnerability will be scored for these areas.</p> <p>Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$29,000.</p>		Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA		

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in HVAs	Upper Thames River Conservation Authority	2008-Oct-01	2009-Jun-01
Comments		Defined Geographic Area		Estimated Cost
<p>Once delineated these areas will be assessed for the general nature of the types of threats contained in the areas. All threats which could result in a significant risk will be inventoried. Current guidance suggests a vulnerability score of 6 for these areas. As such it is not anticipated that significant risks will be identified in these areas. General types of land use in these areas will be characterized to the extent necessary to develop appropriate policies for these</p>		Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA		

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<p>types of threats in HVAs.</p> <p>Issues in these areas will be identified through the analysis of monitoring wells and municipal wells in the general areas as well as through discussions with the local health units who may be able to rely on interpretation of private well information.</p> <p>Issues may be considered in determining whether certain types of threats need to be inventoried in the area, however no allowance has been made in this task for a detailed inventory of such threats.</p> <p>Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$40,000.</p>		
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By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Assessing risks in HVAs	Upper Thames River Conservation Authority	2009-Apr-01	2009-Aug-01
Comments		Defined Geographic Area		Estimated Cost
Based on vulnerability scores and general threats characterization in the HVAs, possible risk scores will be assessed.		Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA		
Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$42,000.				

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Applying vulnerability scores to SGRAs	Upper Thames River Conservation Authority	2008-Oct-01	2008-Dec-01
Comments		Defined Geographic Area		Estimated Cost
SGRAs will be defined through the Water Budget work. The vulnerability of these areas will be assessed based on Director's Rules and guidance. ISI scores are available for WHPAs as well as the regional ISI scores developed through the HVA delineation project. These results will need to be compared and the most appropriate scoring applied to the SGRA. It will be important that		Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA		

Terms of Reference

<p>the vulnerability score associated with these areas be consistent with those parts of the WHPA which are part of the SGRA.</p> <p>Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$15,000.</p>		
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By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in SGRAs	Upper Thames River Conservation Authority	2008-Oct-01	2009-Jun-01
Comments		Defined Geographic Area		Estimated Cost
<p>Once delineated these areas will be assessed for the general nature of the types of threats contained in the areas. All threats which could result in a significant risk will be inventoried. Current guidance suggests a vulnerability score of 6 for these areas. As such it is not anticipated that significant risks will be identified in these areas. General types of land use in these areas will be characterized to the extent necessary to develop appropriate policies for these types of threats in SGRAs.</p> <p>Issues in these areas will be identified through the analysis of monitoring wells and municipal wells in the general areas as well as through discussions with the local health units who may be able to rely on interpretation of private well information.</p> <p>Issues may be considered in determining whether certain types of threats need to be inventoried in the area, however no allowance has been made in this task for a detailed inventory of such threats.</p> <p>Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$50,000.</p>		Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA		

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Assessing risk in SGRAs	Upper Thames River Conservation Authority	2009-Apr-01	2009-Aug-01

Terms of Reference

Comments	Defined Geographic Area	Estimated Cost
Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$42,000.	Thames-Sydenham and Region Source Protection Region including the LTVSPA, SCRSPA and the UTRSPA	

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Essex Region Conservation Authority	2005-Apr-01	2009-May-31
Comments	Defined Geographic Area	Estimated Cost		
<p>The Essex Region Conservation Authority (ERCA) led technical study includes two Lower Thames Valley (LTV) SPA surface water intakes at Wheatley and Erie Beach, and one St. Clair Region SPA intake at Wallaceburg. Stantec Consultants are conducting the study. In the LTVSPA, the intakes feed raw water to the (1) Wheatley water treatment plant (WTP), and (2) Chatham and South Chatham-Kent WTPs (shared Erie Beach intake).</p> <p>Proposed costs are estimates of the updates and further work required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>	Intakes at Wheatley, Erie Beach (which supplies 2 systems - South Chatham-Kent and the Chatham Water Treatment Plants) in the LTVSPA and Wallaceburg in the SCRSPA as well as intakes in the Essex Region SPA	\$482,500		

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Upper Thames River Conservation Authority	2008-Oct-01	2009-Jun-01
Comments	Defined Geographic Area	Estimated Cost		
<p>It is anticipated that the Director's Rules will require the delineation, vulnerability assessment and Risk Assessment of IPZ3 (or other methodologies for assessing risks resulting from issues or concerns outside of IPZ1 &2) for intakes on Lake St Clair and the Wallaceburg intake.</p> <p>Delineation and applying vulnerability scores for IPZ3 related to the Lake St Clair and Wallaceburg intakes will be completed according to the requirements of the Director's Rules. The MISED models developed through the past work will be used to identify areas, outside of the original model scope (developed to</p>	Wallaceburg intake in the St. Clair Region SPA as well as intakes on Lake St. Clair within Essex Region SPA			

Terms of Reference

<p>delineate IPZ2), which can contribute risks to the intakes. The models will be combined and improved to include discharges from the major rivers which may contribute risks to the intakes. Watercourses available in Conservation Authority and provincial data sets will be utilized to delineate the IPZ3 within the contributing watersheds. The modelling will be used as an indicator of areas more vulnerable (more likely to contribute risks) than others within the delineated IPZ3 and vulnerability scores will be assigned accordingly.</p> <p>Costs for this task have been included in the Upper Thames Region SPA Terms of Reference (since it is the lead on this study) and also include costs for the St. Clair Region SPA. Total costs are estimated to be \$95,000.</p>		
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By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Delineating and applying vulnerability scores to WHPAs or IPZs	Municipality of Chatham-Kent	2006-Apr-01	2009-Mar-31
Comments		Defined Geographic Area		Estimated Cost
<p>Chatham-Kent Groundwater Technical Study for the Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA. Dillon Consulting is conducting the study.</p> <p>Costs shown are from two sources: (1) MOE \$26,966.67 and (2) Chatham-Kent Public Utilities Commission \$8,906.00. The PUC funding is additional and meant to offset the MOE funding shortfall for numerical modeling of the Ridgetown well supply system.</p> <p>Proposed costs are estimates of the updates and further work required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>		Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA		\$45,873

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Essex Region Conservation Authority	2005-Apr-01	2009-Jun-30
Comments		Defined Geographic Area		Estimated Cost
The Essex Region Conservation Authority (ERCA) led technical study includes		Intakes at Wheatley, Erie Beach (which supplies 2 systems -		\$194,000

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<p>two Lower Thames Valley (LTV) SPA surface water intakes at Wheatley and Erie Beach, and one St. Clair Region SPA intake at Wallaceburg. Stantec Consultants are conducting the study. In the LTVSPA, the intakes feed raw water to the (1) Wheatley water treatment plant (WTP), and (2) Chatham and South Chatham-Kent WTPs (shared Erie Beach intake).</p> <p>Proposed costs are estimates of the updates and further work required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>	<p>South Chatham-Kent and the Chatham Water Treatment Plants) in the LTVSPA and Wallaceburg in the SCRSPA as well as intakes in the Essex Region SPA</p>	
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By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Municipality of Chatham-Kent	2006-Apr-01	2009-Mar-31
Comments		Defined Geographic Area		Estimated Cost
<p>Chatham-Kent Groundwater Technical Study for the Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA. Dillon Consulting is conducting the study.</p> <p>Proposed costs are estimates of the updates and further work required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>		Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA		\$74,067

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Assess risk in WHPAs or IPZs	Essex Region Conservation Authority	2006-Apr-01	2009-Oct-31
Comments		Defined Geographic Area		Estimated Cost
<p>The Essex Region Conservation Authority (ERCA) led technical study includes two Lower Thames Valley (LTV) SPA surface water intakes at Wheatley and Erie Beach, and one St. Clair Region SPA intake at Wallaceburg. Stantec Consultants are conducting the study. In the LTVSPA, the intakes feed raw water to the (1) Wheatley water treatment plant (WTP), and (2) Chatham and</p>		Intakes at Wheatley, Erie Beach (which supplies 2 systems - South Chatham-Kent and the Chatham Water Treatment Plants) in the LTVSPA and Wallaceburg in the SCRSPA as well as intakes in the Essex Region SPA		\$90,500

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South Chatham-Kent WTPs (shared Erie Beach intake).		
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By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Assess risk in WHPAs or IPZs	Municipality of Chatham-Kent	2006-Apr-01	2009-Jun-30
Comments		Defined Geographic Area		Estimated Cost
<p>Chatham-Kent Groundwater Technical Study for the Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA. Dillon Consulting is conducting the study.</p> <p>The 2008-2009 cost estimates are for individual contact with landowners where risks could be significant, and updating risk assessment based on survey results.</p>		Ridgetown and Highgate well supply systems in the Lower Thames Valley SPA		\$89,967

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	GUDI IPZ Study - Preliminary Screening, Vulnerability Assessment, Threats Inventory and Risk Assessment	Upper Thames River Conservation Authority	2008-Apr-01	2009-Mar-31
Comments		Defined Geographic Area		Estimated Cost
<p>MOE proposed rules related to Groundwater Under the Direct Influence of surface water (GUDI)- Intake Protection Zone (IPZ) studies was posted in June 2008. It is anticipated that the rules will require that IPZ type vulnerable zones will be required for GUDI wells. The preliminary screening of the systems will compile available information, delineate approximate IPZ3 based on that available information and assess the types and magnitude of potential treats in that area. Based on the preliminary screening the zones will be delineated, vulnerability assessed, threats inventoried and risks assessed.</p> <p>MOE proposed rules related to Groundwater Under the Direct Influence of surface water (GUDI)- Intake Protection Zone (IPZ) studies was posted in June 2008. It is anticipated that the rules will require that IPZ type vulnerable zones will be required for GUDI wells. Costs related to this task is included within 2 similar tasks in the UTRSPA (\$25000 for preliminary screening and \$110,000 for the vulnerability, threats and risk assessment).</p>		GUDI wells of these drinking water systems: City of London back up (Fanshawe wells), Dorchester, Kilworth Heights and Highgate systems		

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By Drinking Water System Name	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
West Elgin Water Treatment Plant	Delineating and applying vulnerability scores to WHPAs or IPZs	Municipality of West Elgin	2005-Apr-01	2009-Oct-31
Comments		Defined Geographic Area		Estimated Cost
<p>Municipality of West Elgin Surface Water Technical study is led by the Municipality of West Elgin and conducted by Stantec Consulting. The intake studied is the Lake Erie raw water intake to the West Elgin Water Treatment Plant at West Lorne.</p> <p>Funded costs are \$18,500 for the task Delineate Intake Protection Zone 1 and 2, and \$8,000 for the task Assign Vulnerability Scores and Level of Uncertainty to IPZs. Draft report was completed in March 2008.</p> <p>Proposed costs are estimates of the updates required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>		The intake studied is the Lake Erie raw water intake to the West Elgin Water Treatment Plant at West Lorne		\$65,000

By Drinking Water System Name	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
West Elgin Water Treatment Plant	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Municipality of West Elgin	2006-Apr-01	2009-Jun-30
Comments		Defined Geographic Area		Estimated Cost
<p>Municipality of West Elgin Surface Water Technical study is lead by the Municipality of West Elgin and conducted by Stantec Consulting. The intake studied is the Lake Erie raw water intake to the West Elgin Water Treatment Plant at West Lorne. Work is yet to be completed.</p> <p>Proposed costs are estimates of the updates required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>		West Elgin Water Treatment Plant at West Lorne in the Lower Thames Valley SPA		\$66,280

By Drinking Water System Name	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
West Elgin Water Treatment Plant	Assess risk in WHPAs or IPZs	Municipality of West Elgin	2006-Apr-01	2009-Jun-30

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Comments	Defined Geographic Area	Estimated Cost
<p>Municipality of West Elgin Surface Water Technical study is lead by the Municipality of West Elgin and conducted by Stantec Consulting. The intake studied is the Lake Erie raw water intake to the West Elgin Water Treatment Plant at West Lorne. Work is yet to be completed.</p> <p>Proposed costs are estimates of the updates and further work required to ensure the technical studies meet the Director's Technical Rules posted on the Ministry of Environment Environmental Bill of Rights Registry in June 2008. The scope of this task may change as a result of changes to the rules from those posted.</p>	<p>West Elgin Water Treatment Plant at West Lorne in the Lower Thames Valley SPA</p>	<p>\$38,900</p>

Detailed Work Plan to Complete the Source Protection Plan

By Source Protection Area	Task	Assigned Lead(s)	Estimated Start Date	Estimated Completion Date
Lower Thames Valley Source Protection Area	Policy development for Great Lakes elements (where required/permissible in Act & Regs)	Source Protection Committee	2009-Jan-01	2012-Aug-20
Comments		Defined Geographic Area		Estimated Cost
<p>The Clean Water Act includes the ability of the Minister of the Environment to set Great Lakes targets for watershed. The Source Protection Plan must assist in achieving those Great Lakes targets. Further guidance from the MOE is expected. It is also required that the Source Protection Plan consider Great Lakes Agreements. It is assumed that consultation with other regions draining into each of the Great Lakes that the watershed of the TSR drain into will be required. As well, consultation will be required with Provincial and Federal organizations with responsibilities under the Great Lakes Agreements.</p> <p>Although the scope of the work associated with this task is largely unknown, an allowance for work associated with this task, for both staff and SPC, are included with the task related to coordinating and supporting projects associated with the Source Protection Plan. The estimated cost included in this tasks and a similar task in the SCRSPA include the additional cost of consultation.</p>		<p>All three Source Protection Areas (SPAs) of the Thames-Sydenham and Region Source Protection Region: Upper Thames River SPA, Lower Thames Valley SPA and St. Clair Region SPA</p>		<p>\$65,000</p>

Summary of Financial Statistics

	Tasks Done by Source Protection Area or Drinking Water System	Estimated Costs for Tasks Under the Assessment Report	Estimated Costs for Tasks Under the Source Protection Plan	Subtotal
	Lower Thames Valley Source Protection Area	\$976,906	\$65,000	\$1,041,906
Municipal Residential Drinking Water Systems				
	Chatham Water Treatment Plant			
	Highgate Well Supply			
	Ridgetown Well Supply			
	South Chatham-Kent Water Treatment Plant			
	West Elgin Water Treatment Plant	\$170,180		\$170,180
	Wheatley Water Treatment Plant			
Drinking Water Systems By Municipal Resolution				
Drinking Water Systems By Band Resolutions				
Drinking Water Systems Included By Minister				
Total Estimated Costs		\$1,147,086	\$65,000	\$1,212,086

Estimated Costs for Tasks by Fiscal Year

Fiscal Year defined as April 1 to March 31

Drinking Water System Category / Source Protection Area	Tasks	Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	Fiscal Year 12/13
Lower Thames Valley Source Protection Area										
	Delineating and applying vulnerability scores to HVAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Identifying issues, inventorying threats and assessing hazards in HVAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Assessing risks in HVAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Applying vulnerability scores to SGRAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Identifying issues, inventorying threats and assessing hazards in SGRAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Assessing risk in SGRAs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Delineating and applying vulnerability scores to WHPAs or IPZs	\$0	\$180,000	\$231,873	\$0	\$116,500	\$0	\$0	\$0	\$0
	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$0	\$3,000	\$210,067	\$0	\$55,000	\$0	\$0	\$0	\$0
	Assess risk in WHPAs or IPZs	\$0	\$0	\$47,967	\$0	\$132,500	\$0	\$0	\$0	\$0
	GUDI IPZ Study - Preliminary Screening, Vulnerability Assessment, Threats Inventory and Risk Assessment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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Drinking Water System Category / Source Protection Area	Tasks	Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	Fiscal Year 12/13
	Policy development for Great Lakes elements (where required/permissible in Act & Regs)	\$0	\$0	\$0	\$0	\$25,000	\$10,000	\$10,000	\$10,000	\$10,000
Municipal Residential Drinking Water Systems										
	Delineating and applying vulnerability scores to WHPAs or IPZs	\$0	\$26,500	\$0	\$0	\$38,500	\$0	\$0	\$0	\$0
	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	\$0	\$0	\$46,280	\$0	\$20,000	\$0	\$0	\$0	\$0
	Assess risk in WHPAs or IPZs	\$0	\$0	\$17,400	\$0	\$21,500	\$0	\$0	\$0	\$0
Drinking Water Systems By Municipal Resolution										
Drinking Water Systems by Band Resolution										
Drinking Water Systems Included by Minister										
Fiscal Year Total		\$0	\$209,500	\$553,586	\$0	\$409,000	\$10,000	\$10,000	\$10,000	\$10,000

Process Checklist

Regulatory Process	Completion Date	Done By
Make provisions to consider Great Lakes Agreements.	2008-Aug-11	SPCommittee
Notify band Chiefs on the commencement of the terms of reference.	2008-Feb-05	SPCommittee
Notify municipal clerks on the commencement of the terms of reference.	2008-Jan-31	SPCommittee
Give a copy of the comments on proposed terms of reference to the source protection committee.	Not Applicable	SPAuthority
Give copy of draft proposed ToR to groups created pursuant to Great Lakes Water Quality Agreement & involved in developing/implementing RAPs & LaMPs.	Not Applicable	SPCommittee
Make the draft proposed terms of reference available at other locations.	Not Applicable	SPCommittee
Make the proposed terms of reference available at other locations.	Not Applicable	SPCommittee
Municipal council resolutions have been passed agreeing upon work.	Not Applicable	SPCommittee
Notice for consultation on draft proposed ToR includes information on public meeting scheduled at least 21 days after newspaper notice is published.	Not Applicable	SPCommittee
Notice for consultation on draft proposed ToR includes requests for comments submitted within 35 days of notice published in the newspaper.	Not Applicable	SPCommittee
Post draft proposed terms of reference on Internet.	Not Applicable	SPCommittee
Post proposed terms of reference on the Internet for 30 days.	Not Applicable	SPCommittee
Provide a copy of draft proposed terms of reference to the clerks of municipalities located in the source protection area.	Not Applicable	SPCommittee
Provide a copy of draft to the chiefs of bands whose reserves are located in the source protection area.	Not Applicable	SPCommittee
Provide a copy of proposed terms of reference to the chiefs of bands whose reserves are located in the source protection area.	Not Applicable	SPCommittee
Provide a copy of proposed terms of reference to the clerks of municipalities located in the source protection area.	Not Applicable	SPCommittee
Provide a copy of proposed terms of reference to the source protection authority.	Not Applicable	SPCommittee
Provide any unresolved comments from municipalities and bands to the Minister as part of the approval package for the proposed terms of reference.	Not Applicable	SPAuthority
Provide any unresolved comments from municipalities and bands to the source protection authority on the draft proposed terms of reference.	Not Applicable	SPCommittee
Provide copy of draft proposed ToR to chairs of SPCs who have been listed in table that describes matters that affect other source protection areas.	Not Applicable	SPCommittee
Publish newspaper notice to publicly view draft proposed ToR on Internet and at other locations (as determined by the source protection committee).	Not Applicable	SPCommittee
Receive comments from the 30 day Internet posting from the public, municipalities, bands, and other stakeholders.	Not Applicable	SPAuthority

Terms of Reference

Appendix: Full Task Descriptions

Subject Area	Task Name	Full Task Description
Assessment Report Preparation	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.
Assessment Report Preparation	Undertaking communications initiatives for the assessment report	Local area engagement, outreach and creation of communications products that support the assessment report process.
Assessment Report Preparation	Information management for the assessment report preparation	Conducting overall data management, data sharing agreements, standards, mapping, software and maintenance.
Assessment Report Preparation	Undertaking a watershed characterization	Identifying and describing watersheds in the source protection area. May include water quality analysis and peer review for water quality analysis. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Conducting a conceptual water budget	Describing 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. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Conducting a tier 1 water budget analysis and stress assessment	Conducting a tier 1 water budget analysis, stress assessment, and delineation of significant groundwater recharge areas. May also include the identification of water quantity concerns and an analysis of uncertainty. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Conducting a tier 2 water budget analysis and stress assessment	If determined necessary from a tier 1 water budget analysis and stress assessment, conducting a tier 2 water budget analysis and stress assessment, and refining the delineation of significant groundwater recharge areas. May also include the identification of water quantity concerns and an analysis of uncertainty. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Conducting a tier 3 water budget analysis and water quantity risk assessment	If determined necessary from a tier 2 water budget analysis and stress assessment, conducting a tier 3 water budget analysis and water quantity risk assessment. May include identifying significant, moderate and low water quantity threats. May also include consultation with property owners/residents/stakeholders impacted by a significant drinking water threat scoring and an analysis of uncertainty. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Delineating and applying vulnerability scores to HVAs	Delineating the location and extent of highly vulnerable aquifers in the source protection area and applying vulnerability scores. An uncertainty analysis may be included in this task. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.

Terms of Reference

Assessment Report Preparation	Identifying issues, inventorying threats and assessing hazards in HVAs	Listing and describing drinking water quality issues, inventorying threats and assessing hazards (including uncertainty analysis) in the highly vulnerable aquifers. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Assessing risks in HVAs	Identifying any significant, moderate, low, and negligible drinking water threats, undertaking an issues evaluation, and analysing uncertainty in highly vulnerable aquifers. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Applying vulnerability scores to SGRAs	Applying vulnerability scores to significant groundwater recharge areas in the source protection area (delineated in the water budget process). Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Identifying issues, inventorying threats and assessing hazards in SGRAs	Listing and describing drinking water quality issues, inventorying threats and assessing hazards (including uncertainty analysis) in the significant groundwater recharge areas. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Assessing risk in SGRAs	Identifying any significant, moderate, low, and negligible drinking water threats, undertaking an issues evaluation, and analysing uncertainty in significant groundwater recharge areas. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Delineating and applying vulnerability scores to WHPAs or IPZs	Delineating the location and extent of the vulnerable area around a drinking water system (wellhead protection areas for drinking water systems using groundwater or intake protection zones for drinking water systems withdrawing from surface water) in the source protection area and applying a vulnerability score. Uncertainty analysis and peer review may be required. In addition, consultation with property owners/residents/stakeholders affected by the delineation and scoring for these two vulnerable areas may be required. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Identifying issues, inventorying threats and assessing hazards in WHPAs or IPZs	Listing and describing drinking water quality issues, inventorying threats and assessing hazards (including uncertainty analysis) in wellhead protection areas and/or intake protection zones. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Assess risk in WHPAs or IPZs	Identifying any significant, moderate, low, and negligible drinking water threats, undertaking an issues evaluation, and analysing uncertainty in wellhead protection areas or intake protection zones. Consultation may be required with stakeholders impacted by significant drinking water threats scoring. Consultation with adjacent source protection areas or regions may also be required for shared Great Lakes drinking water issues. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report Preparation	Consultation on the overall proposed assessment report	Meeting the legislative and regulatory requirements on the consultation and submission process of the proposed assessment report. Details on how to complete this task will be available in the Assessment Report regulation, Director's rules, and guidance when they are developed.
Assessment Report		If required, add other tasks to complete the assessment report. Describe in detail.

Terms of Reference

Preparation		
Source Protection Plan Preparation	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.
Source Protection Plan Preparation	Undertaking communications initiatives for the source protection plan	Local area engagement, outreach and creation of communications products that support the source protection plan process.
Source Protection Plan Preparation	Information management for source protection plan preparation	Conducting overall data management, data sharing agreements, standards, mapping, software and maintenance.
Source Protection Plan Preparation	Policy development to address drinking water threats (where required and/or permissible in Act/Regs)	Policy development to address drinking water threats (where required and/or permissible in the Act and source protection plan regulation). Detailed requirements and guidance will be provided in the Source Protection Plan regulation and guidance document when they are developed.
Source Protection Plan Preparation	Policy development for monitoring (where required, advisable and/or permissible in Act & Regs)	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. Detailed requirements and guidance will be provided in the Source Protection Plan regulation and guidance document when they are developed.
Source Protection Plan Preparation	Policy development for Great Lakes elements (where required/permissible in Act & Regs)	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 any of these policies as "designated Great Lakes policies". Detailed requirements and guidance will be provided in the Source Protection Plan regulation and guidance document when they are developed.
Source Protection Plan Preparation	Establishing timelines for policy implementation	Establishing 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. Detailed requirements and guidance will be provided in the Source Protection Plan regulation and guidance document when they are developed.
Source Protection Plan Preparation	Consultation on the overall proposed source protection plan	Consultation and submission process of the overall proposed source protection plan. Details on how to conduct the consultations on the overall proposed source protection plan will be provided in the Source Protection Plan regulation and guidance document when they are developed.
Source Protection Plan Preparation		If required, add other tasks to complete the source protection plan. Describe in detail.