

TO:	CHAIR AND MEMBERS BUILT AND NATURAL ENVIRONMENT COMMITTEE MEETING ON AUGUST 15, 2011
FROM:	JOHN BRAAM, P.ENG. DIRECTOR OF WATER AND CITY ENGINEER
SUBJECT:	UPDATE ON SOURCE WATER PROTECTION PROCESS: THAMES-SYDENHAM SOURCE WATER PROTECTION REGION

RECOMMENDATION

That, on the recommendation of the Director of Water and City Engineer, the following report **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Relevant reports that can be found at www.london.ca (City Hall, Meetings) include:

1. ETC Meeting on August 25, 2010, Agenda Item #10 – Update on Source Water Protection Process: Thames Sydenham Source Water Protection Region
2. ETC Meeting on September 8th, 2008, Agenda Item #1 – Update of Agreement for Grant Funding with the Ministry of the Environment for Technical Studies
3. ETC Meeting on July 9th, 2007, Agenda Item #4 – Drinking Water Source Protection: Committee Formation
4. ETC Meeting on February 26th, 2007, Agenda Item # 4 - Source Water Protection Second Round of Grant Funding Agreement with the Ministry of the Environment for Technical Studies
5. ETC Meeting on January 29th, 2007, Agenda Item # 3 - Update: EW3750 - Abandoned Well Decommissioning Program
6. ETC Meeting on March 20th, 2006, Agenda Item # 13 -Source Water Protection Grant Funding Agreement with the Ministry of the Environment for Technical Studies
7. ETC Meeting on October 17th, 2005, Agenda Item # 6 - Establishment of an Abandoned Well Decommissioning Program
8. ETC Meeting on May 30th, 2005, Agenda Item # 13 - Update: Drinking Water Source Protection

BACKGROUND

PURPOSE:

The purpose of this report is to provide Council and the Built and Natural Environment Committee (BNEC) with an update on the Source Water Protection (SWP) Process related to the Thames - Sydenham Source Water Protection Region. This Region includes the majority of the City of London and includes the two standby well fields available for drinking water during emergencies. This Region does not include the areas outside of London where the Lake Erie and Lake Huron water intakes are located, drawing water for the Regional Water Systems. Work undertaken in those other SWP Regions will be the subject of subsequent reports to be brought forward to the Joint Boards of Management.

CONTEXT:

The City of London has an interest in three different Source Water Protection Regions, including groundwater for our standby wells and surface water for the two Regional Water Supply Systems. The Regional Water Supply Division, through the Joint Boards of Management, has administered technical studies related to the intakes for the Lake Huron Primary Water Supply System and the Elgin Area Primary Water Supply System. Updated information reports will be submitted to the Joint Boards of Management.

Since 2005, the City has been active in technical research, Steering Committee participation, discussions, and public meetings associated with the Thames - Sydenham SWP Region (herein referred to as the "Region"). The process, established by the Province and administered by the Ministry of the Environment (MOE), was initiated as a result of the drinking water tragedy in Walkerton, Ontario a decade ago and directed with the passing of the *Clean Water Act* in 2006 and associated regulations in 2007. The process is therefore prescribed in legislation and closely directed by the MOE through rules and protocols.

The Thames-Sydenham Region is one of 19 Regions established across the province that combines watersheds using the existing Conservation Authority structure. Steering Committees were formed for each Region to manage the process. The Thames - Sydenham Region includes most of the City of London (84% of the City being that located in the Thames River watershed) and includes our two standby well fields (Hyde Park and Fanshawe well fields).

Various reports to Council, including the most recent update report last summer (see Previous Reports section) have documented the stages of the work leading up to the completion of the technical and assessment work (or the "scientific" work) for the two standby well fields. In this report, we advise that preparations have begun by the Steering Committee to prepare the subsequent SWP "Plan" to safeguard the quality and quantity of our drinking water sources. Policy options are being discussed by the Steering Committee through the use of background documents and policy options. The proposed Plan will incorporate various tools including existing land use planning tools, by-law and enforcement tools, education and awareness tools and new legislative powers related to banning certain activities where such extreme measures are warranted. Municipalities will play a primary role in implementing the Plan in addition to existing government ministries and legislation such as the MOE's Permit to Take Water process.

In London, our interests are two-fold, having both primary and standby drinking water sources. Both these sources are regional given that our primary drinking water source is the Great Lakes and our standby system relies on regional groundwater supplies. Therefore, we rely on the combined efforts of several other Regions across the province to safeguard both sources of water being the Great Lakes; specifically Lakes Huron and Erie, and our interests in protecting groundwater. Protecting groundwater also benefits the environmental connections associated with providing baseflow to the river, streams and wetlands within London.

The remainder of this report deals with London's two standby well fields and the groundwater drinking water source on which they rely.

DISCUSSION:

The most recent update report from last summer (dated August 25, 2010), used 5 parts to this section to reflect the process and key elements for SWP. The same structure is again used in this update report, for consistency. They are:

- Part A – The Process**
- Part B – Municipal Groundwater Technical Studies**
- Part C - Assessment Reports**
- Part D – Source Protection Plans**
- Part E – Next Steps**

Part A – The Process

The table below outlines the timetable for completion of Source Water Protection Plans by the Steering Committee. This final phase of the SWP work will officially commence once the Assessment Reports

have been approved by the Province. The Assessment Reports (one for each of the Source Protection Areas which are coincident with the three Conservation Authority watersheds) are complete. Two have received Provincial approval, being the St. Clair Region and the Lower Thames Valley, and the last, being the Upper Thames River report, has been posted for public comment. The Upper Thames River report will then be further reviewed by the Committee and submitted to the Province for approval. These Assessment Reports and the resulting "Source Protection Plans" are intended by the Province to be an additional safeguard to protect drinking water using a multi-barrier approach which includes source water protection, treatment, monitoring, secure distribution, and water testing. The Plans will address existing and future drinking water threats.

Source Protection Timeline

	2005	2006	2007	2008	2009	2010	2011	2012
Watershed Studies	■	■	■					
Municipal Technical Studies		■	■	■	■			
Terms of Reference				■				
Assessment Reports					■	■	■	
Source Protection Plans							■	■

The Steering Committee was formed and approved by the Province in 2007. London has one representative on the 22 member Steering Committee, that being Patrick Donnelly, Watershed Program Manager, Environmental Programs. Despite a total of 49 municipalities involved in the Region, municipalities were allotted seven members out of the total committee structure which also includes representation by agriculture, industry, First Nations, and various other groups.

Technical studies characterized each watershed regarding such things as population and geography and determined approximate water budgets for the various streams and rivers. It should be noted that, generally in this Region, municipal water systems north and east of London (upstream) rely on groundwater wells as their source of drinking water (i.e. Oxford, Perth and parts of Middlesex County) and municipal water systems south and west (downstream) rely on Great Lakes surface water as their source of drinking water (Chatham Kent, Lambton, and parts of Middlesex County).

First Nations located downstream along the Thames River and along the St. Clair River rely on both groundwater and surface water systems for their drinking water. Three First Nations (Oneida Nation, Chippawas of the Thames and Muncee-Deleware) are included in the Steering Committee. Five additional First Nations (Walpole Island, Aamjiwnaang, also known as Chippawas of Sarnia, Caldwell, Delaware, and Kettle & Stony Point) have indicated their interest in the Region given their traditional territories in the Thames watershed. Combined, these eight First Nations are the largest number of First Nations per Region compared to any of the other 19 Source Water Protection Regions in Ontario.

Part B – Municipal Groundwater Technical Studies

These studies were completed in order to determine the extent of the vulnerable area surrounding municipal wells. These zones of vulnerability are calculated based on time-of-travel (2, 5, and 25 years) and are mapped as well head protection areas (WHPA). The August 25, 2010 update report to Council provided this mapping. Initially, these studies were administered by City of London staff in conjunction with adjacent municipalities. Several previous reports to Council document the grant funding agreements associated with this work. The majority of this work is now complete with some further detailed work being done for a select number of wells that have a more complicated geologic environment. This further work administered by Conservation Authority staff, includes the Fanshawe Standby Well Field.

Note: Full colour maps are available at the website www.sourcewaterprotection.on.ca. Search for Assessment Reports, Upper Thames River, Appendix 1 – Maps, Map 4.1.4 and Map 4.1.5).

Part C - Assessment Reports

The Clean Water Act requires the completion of Assessment Reports for each of the 3 Source Protection Areas (SPA) contained in the Region. These reports provide “the science” on which the Source Protection Plans will be based. These reports identify vulnerable areas, assess the vulnerability of those areas given existing conditions, identify water quality issues related to the water sources, and assess the risks to the water systems. Vulnerable areas are classified into four (4) groups:

- 1) Well-Head Protection Areas (WHPA) – in London, being the Hyde Park and Fanshawe Well Fields
- 2) Intake Protection Zones – none located in London, however there are two associated with our Regional Water Supply intakes at Grand Bend (Lake Huron) and Port Stanley (Lake Erie).
- 3) Significant Groundwater Recharge Areas (SGRA) which are landscape-based features covering large areas but with minimal impact on the SWP Plan as they are not deemed significant threats to municipal water supplies. In London, large areas are identified as SGRA commonly associated with sand and gravel deposits and with areas near river and stream valleys.
- 4) Highly Vulnerable Aquifers (HVA) which are (similar to above) landscape-based features covering large areas with minimal impact on the SWP Plan as they are not deemed significant threats to municipal water supplies. In London, large areas are identified as HVA commonly associated with the river and stream valleys.

These reports are “living documents” which will need to be updated and amended as required. They will identify any additional work which needs to be undertaken before the Source Protection Plan can be completed. Some more complex well fields, including Fanshawe Well Field are undertaking further investigations given their hydrogeologic make-up. Provincial funds have been obtained for these further investigations.

“Proposed” Assessment Reports were prepared last year for each of the 3 SPA’s, circulated, posted for public comment, and submitted to MOE for their comments. The Amended Proposed Assessment Reports were then created based on feedback received and were re-circulated, posted for public comment and readied for final submission. Both the St. Clair and the Lower Thames SPA reports were then submitted to the Province and have received approval. Due to the timing of the reports, the Upper Thames River SPA report is now the last of the 3 reports being finalized.

The Amended Proposed Assessment Report for the Upper Thames River SPA, which includes London, has been completed, posted for public comment on July 4, 2011 through open houses and on the SWP website (www.sourcewaterprotection.on.ca). City staff has provided input and reviewed relevant portions of the Assessment Report related to London’s stand-by water system supply. After the comment period closes on August 8, 2011 (see **Appendix A**) the report and any comments will be forwarded to MOE for final approval.

Items of Note from the results of the Assessment Report for the Upper Thames River SPA are:

1. Of the total 551 properties with potential significant threats, most of these are located in Woodstock (271 properties).
2. Letters were sent to each landowner of properties that have been identified for further analysis.
3. The purpose of the letter is to advise and engage those landowners. Site inspections were also arranged. The letter states that the landowner “may be engaged in activities” that are considered significant threats to drinking water since their zoning and type of business would typically permit such activities.
4. Significant threats in rural areas are focused on areas near municipal wells related to agriculturally-based practices (manure and chemical handling).
5. Significant threats near London’s urban well head areas are related to the storage of chemicals and fuels on specific commercial, recreational and industrial properties. Residential properties, such as those surrounding the Hyde Park stand-by well, are not considered to be a significant threat, however old abandoned wells on residential properties could pose risks. NOTE: These old wells are potential pathways to groundwater and need to be properly managed through education and awareness or through proper decommissioning.

6. In London, fourteen properties (9 at Fanshawe and 5 at Hyde Park) are potential significant threats and landowners have been contacted to ensure they are engaged in the process and to seek their assistance and assurances that the perceived threats are either non-existent, being properly managed, or they are agreeable to proper management. One example, the Fanshawe Golf Course owned and operated by the City of London, is one of these sites adjacent to the Fanshawe Well Field receiving this notification letter from the Steering Committee.
7. In London, both HVA and SGRA areas exist. However, they are not deemed to be threats to municipal drinking water systems in the SWP Region. They are therefore only noted at this time with minimal implications for the proposed SWP Plan. However, they are logical areas to focus stewardship efforts where old well decommissioning or groundwater recharge practices need to be highlighted and encouraged.

Public Consultation

Throughout the process, public consultation has been achieved through open houses, workshops and direct mailings. The website (www.sourcewaterprotection.on.ca) also contains relevant materials and notices. City staff have attended all information forums and meetings held in London to update the public on the process and the timetable as well as stewardship opportunities (i.e. decommissioning old private wells).

Across the entire Source Protection Region (made up of St. Clair, Lower Thames Valley and Upper Thames River watersheds) there is a total population of 750,000 with 27,000 landowners (or 4% of the population) located within WHPAs.

- In the St. Clair, there are no landowners with potential significant threats (very few municipal systems on groundwater wells);
- In the Lower Thames there are 50 landowners; and
- In the Upper Thames there are 551 landowners given the larger number of municipal well systems.

Part D - Source Protection Plans

The development of Source Water Protection Plans is the current phase of this process - to be completed in August, 2012. This plan will stipulate the management scenarios for specific properties that have identified significant threats to drinking water. A range of management tools is being contemplated by the Steering Committee which is provided for in regulations approved by MOE on this topic. Municipalities will play a key role in implementation of these plans. Risk Management Plans, land use planning policies and existing regulatory tools will be part of the tool box to address specific properties.

Policy development is being assisted by the creation of background papers and policy examples. The Municipal Policy Advisory Committee, a working group of the Steering Committee, is meeting August 11 to begin the discussions on these policy options. This advisory committee is co-chaired by London's representative, Patrick Donnelly and by Joe Salter, City of Stratford Manager of Water Treatment and Distribution who represents the municipal interests of Stratford, St. Marys and Perth and Huron Counties on the Steering Committee. Other City of London staff from land use planning and from wastewater and stormwater engineering are being invited to be involved in the working group forums.

Part E - Next Steps

The next and final step in the process, being Source Water Protection Plan preparation has been initiated. Although it is difficult to predict the specific outcomes of the Plan at this stage, some guidance through regulations has been provided by MOE for Plan preparation.

Therefore, the following comments can be made specifically for the City of London:

1. Land use planning staff will be more engaged as maps and policies are being discussed that will make their way into the Official Plan and Zoning By-laws. The Municipal Advisory Committee will provide the forum for these discussions. The issue will be monitored and addressed as appropriate during the 2011-2012 Official Plan update.
2. SWP implications for the Fanshawe Golf Course property which surrounds the Fanshawe standby well field, will need to be considered in asset management considerations surrounding the future of this property.
3. SWP implications will also need to be considered for new or upgraded infrastructure projects that are planned across the WHPA of both the City's standby well fields. Options are already being discussed regarding the Hyde Park Trunk Sanitary Sewer Project which will expand the existing

sewer line that follows Hyde Park Road immediately adjacent to the Hyde Park standby well.



4. HVA and SGRA areas exist in London. Their existence is currently seen as logical areas to focus stewardship efforts where old well decommissioning or groundwater recharge practices need to be highlighted and encouraged. This may be an opportunity for piloting innovative stormwater management techniques such as the creation of porous pavements or rainwater gardens.
5. City By-law Enforcement and Risk Management Division staff will also be more involved in the subsequent SWP Plan discussions due to the need for property inspections and administration of Risk Management Plans for subject properties and specific activities. The specific roles of Risk Management Officials and confirming from which office they will be deployed (municipal staff, Conservation Authority staff, and Regional Water Supply staff) are details yet to be determined.
6. More specific information and a more complete understanding of the inter-relationship between surface and ground water in London will be a beneficial outcome of this SWP process. Understanding the groundwater environment and how it impacts and benefits London and the surrounding environment can always be improved.
7. Funding from the Province beyond 2012 after the Plan has been prepared is not expected to be available to the same degree as prior to Plan preparation. Future funding requirements may impact future budgets. Administration will continue to monitor Plan preparation to respond appropriately. Due to the lack of detail, this has not been identified in recently completed Business Plans, but will be added as details emerge.

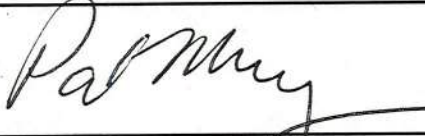
CONCLUSIONS:

Source Water Protection Plans will enhance the protection of all Ontario drinking water supplies. Administration supports the development of the Plans. Participating in the development of the Plans will allow the City of London to provide valuable input, thereby helping to shape the plans for our mutual benefit while protecting our environment.

ACKNOWLEDGEMENTS:

This report was prepared by Patrick Donnelly, Urban Watershed Program Manager.

SUBMITTED BY:	RECOMMENDED BY:
	
ROLAND WELKER, P.Eng, MANAGER, WATER ENGINEERING	JOHN BRAAM, P.Eng. DIRECTOR, WATER & ENGINEERING REVIEW

REVIEWED AND CONCURRED BY:

PAT MCNALLY, P.Eng, EXECUTIVE DIRECTOR OF PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES

Appendix A – Notice in Newspapers for Public Consultation on Amended Assessment Report

- c: John Fleming, Director of Planning, Planning & Development
- Jay Stanford, Director, Environmental Programs & Solid Waste
- Ron Standish, Director, Wastewater and Treatment
- Bill Coxhead, Director, Parks and Recreation
- Tom Johnson, Director, Corporate Management Support
- Andrew Henry, Division Manager, Regional Water Supply
- George Kotsifas, Director of Building Controls, Planning & Development

Appendix A
Notice of Public Consultation on the Amended Proposed Assessment Report

**DRINKING WATER
 SOURCE PROTECTION**
 ACT FOR CLEAN WATER



UPPER THAMES RIVER
 CONSERVATION AUTHORITY

**Public Consultation on the Amended Proposed Assessment Report
 for the Upper Thames River Source Protection Area**

You are invited to read and comment on the Amended Proposed Assessment Report for the Upper Thames River Source Protection Area (UTRSPA). The posting of this report is an important step in developing a drinking water Source Protection Plan for the UTRSPA.

The Amended Proposed Assessment Report is a result of revisions based on direction received from the Ministry of the Environment, following submission of the Proposed Assessment Report for the UTRSPA and technical work to fill some data gaps.

The recent amendments to the report include:

- The delineation of Well Head Protection Area-E (WHPA-E) related to municipal systems that are Groundwater Under the Direct Influence of surface water (GUDI) systems
- Completion of drought scenarios for the Tier 2 Water Budget
- Sewer threats assessment in Perth County
- Updated threats assessment of pasture and outdoor confinement areas
- Various editorial changes including additional details and improved description of work

An Assessment Report includes:

- Identification of vulnerable areas associated with municipal drinking water sources
- The types of activities that would be considered threats in those vulnerable areas
- Any water quality issues associated with the raw (untreated) water for municipal drinking water systems that could be addressed through source protection planning
- A water budget that assesses areas where the quantity of water available for the municipal drinking water source may be stressed
- General background material that may be useful in developing a Source Protection Plan

Included in this Source Protection Area are the following municipal water systems: Beachville, Birr, Dorchester, Embro, Fanshawe/Hyde Park, Hickson, Ingersoll, Innerskip, Lakeside, Malrose, Mitchell, Mount Elgin, Sebringville, Shakespeare, St. Marys, St. Pauls, Stratford, Tavistock, Thamesford, Thorndale and Woodstock.

The Amended Proposed Assessment Report was prepared under the Clean Water Act 2006 for the Thames-Sydenham and Region Source Protection Region.

The Assessment Report is available for viewing at:

- www.sourcewaterprotection.on.ca
- Upper Thames River Conservation Authority, 1424 Clarke Rd., London (8:30 am-4:30 pm Mon-Fri)
- Customer Service Desk, Oxford County Administration Building, 21 Reeve Street, Woodstock (8:00 am-5:00 pm)
- Perth County Clerk/Deputy Clerk's Office, Main Floor, County Court House, 1 Huron St., Stratford (8:30 am-4:30 pm)
- Municipal Operations Centre, 408 St. James St. S., St. Marys (8:00 am-5:00 pm)
- A CD can be mailed to you

Attend a Public Open House:

Public Open Houses are an opportunity for you to learn more about the Amended Proposed Assessment Report and to provide comments.

Thamesford

Monday, July 25th, 3-7 pm
 Thamesford Library, Beatty Room
 165 Dundas Street

St. Marys

Wednesday, July 27th, 3-7 pm,
 Community Centre Hall
 Pyramid Recreation Centre
 317 James Street

Dorchester

Thursday, July 28th, 3-7 pm
 Community Room 1, Dorchester Arena
 2066 Dorchester Road

Submit Comments in Writing:

E-mail: hollingswortht@thamesriver.on.ca

Fax: 519.451.1188

Mail: Teresa Hollingsworth, Source Protection Communications, Upper Thames River Conservation Authority, 1424 Clarke Road, London, ON N5V 5B9

Comments must be received on or before August 8, 2011.

Questions? Please contact Teresa Hollingsworth (ext 226) or Christina Baranik (ext 224) at the Upper Thames River Conservation Authority, 519.451.2800.

Find out more at www.sourcewaterprotection.on.ca