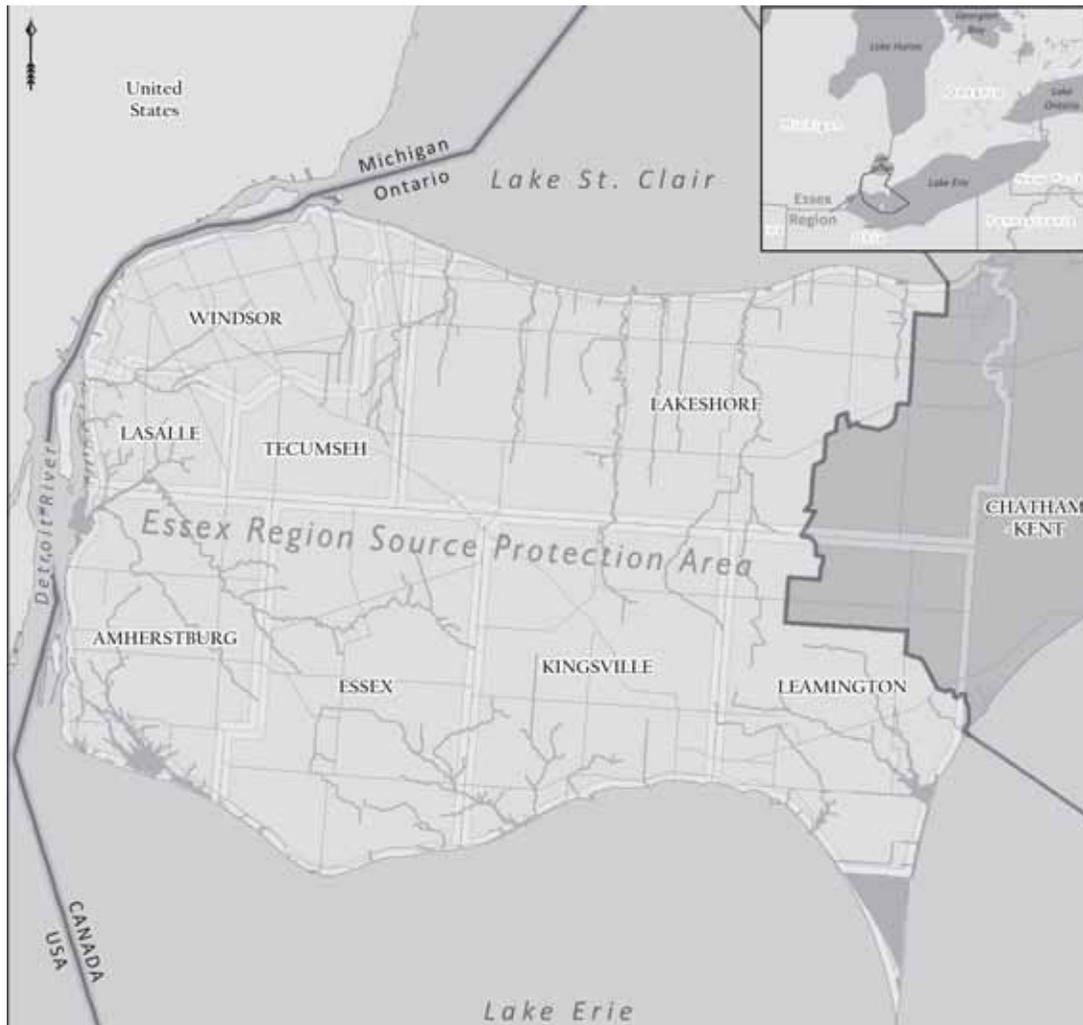


Source Protection Annual Progress Report | 05/01/2018

I. Introduction

This annual progress report outlines the progress made toward implementing the policies in the Essex Region Source Protection Plan (SPP), as required by the Clean Water Act and regulations. Our policies work by either eliminating or managing activities that could be considered a threat to our sources of drinking water and are based on the foundational knowledge that the actions we take on land have an impact on our local waterways and ultimately our sources of drinking water. Following an extensive process that included broad public input, the Essex Region SPP came into effect on October 1, 2015. This report highlights progress made toward implementation up to December 31, 2017.



II. A message from your local Source Protection Committee

Our progress score on achieving source protection plan objectives this reporting period:

- P : Progressing Well/On Target** – The majority of the source protection plan policies have been implemented and/or are progressing.
- S : Satisfactory** – Some of the source protection plan policies have been implemented and/or are progressing.
- L : Limited progress** – A few of source protection plan policies have been implemented and/or are progressing.

The Source Protection Committee has reviewed this report and it is our unanimous opinion that implementation of the policies in the Essex Region Source Protection Plan is progressing well. Further, the Committee notes that continued vigilance must be maintained to ensure the policies noted as 'in progress' are fully implemented within the expected time frames. The Committee acknowledges the efforts of municipalities to incorporate Source Water Protection into their business practices and looks forward to the finalization of their Official Plan updates. The Committee assigned a score of 'Satisfactory' to the implementation of Part IV policies as there remain a substantial number of Risk Management Plans to be established by the target date of October 1, 2020. A detailed supplemental Risk Management report is also available online.

A mandatory review of the Source Protection Plan will be undertaken in 2018. The Committee will include provisions to examine source water quality data to determine whether parameters of concern previously deemed to be below threat thresholds continue to be at those levels (e.g. *E.coli*). While there are international, federal and provincial initiatives ongoing to address harmful algal blooms in Lake Erie, these blooms continue to impact our local drinking water sources and local efforts must be maintained to reduce factors (e.g. nutrients) that contribute to favourable conditions for algal growth.

III. Our Watershed

To learn more, please read our assessment report(s) and source protection plan(s).

The Essex Region Source Protection Area (ERSPA) is approximately 1681 km² and coincides with the watershed boundaries of the Essex Region Conservation Authority (ERCA). The ERSPA is comprised of 28 smaller sub-watersheds, flowing northward into Lake St. Clair, westward into the Detroit River, or southward into Lake Erie. The area predominantly consists of a flat clay plain with the exception of some sandy areas, primarily in the southern portion of the Region. The predominant land use in the watershed is agriculture, due to the region's excellent farmland and growing conditions.

Municipal drinking water supplies in the Essex Region Watershed are drawn from surface water sources in the Great Lakes system - Lake Erie, Lake St. Clair and the Detroit River. There are seven municipal Water Treatment Plants (WTPs) in the ERSPA, and one WTP outside of the ERSPA in Wheatley serving part of the Municipality of Leamington. Stoney Point and Lakeshore (Belle River) WTPs have their water intakes located in Lake St. Clair; the A. H. Weeks (Windsor) and Amherstburg WTPs have their intakes in the Detroit River; and the Harrow-Colchester South, Union, Pelee Island West Shore and the Wheatley WTPs have their intakes in Lake Erie. These municipal water treatment plants serve over 95 percent of the population in the ERSPA. The remaining population, less than five percent, depends on groundwater or hauled water.

In the ERSPA, the handling and storage of large volumes of liquid fuel (>15,000 L) was identified as a significant drinking water threat. Modelling exercises showed that a spill of this volume of fuel close to any body of water could result in contamination of the source water at our drinking water intakes. This resulted in the delineation of an extensive Event Based Area (EBA) in which large volumes of fuel are considered a threat to our drinking water. To mitigate these threats, Risk Management Plans (RMP) that show that actions are being taken to prevent spills are required to be established in consultation with a Risk Management Official.

IV. At a Glance: Progress on Source Protection Plan Implementation

1. Source Protection Plan Policies

P : Progressing Well/On Target

Of the 44 policies in the Essex Region SPP that address significant drinking water threats, 32% (14) are fully implemented, and 57% (25) are in progress and on target to be fully implemented within the time frame set out in the Essex Region SPP. Of the remaining policies, four do not require a response at this time, and one has not yet been addressed. This outstanding policy is related to the use of airplane deicer chemicals and is applicable in areas where these chemicals are not used.

ERCA staff will continue to address outstanding policies and work with implementing bodies to ensure that all policies in the SPP are fully implemented in a timely manner.

2. Municipal Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

All of the 11 municipalities in the ERSPA have vulnerable areas where significant drinking water threat policies apply. Municipalities are required to ensure that their planning and building decisions conform with the Essex Region SPP and must also ensure that their Official Plan conforms with the SPP upon the next Planning Act review.

All lower tier municipalities are responsible for day-to-day land use planning and building permit decisions and have integrated source protection requirements to ensure that their planning and building decisions conform with the policies in the Essex Region SPP.

The majority of municipalities (9 of 11) are in the process of amending their Official Plan to conform with the policies in the Essex Region SPP, with completion expected in 2018. The County of Essex and the Town of Essex have completed their required conformity exercises.

3. Septic Inspections

Not applicable to the ERSPA. There are currently no policies in the Essex Region SPP that require mandatory septic inspections. However, the Committee notes that high levels of *E.coli* remain a concern for our local waterways and beaches. Landowners are encouraged to have their septic systems inspected and maintained regularly.

4. Risk Management Plans

S: Satisfactory

Since 2016, site visits were conducted at 256 of the 384 existing potential fuel threat locations identified in the Assessment Report. Among the properties visited, 199 do not require a RMP, 14 require further investigation, and 43 require RMPs. Of these 43 properties, 10 have RMPs in progress and one RMP has been established. RMPs for all existing threats must be established by October 1, 2020. Since the SPP took affect, four RMPs have been established for future (new) fuel threats through s.59 procedures. There have been no cases of non-compliance with the established RMPs. Please refer to the supplementary Risk Management report for further information.

5. Provincial Progress: Addressing Risks on the Ground

P: Progressing Well

The Essex Region SPP includes 17 policies that use Provincial Instruments (e.g. Environmental Compliance Approvals) to address future (new) and existing significant drinking water threats (SDWTs). Screening for future threats became mandatory the date the SPP came into effect (October 1, 2015). Ontario ministries have a screening mechanism in place for new applications and they amend Instruments as needed to address any new SDWTs. Our policies set out a timeline of 5 years (October 1, 2020) to review and make necessary changes to previously issued Provincial Instruments to address existing SDWTs. In the ERSPA, 22 of the 38 identified existing Provincial Instruments have been reviewed, and of these, only one was determined to be a SDWT requiring an amendment to the existing Instrument. The remaining reviews are expected to be completed within the specified timeline.

6. Source Protection Awareness and Change in Behaviour

New road signs have been installed across the Essex Region Source Protection Area as part of a provincial awareness initiative. The Ontario Ministry of Transportation (MTO) is installing signs on provincial roads near Drinking Water Protection Zones, while municipalities have coordinated installation on local municipal and county roads. To date, eight of our municipalities have completed road sign installation and the remainder are in the process of determining appropriate locations for signage. The MTO has installed a total of four signs in the Essex Region on Hwy 401, Hwy 77 and Hwy 3. In total, over 50 signs are located across the region.

The new road signs identify sections of road where accidental spills could contaminate our sources of drinking water. As part of the Essex Region Source Protection Plan implementation, emergency responders have been notified about these zones so that public water sources can be protected in the event of a spill. The use of a standardized sign throughout Ontario will help to raise public awareness about the importance of protecting our local drinking water sources.

The main risk to drinking water in our local area has been identified as liquid fuel, and if a spill is identified, residents are advised to contact the Spills Action Center at 1-800-268-6060.

7. Source Protection Plan Policies: Summary of Delays

All policies in the Essex Region Source Protection Plan are on track to be fully implemented by the dates specified in the Plan.

8. Source Water Quality: Monitoring and Actions

Annual blooms of blue-green algae (cyanobacteria) in Lake Erie have increased in size and severity in recent years and have resulted in the closure of beaches throughout the western basin, and of WTPs on Pelee Island and in Ohio. In response to the growing concerns related to these harmful algal blooms (HABs), microcystin-LR was identified as a drinking water Issue for Lake Erie intakes in the ERSPA (Harrow-Colchester, Union, Pelee Island and Wheatley WTPs). The Committee notes that HABs also occur annually in Lake St. Clair and intends to examine available data to determine if microcystin-LR should also be considered an Issue for these intakes.

Microcystin-LR is a neurotoxin produced by certain cyanobacteria and is released when they die. Water treatment plant operators must alter their standard operating procedures during a bloom to ensure that the toxin is not released. This includes stopping pre-chlorination, which controls zebra mussel growth, but would also kill the cyanobacteria. Filters must be backwashed more frequently, which can result in decreased water availability. As well, the use of settling agents and activated carbon to remove algae and reduce taste and odour concerns is increased. Through these treatment processes, all WTPs in the ERSPA are successfully able to remove microcystin-LR. However, the additional measures required during HABs does come at an increased cost for upgrades and maintenance. Of note, Pelee Island's WTP underwent significant upgrades in 2016 to further improve their ability to treat microcystins.

All of the ERSPA's Lake Erie WTPs conduct weekly monitoring of raw and treated water. From spring to fall, this includes monitoring for microcystins. Between 2012 and 2016, total microcystins in the source water (or raw water) were usually below the maximum allowable concentration for drinking water of 1.5 µg/L, however, there were still regular occurrences of concentrations well above this value that required WTPs to implement additional treatment measures. This indicates that microcystin-LR is still a drinking water Issue for these intakes.

HABs in the western basin of Lake Erie are a persistent, international issue. The Great Lakes Water Quality Agreement recognizes this issue, and in 2016, a target was set of 40% reduction of phosphorus (the nutrient that feeds algal growth) to Lake Erie from its tributaries. Eight watersheds in the Lake Erie basin have been identified as priority watersheds for phosphorus reduction. In Canada, this includes the Leamington tributaries, located in the Essex Region, and the Thames River. The remaining priority watersheds are in Michigan and Ohio. In February 2018, the Canadian and Ontario governments released a joint Lake Erie Action Plan (LEAP) that contains 120 actions that need to be taken to achieve this target reduction. The United States federal and state governments also released similar documents in 2018.

ERCA is committed to working with senior levels of government and other partners to implement relevant actions to reduce phosphorous in our region. ERCA's water quality monitoring program has been enhanced at strategic locations, including additional locations and event based sampling. Among other benefits, this will enable targeted implementation of best management practices, the calculation of nutrient loads and the ability to track changes in phosphorus concentrations and loads over time. ERCA will also continue to evaluate DWSP data for all of our drinking water intakes to assess whether microcystin-LR continues to be an Issue for our WTPs.

9. Science-based Assessment Reports: Work Plans

No work plans were required to be implemented for our Assessment Report. A comprehensive review of the SPP will take place in 2018. A s.36 work plan will be completed and submitted to the Ontario Ministry of the Environment and Climate Change in November as a result of this review to outline the steps necessary to ensure our Plan and policies are up to date.

10. More from the Watershed

To learn more about our source protection region/area, visit our Homepage.

<https://essexregionconservation.ca/source-water-protection/>

The Committee would like to highlight areas of successful communication and integration of Source Water information in day-to-day practices. The Essex Region Conservation Authority (ERCA) provided training and documentation to municipalities, who have incorporated these into their Planning and Building operations. ERCA staff also include relevant Source Water information when responding to lawyer's requests for real estate purchases. The major fuel suppliers in the ERSPA have been engaged to receive feedback on the development of Risk Management Plans. Along with the broader provincial communication, this has resulted in an increase in pre-consultation from both developers and consultants to ensure their projects adhere to the policies in the Essex Region SPP. In addition, ERCA has integrated Source Water information into their education programs offered to youth in the ERSPA.



The main risk to drinking water in the Essex Region Source Protection Area has been identified as fuel. These signs indicate areas where a spill of a large volume of liquid fuel could impact one of our drinking water intakes. If a spill is identified, residents should contact the Spills Action Center at 1-800-268-6060.