

Cataraqui Source Protection Area Policy Implementation Progress Report 2015 – 2020

May 1, 2021

The following annual report outlines the progress made in implementing source protection policies within the [Cataraqui Source Protection Area](#) (Cataraqui area), from April 1, 2015 to December 31, 2020.

Report contents are based on criteria provided by the Ontario Ministry of the Environment, Conservation and Parks (MECP) to score reporting feedback from implementing bodies, Risk Management Officials / Inspectors, and the Cataraqui Source Protection Committee (the Committee), while highlighting progress towards achieving the objectives within the Cataraqui Source Protection Plan (the Plan).

This report was prepared by Cataraqui Conservation staff on behalf of the Cataraqui Source Protection Authority. Local municipalities, Ontario provincial ministries, local public health units, landowners, stakeholders, and the Committee have all contributed to developing the Plan and implementing the associated policies.

Our Source Protection Area

Under the Ontario *Clean Water Act*, the Plan includes policy requirements and/or recommendations to reduce the risk of pollution in vulnerable areas surrounding municipal, residential drinking water supplies and sensitive groundwater areas. Additionally, there are related reporting obligations and recommendations included to track policy implementation and effectiveness. The Plan consists of 144 policies, 12 municipal drinking water systems, and came into effect on April 1, 2015.

The Cataraqui area is comprised of 12 major watersheds that represent the jurisdiction of Cataraqui Conservation, with the addition of the Frontenac Islands (Howe and Wolfe Islands), and about 1,800 smaller islands in the St. Lawrence River. Located at the eastern end of Lake Ontario and beginning of the St. Lawrence River, the Cataraqui area measures approximately 3,600 square kilometers, with 12 lower tier municipalities, 3 upper tier municipalities (e.g., counties), and about 212,500 residents. Most of the population live in towns and urban centers concentrated along the shoreline, such as the City of Kingston (about 161,175 residents), and City of Brockville (about 22,000 residents), while the remaining live in rural areas¹.

The area is characterized by exposed bedrock, lakes, and woodlands of the Canadian Shield (Frontenac Axis) in the central part, and an agricultural landscape of limestone and clay plains to the west and east. Two main rivers, the Cataraqui and the Gananoque, flow towards Lake Ontario and the St. Lawrence River. In addition, several smaller tributaries drain throughout the western and eastern sections with 39 dams and water control structures in operation.

Approximately 80% of the residents (about 170,000) rely on municipal drinking water systems from surface or groundwater sources. The remaining 40,000 obtain their drinking water from private wells or intakes.

¹ Statistics Canada 2016 Census

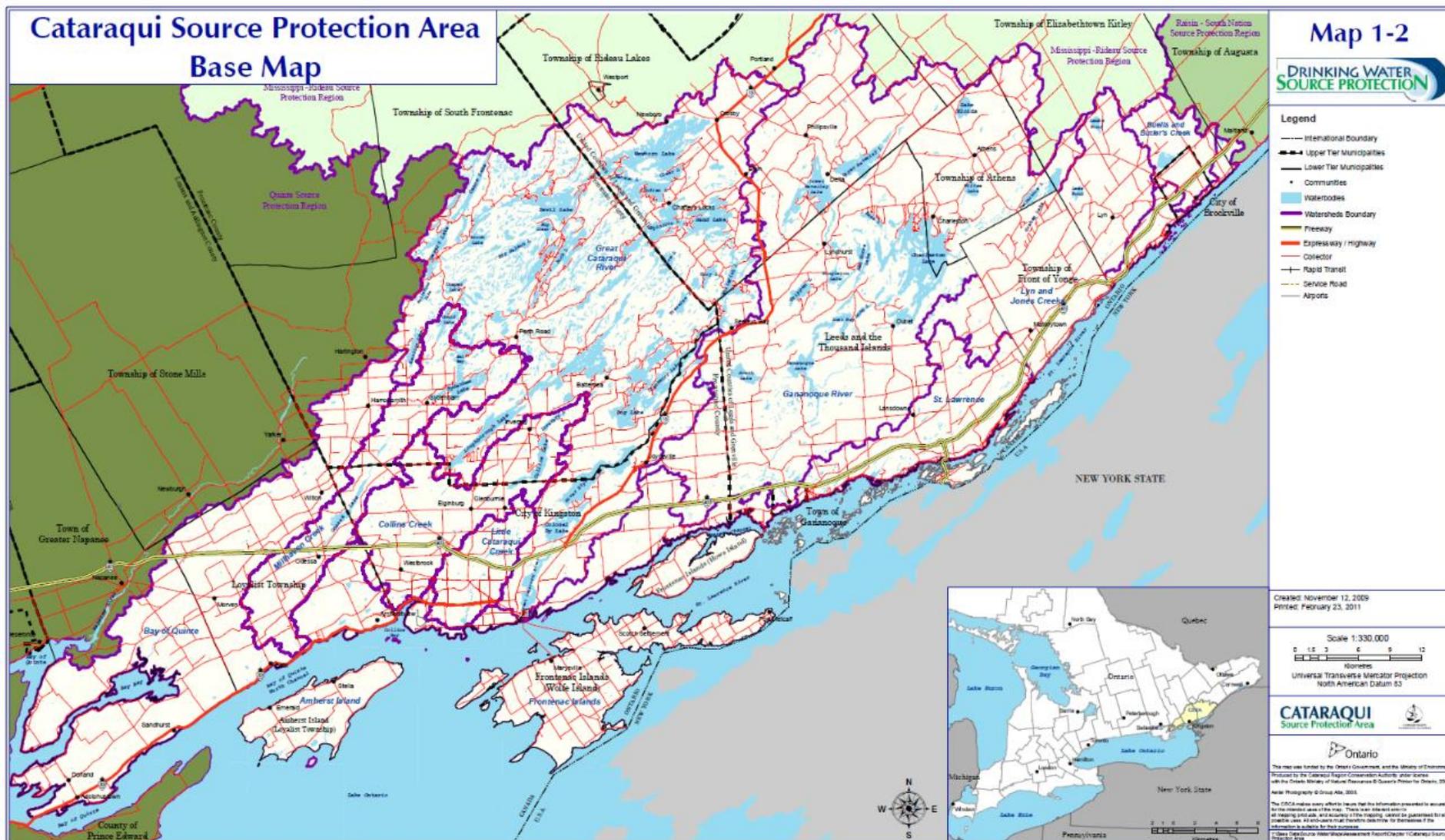


Figure 1: Cataraqi Source Protection Area Base Map (Map 1-2 from 2011 Assessment Report)

The Cataraqui area has nine drinking water systems serving about 155,000 residents within intake protection zones (IPZs). One is in Sydenham Lake, six are along the Lake Ontario shoreline, and two are located along the St. Lawrence River. From west to east they include:

1. Town of Greater Napanee - Sandhurst Shores,
2. Town of Greater Napanee - A.L. Dafoe,
3. Loyalist Township – Fairfield in Amherstview,
4. Loyalist Township – Bath,
5. City of Kingston - Point Pleasant,
6. City of Kingston - Central,
7. Town of Gananoque - James W. King,
8. City of Brockville – Brockville, and
9. Township of South Frontenac - Sydenham.



Figure 2: Exposed bedrock, karst (fractures created by water drainage), and thin soils are common characteristics in the Cataraqui area.

In addition to the intake protection zones listed above, three municipal drinking water systems rely on groundwater. They include:

1. City of Kingston - Cana Subdivision (Kingston Mills),
2. Township of Front of Yonge - Miller Manor Apartments, and
3. Township of Leeds and the Thousand Islands – Lansdowne Well Supply.

The Picton Intake Protection Zone located around a municipal, residential intake in the Quinte Source Protection Region also extends into the Cataraqui area, as does a portion of the Westport Wellhead Protection Area (from the Mississippi-Rideau Source Protection Area).

Comments from the Cataraqui Source Protection Committee

The Cataraqui Source Protection Committee (SPC) is a multi-stakeholder group comprised of 16 members. The Committee's progress score for the Cataraqui area on achieving source protection plan objectives this reporting period is as follows:

P: Progressing well / on target: The majority of the source protection plan policies have been implemented and/or are progressing in accordance with the timelines specified in the source protection plan.

✓ **S: Satisfactory:** Some of the source protection plan policies have been implemented and/or are progressing in accordance with the timelines specified in the source protection plan.

L: Limited progress made: A few of source protection plan policies have been implemented and/or are progressing in accordance with the timelines specified in the source protection plan.

The majority of significant drinking water threat policies are being implemented as required. Progress toward implementation of non-binding policies remains ongoing.

The Committee arrived at the above grade based on implementation efforts to date and compliance with noted timelines in the Plan. Members noted a score of "satisfactory" is warranted as the majority of the Cataraqui Source Protection Plan is implemented but there remain significant drinking water threat policies outstanding and out of compliance pertaining to establishing risk management plans with the Lansdowne Wellhead Protection Area and conducting the second round of septic inspections. Efforts were hampered in 2020 with the COVID-19 pandemic but work is underway to ensure risk management is addressed to achieve the program's objectives in 2021.

Committee members are committed to engage municipalities and other implementing bodies to ensure the success of the source protection program moving forward.

At a Glance: 2015 – 2020 Implementation Progress

1. Source Protection Plan Policies

P: Progressing Well/On Target

Of the 68 policies addressing significant drinking water threats, 82% have been implemented in accordance with the timelines set out in the Plan and / or were evaluated to determine no further action is required. An additional 15% are in progress with just 3% with no progress.

All policies to be completed immediately following the Plan's effective date have been implemented for land use planning, including the initiation of risk management efforts and municipal operation-based policies. Ontario Provincial ministries and local health units have also reported high implementation success.

2. Municipal Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

Within the Cataraqui area, there are 15 implementing bodies including upper-, lower-, and separated municipalities with a total of 12 IPZs and WHPAs. Out of the 15, seven municipalities, listed below, have vulnerable areas where significant drinking water threat policies apply:

1. Cana WHPA - City of Kingston
2. Lansdowne WHPA - Township of Leeds and the Thousand Islands
3. Miller Manor WHPA - Township of Front of Yonge
4. Brockville IPZ - City of Brockville / Township of Elizabethtown-Kitley
5. Sydenham IPZ - Township of South Frontenac, and
6. James W. King IPZ - Town of Gananoque / Township of Leeds and the Thousand Islands.

Seventy percent of all municipal policies in the Plan have been implemented. Further, when only significant drinking water threat policies are considered, 2020 reporting results show that the level of completion is eighty-six percent.

The following table outlines municipal source protection implementation related to day-to-day decision making and operations.

Table 1: Level of Municipal Source Protection for Daily Operations and Procedures

Category	Percent Complete	Notes
Restricted Land Use	100%	
Prohibitions	100%	
Transport Pathways Notification	89%	One municipality has yet to fully implement this.
Land Use Planning (includes non-binding policies)	94%	Only non-binding policies have yet to be fully implemented
Education and Outreach	72%	Only three of the fifteen municipalities have yet to fully implement their binding education and outreach policies.
Operations (includes non-binding policies)	42%	Some Emergency Response Plan updates and specific strategies are either in progress or yet to begin.

The seven lower tier and separated municipalities with significant drinking water threats are required to review and update their Official Plan and Zoning By-Laws to ensure they conform with the Plan by April 2020 or no later than at the time of the next review required under section 26 of the *Ontario Planning Act*. Five of seven municipalities have completed Official Plan amendments while the other two are in process. Two of the seven municipalities have updated their Zoning By-Laws, three others are in process and two have yet to start.

3. Septic Inspections

S: Satisfactory

Twenty-two significant drinking water threat onsite sewage systems are required to be inspected once every five years in accordance with the Ontario Building Code’s mandatory program. Currently the local health units (Kingston, Frontenac, Lennox and Addington Public Health and Leeds, Grenville and Lanark District Health Unit) are responsible for implementing the associated policies on behalf of each required municipality, except for the Township of Leeds and the Thousand Islands. The Township has successfully implemented a septic re-inspection program that was initiated in 2017.

Inspection results were to be provided by January 17, 2017 by both public health units. Ninety-five percent of the on-site sewage systems have been inspected in accordance with the Ontario Building Code. Nine systems were due for the second round of re-inspection by 2020, of which none have been re-inspected. Ten additional systems are due for the second round of re-inspection in 2021. One initial inspection remains within the Cana Wellhead Protection Area. This system was incorrectly identified as a moderate drinking water threat in the Cataraqui Source Protection Area Assessment Report. The building on this parcel is a warehouse, however, and requires working with the body responsible for reinspection to confirm that an on-site sewage system is present before making an amendment to reclassify it from a moderate to a significant drinking water threat.

The initial round of inspection results showed septic systems are functioning as designed. A mix of major and minor work was completed since 2010 to ensure sources of drinking water are protected.

Through this program, educational materials have been provided to septic system owners with recommendations for number of pump-outs and best practices for maintenance based on the requirements of the system.

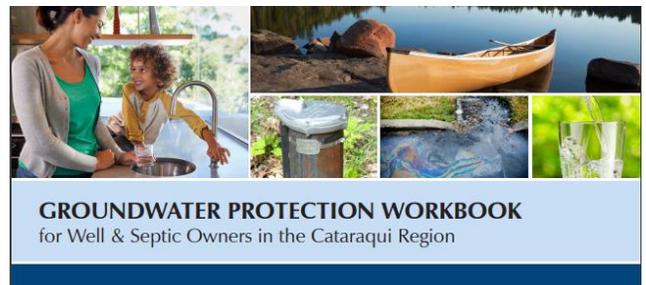


Figure 3: Groundwater Protection Workbook for Well & Septic Owners in the Cataraqui Region

The Groundwater Protection Workbook continues to be distributed to onsite sewage system owners to improve understanding of proper care, use and maintenance of onsite sewage systems to increase source water protection in the extensive highly vulnerable aquifers.

4. Risk Management Plans (RMPs)

L: Limited progress

In 2018, six of seven municipalities where Part IV policies apply removed themselves from a joint Regional Risk Management Office hosted by the Cataraqui Region Conservation Authority and retained their responsibility for risk management efforts in-house or through a third-party. Through this process there are now four Risk Management Offices within the Cataraqui Source Protection Area, as shown in Table 2. There are 59 existing drinking water threats to be addressed, the majority belonging to the Township of Leeds and the Thousand Islands. All RMPs were to be completed two years following the effective date of the Plan (April 1, 2017).

Table 2: Risk Management Offices in the Cataraqui Source Protection Area

Municipality with Part IV Responsibility	Risk Management Office
Township of Front of Yonge	In-house: Township staff
Town of Gananoque	In-house: Township staff
Township of Leeds and the Thousand Islands	Third party: Malroz Engineering Ltd.
City of Kingston	Third party: Cambium Inc.
City of Brockville	Third party: Cambium Inc.
Township of Elizabethtown-Kitley	Third party: Cambium Inc.
Township of South Frontenac	Third party: Cambium Inc.

There have been ten Risk Management Plans (RMP) established across the Cataraqui area. Additionally, three have been renegotiated: two resulting from change of property ownership and one equipment upgrade. Work to negotiate the estimated 53 remaining parcels of land where significant drinking water threats were identified, one in the City of Kingston and the others in the Township of Leeds and the Thousand Islands remains ongoing.

In 2019, the Township followed an action plan to conduct drinking water threat verification work and contact property owners. Efforts to establish risk management plans were slowed by the COVID-19 pandemic in 2020. Of the 19 properties that the Township's risk management official previously identified as requiring risk management plans, five took action to no longer be a threat, two risk management plans have been established, and two other risk management plans are in the final stages of negotiation. There are another 40 properties that require threat verification. Work to resolve outstanding risk management plan requirements and drinking water threat verification will occur in 2021.

There were six inspections conducted in 2020, with two occurring in the Township of Leeds and the Thousand Islands, and four in the Township of Front of Yonge. To date, no orders, or notices have been carried out.

5. Provincial Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

Ontario ministries are reviewing provincial approvals (i.e., environmental compliance approvals), as indicated in the Plan, to address existing activities that may be a significant risk to drinking water sources. All reviews have a set timeline of 5 years to be completed with any necessary changes. Ontario ministries have completed review for 100% of previously issued approvals.

Within the Cataraqui area, 89% of all 64² policies for provincial implementation have been completed (See Table 3). This includes both binding and non-binding policies. Further, for binding policies, for which there are only 15, the provincial level of completion is 93% (see Table 4). For non-binding policies that address significant threats, 83% of the six policies have been fully implemented (See Table 5). Finally, for all other non-binding and have-regard-for policies that address moderate, low, and non-specified threats, the level of completion is 88% (See Table 6).

Table 3: Status of Ministry Implementation Efforts for all Binding and Non-binding Policies

Implementing Body	Policy Completion
Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)	82%
Ministry of Municipal Affairs and Housing (MMAH)	100%
Ministry of Government and Consumer Services (MGCS-TSSA)	0%
Ministry of Environment, Conservation and Parks (MECP)	97%
Ministry of Natural Resources and Forestry (MNRF)	100%
Ministry of Transportation (MTO)	71%

Table 4: Status of Ministry Implementation Efforts for Significant Binding Policies

Implementing Body	Policy Completion
Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)	83%
Ministry of Municipal Affairs and Housing (MMAH)	N/A
Ministry of Government and Consumer Services (MGCS-TSSA)	N/A
Ministry of Environment, Conservation and Parks (MECP)	100%
Ministry of Natural Resources and Forestry (MNRF)	N/A
Ministry of Transportation (MTO)	N/A

Table 5: Status of Ministry Implementation Efforts for Significant Non-binding

Implementing Body	Policy Completion
Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)	0%
Ministry of Municipal Affairs and Housing (MMAH)	100%
Ministry of Government and Consumer Services (MGCS-TSSA)	N/A
Ministry of Environment, Conservation and Parks (MECP)	100%
Ministry of Natural Resources and Forestry (MNRF)	N/A
Ministry of Transportation (MTO)	N/A

Table 6: Status of Ministry Implementation Efforts for Moderate/ Low and Non-specified threat policies

Implementing Body	Policy Completion
Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)	80%
Ministry of Municipal Affairs and Housing (MMAH)	100%

² The count of 64 policies is consistent with the Province's method of counting unique policies more than once when there are multiple implementing bodies for a single policy. The Cataraqui Source Protection Plan includes 42 unique policies from provincial ministries.

Ministry of Government and Consumer Services (MGCS-TSSA)	0%
Ministry of Environment, Conservation and Parks (MECP)	96%
Ministry of Natural Resources and Forestry (MNRF)	100%
Ministry of Transportation (MTO)	71%

6. Source Protection Awareness

P: Progressing Well/On Target

A total of 19 drinking water protection zone road signs were planned for installation at vulnerable areas with significant drinking water threat activities in the Cataraqui Source Protection Area; 17 for municipalities and two for the Province). Additionally, recommendations were made for the Province to erect ten more signs at intake protection zones areas where local transportation concerns were raised. See Table 7 below for more information.

As of 2020, 15 municipally installed signs identify vulnerable areas with vulnerability scores of eight or greater. This includes 14 originally planned and one additional. Further, four Provincially installed signs (two that were required at the Cana Wellhead Protection Area and two others that were recommended along Highway 33) have been installed. It is not anticipated that the other eight recommended signs will be installed. Once additional work to place signs at the Miller Manor Wellhead Protection Area is completed, all source protection road sign requirements will be fulfilled.

Table 7: Road Sign Installations in the Cataraqui Source Protection Area

Timeframe	Provincial Signs	Municipal Signs	Other Locations	Signs to be Installed
2015-2020	2	14	3	3

There is greater confidence since the Plan took effect that septic systems are being operated properly within the related significant drinking water threat areas. Also, fuel storage (e.g., home heating oil) is being better managed compared to prior to risk management plan negotiations. Across the watershed, many landowners are transitioning to propane.

Source Protection Committee members have noted an enhanced recognition of the importance to protect source waters, especially within the rural community. A source protection video was produced and is shared widely. Follow this link to view the video:

<http://cleanwatercataraqui.ca/resources/living-in-the-cspa/>.



Figure 4: Drinking Water Source Protection road sign

Any change in behaviour will take time to properly monitor across the Cataraqui area. Social media is one way to track ongoing conversations and will be a tool used to continue engagement in 2021. Source Protection Committee members and municipalities will be supported by the Cataraqui Source Protection Authority as ambassadors to continued communication and source protection advocacy within the watershed.

Table 8: Implementation and Program Resources

Material	Target Audience
Guidance Documents	Municipalities
Groundwater Vulnerability Assessment Guideline	Land use planning authorities, development proponents, and consultants
Media Publications	Residents, landowners, business owners
Website Updates, Conservation Ontario Communications Material, and Fact Sheets	Residents, landowners, business owners, municipalities, real estate agents , and others
Groundwater Protection Plan	Implementing bodies and adjacent areas, landowners with wells and septic systems
Water Festival Engagement	Elementary school students
Risk Management Flyers and Fact Sheets	Landowners in vulnerable areas
Municipal Mural	Town of Gananoque residents and visitors
Municipal Working Group Meetings	Municipalities
DWSP Banners and Local Videos	Municipalities and other implementing bodies, lake associations, and local groups

Source protection awareness is an ongoing effort to engage municipalities, other implementing bodies, and residents living in this highly vulnerable aquifer. Some of the targeted educational and outreach activities that have been accomplished since the Plan came into effect include the following (see Table 8).

7. Source Water Quality: Monitoring and Actions

P: Progressing Well/On Target

The table below is a list of the drinking water systems in the Cataraqui area with identified drinking water issues in raw water (untreated) testing, as reported in the Cataraqui Region Assessment Report (2011) compared to results provided by water treatment plant operators in 2020 (Table 9).

Table 9: Raw Water Quality Parameters of Concern

Location	Parameter of Concern (2011)	Parameter of Concern (2020)
Brockville	<i>Escherichia coli</i> (<i>E. coli</i>)	None – bacteria closely monitored
Fairfield at Amherstview	Total coliform	No change in concentration
Bath	Organic nitrogen and <i>E.coli</i>	No change in concentration
Cana (well supply)	Sodium, chloride, total coliform, and <i>E. coli</i>	No longer monitoring as issues have improved
Lansdowne (well supply)	<i>E. coli</i> and total coliform	No longer monitoring as issues have improved
Miller Manor (well supply)	Sodium, chloride, nitrate, <i>E.coli</i> , and total coliform	No longer monitoring as issues have improved

Water samples are collected to produce Drinking Water System Reports, as per the Ontario Regulation 170/03 made pursuant to the *Safe Drinking Water Act*. This includes the collection of raw water samples.

For the above locations, drinking water treatment plant operators reported that no issues were identified in 2020 for the raw water quality.

It should be noted that there are concerns with sedimentation at the Bath drinking water intake, particularly during significant precipitation or spring melt events. The municipality has made changes at the treatment plant to more easily treat the water when sediment levels are high. In addition, efforts are being made to cooperate with watershed property owners to identify options to mitigate sedimentation.



Figure 5: Drinking water sample testing

In support of Source Protection Plan policy 4.2.2-NB, the Cataraqui Source Protection Authority should meet with drinking water treatment operators to discuss whether there are any gaps in the raw water testing parameters in relation to activities that could impact source water quality.

No Issues Contributing Areas (ICA) have been delineated.

8. Source Protection Plan Policies: Summary of Delays

There are a few areas where policies have been delayed in implementation and progress which is now out of compliance with the dates listed in the Plan. Below is a summary of those policies, a rationale for the delay, and proposed future actions that will be ongoing to ensure implementation is initiated.

a) Compliance with non-binding policies

- Municipalities have indicated policies that have not been addressed due to staffing pressures and prioritizing projects with higher risk factors
- Municipal representatives will work with Cataraqui Conservation staff to more fully discuss implementation challenges to either set work plans or to identify rationale for any decisions to not complete a policy.

b) Risk Management Services

- Fifty-nine existing significant drinking water threats require assessment and appropriate risk management
- The majority of the remaining activities are within the Lansdowne Wellhead Protection Area. The Risk Management Official and municipal staff are working to implement the action plan municipal staff developed with work to be completed in 2021.

Table 10: Existing Significant Drinking Water Threats

Prescribed threat	Number Remaining	Rationale for Delay	Future Actions
Handling and storage of fuel	18	Landowner negotiations and municipal staffing changes	Two RMPs are out for signature. Ongoing efforts for threat verification and establishment of Risk Management Plans
Transportation corridors	18	Lack of policy and guidance.	Developing a local risk management policy as part of the source protection plan updates is ongoing.
Sewage system maintenance	1	Municipal staffing changes and reduced implementation efforts due re-training and knowledge transfer.	Outstanding sewage maintenance may not have on-site system for inspection. Have requested municipal confirmation. Two education and outreach packages to be developed. Work with responsible Township and Risk Management Officials to develop a plan to address the threats.
Application of agricultural source material	5		
Storage of agricultural source material	3		
Application of commercial fertilizer	4		
Application of pesticide	5		
Handling and storage of DNAPLs ³	2		
Use of land by livestock	3		

³ DNAPLs – Dense Non-Aqueous Phase Liquids

9. Science-based Assessment Reports: Work Plans

No work plans were required to be implemented for the Cataraqui Source Protection Area Assessment Report.

More from the Cataraqui Source Protection Area

Each year the Cataraqui Source Protection Committee hosts an annual source protection workshop where the local source protection community comes together for a day of sharing and learning.

To learn more about the Cataraqui Source Protection Area and receive updates on ongoing projects and other initiatives, visit us at <http://cleanwatercataraqui.ca/>.