

Niagara Peninsula Source Protection Area  
Section 36 Workplan Proposal  
Final Report

Prepared for the  
Ministry of the Environment and Climate Change

Prepared by



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## **Executive Summary**

The Minister of the Environment and Climate Change (MOECC) issued a Section 36 order to the Niagara Peninsula Source Protection Authority to prepare a workplan to update the Niagara Peninsula Source Protection Plan for submission to the MOECC no later than November 30, 2017. The report is intended to document NPCA's plan to update the existing Assessment Report and Source Protection Plan by 2020.

This report documents NPCA's plan to update the Assessment Report and Source Protection Plan by 2020. The update will represent current and planned future conditions, improve protection of municipal supplies, and protect groundwater supplies and users. Every effort has been made to consider cost and workload implications on the various parties involved in Source Water Protection. However, while not explicitly mentioned, NPCA recommends that at least current staffing levels are maintained at the Source Protection Programs Branch to support implementation of this workplan.

As this is one of the first three Section 36 workplan proposals submitted to the MOECC, NPCA recognizes the procedure for approval is not yet firmly defined. NPCA looks forward to and welcome future discussions with Source Protection Programs Branch on its implementation Spring 2018. NPCA, like the MOECC, want to continue to make the Source Water Protection Program an Ontario success story that is standard for other jurisdictions to reach for.

NPCA identified three goals for the Source Protection Plan update in pursuit of "*continuous improvement of the source protection technical framework*" (MOECC, 2017a):

- (i) Required Updates (Section 2),
- (ii) Improving municipal supply protection (Section 3); and
- (iii) Groundwater protection (Section 4).

Objectives for each goal were identified using the MOECC provided review factors and are summarized below.

Acknowledgements and thanks are extended to our internal reviewers, Source Protection Committee, our municipal partners, the Niagara Peninsula Source Protection Authority Board and the MOECC staff who assisted in preparing this workplan proposal.

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REQUIRED UPDATES (Section 2)			
Water Treatment Plant	MOECC Review factors (Section 1.1.1)		Studies to MOECC
Niagara Falls, DeCew Falls	Growth & Infrastructure Changes		2019
Rosehill		Technical Rule Changes	

IMPROVING MUNICIPAL SUPPLY PROTECTION (Section 3)			
Water Treatment Plant	MOECC Review factors (Section 1.1.1)		Studies to MOECC
Port Colborne	Technical Rule changes		2019
Oil Pipeline (Niagara Falls & DeCew Falls)		Local considerations	
Transportation Threats (all Plants)			
Great Lakes Water Quality Protection & Climate Change (all)	Environmental Monitoring Programs		2020
Port Colborne, DeCew Falls, Niagara Falls, Welland	Policy Effectiveness	Implementation Challenges	2019

GROUNDWATER PROTECTION (Section 4)				
Groundwater Protection	MOECC Review factors (Section 1.1.1)			Studies to MOECC
Hydrogeologically Sensitive Areas	Environmental monitoring programs	Local considerations	Growth & Infrastructure changes	2020
Naturally occurring groundwater concerns				
Gas wells				

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## **1. INTRODUCTION**

The Minister of the Environment and Climate Change has issued a Section 36 order to the Niagara Peninsula Source Protection Authority (NPSPA) (Appendix A). This order requires preparation of a workplan to update the Niagara Peninsula Source Protection Plan (SPP) with submission of the workplan no later than November 30, 2017.

The Niagara Peninsula Source Protection Authority strongly supports the Minister's objective of wanting to continue *"to work with you and all stakeholders to protect drinking water"* (Appendix A). The NPSPA looks forward to continuing our partnership with the Ministry of Environment and Climate Change (MOECC) Source Protection Programs Branch to improve source water protection by addressing current Plan limitations and leveraging available opportunities.

The Niagara Peninsula Source Protection Area includes fifteen municipalities (Figure 1). The single tier municipalities are the City of Hamilton and Haldimand County, while Niagara Region is an upper tier municipality. The lower tier municipalities are City of Niagara Falls, City of Port Colborne, City of Thorold, City of St. Catharines, City of Welland, Town of Fort Erie, Town of Grimsby, Town of Lincoln, Town of Niagara-on-the-Lake, Town of Pelham, Township of Wainfleet and Township of West Lincoln.

Within the NPSPA six municipal water treatment plants are operated by Niagara Region: DeCew Falls, Grimsby, Niagara Falls, Port Colborne, Rosehill (Fort Erie) and Welland (Figure 1). Each of these water treatment plants has a single intake except DeCew Falls which has three and Niagara Falls which will soon have a temporary intake which will be further described in Section 2.1. The City of Hamilton and Haldimand do not have municipal water treatment plants in the Niagara Peninsula Source Protection Area.

### **1.1 BACKGROUND**

It is an appropriate time to update the Source Protection Plan because implementation is nearly complete. As the NPSPA 2017 Source Protection Annual Progress Report has stated:

*"Early source protection plan implementers have generally met their timelines. The remaining implementers appear on track to meet their October 2017 deadlines". (NPCA, 2017)*

The NPSPA has identified three goals for the source protection plan update in pursuit of *"continuous improvement of the source protection technical framework"* (MOECC, 2017a):

- (i) Required Updates (Section 2),

- (ii) Improving municipal supply protection (Section 3); and
- (iii) Groundwater protection (Section 4).

These goals summarize the update objectives identified through NPCA's 2017 consultation process with stakeholders on this workplan. The specific objectives of this update workplan (described in Sections 2, 3 and 4) were derived using MOECC's factors for assessment (Section 1.1.1) and it has been determined that these objectives are to update "*portions of the assessment report and plan that warrant further review*" (MOECC, 2016).

### **1.1.1 Workplan development process**

The NPSPA has followed the guidance contained in the MOECC Bulletin on Section 36 updates (December 2016, Appendix B) in development of the workplan. Excepts include:

- 1) "...updates are intended to build in new information that advances understanding of risks to sources of drinking water and incorporates local growth "
- 2) "...the source protection planning process ensures that affected and interested parties have opportunities to contribute to the preparation of amendments to source protection plans and assessment reports." (MOECC, 2016)

The NPSPA has considered the factors recommended by the MOECC (Appendix B) to guide the extent of our review:

- a) Results of environmental monitoring programs;
- b) Growth and infrastructure changes;
- c) Council resolutions;
- d) Policy effectiveness;
- e) Implementation challenges;
- f) Technical rule changes; and
- g) Other local considerations.

The NPSPA acknowledges and appreciates the province's financial support in providing cyclical capacity funding (April 2017 to March 2018) for preparation of this workplan.

### **1.1.2 Workplan consultation**

Consultation on the workplan was conducted in a variety of forms. This included presentations, reports, workshops, in-person meetings, and phone calls. Milestones have included:

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- March 2017: Formal stakeholder consultation began with a report to the Source Protection Committee (SPC) on the Section 36 workplan process.
- Spring 2017: Consultation (phone calls/e-mails) with MOECC on workplan content
- June 2017: The SPC reviewed a listing of identified Source Protection Plan issues, challenges and limitations. This was in preparation of the June workshops to consult with the larger stakeholder audience. Workshop materials were further revised following this meeting.
- June 21, 2017: Two stakeholder consultation workshops were held. The purpose of the workshops was to:
  1. Present an analysis of the Source Protection Plan limitations;
  2. Recommend areas of the Source Protection Plan to be updated; and
  3. Obtain feedback and comments regarding the proposed Source Protection Plan updates.

Invitations were sent to over a hundred targeted stakeholders including fifteen local municipalities (clerk, public works staff, planning staff, and fire chiefs directly impacted by the existing SPP), the SPC, the MOECC, Ontario Power Generation, CN Rail, Ontario Federation of Agriculture, St. Lawrence Seaway Management Corporation, the Niagara Peninsula Source Protection Authority Board, and NPCA's Community Liaison Advisory Committee. In addition to the stakeholder letters, an advertisement was placed in local newspapers inviting the public to attend (Appendix C).

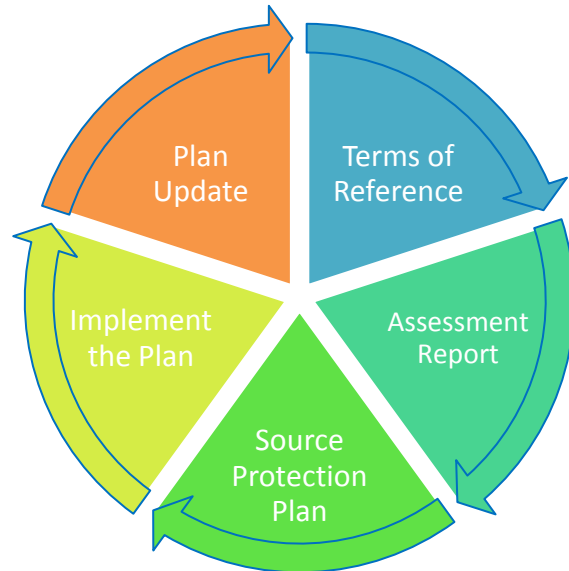
The two-hour workshops were structured with two similar sessions, one in the afternoon and one in the evening, to accommodate as many attendees as possible and was facilitated by an external consultant, LURA. Workshop attendees included eighteen stakeholder groups. A summary report of the workshop comments was prepared and is included in this report (Appendix C). The workshop materials were then posted on the Niagara Peninsula Source Protection Authority web-site (<http://www.sourceprotection-niagara.ca/plan-update/june-21st-2017-workshop/>) for those unable to attend. Some individual communications complimenting the workshops were conducted for stakeholders unable to attend, e.g. presentation to the Area Planners Group of Niagara's thirteen municipalities.

- August 30, 2017: Draft Section 36 workplan proposal circulated to stakeholders (listed above) digitally.
- September 19, 2017: Source Protection Committee meeting held to discuss draft report and receive committee comments.
- October 3<sup>rd</sup>, 2017: Deadline for draft report comments (extended by external request from September 22<sup>nd</sup>). Comments received on the draft are located in Appendix D, with Source Protection Authority responses to comments.

### 1.1.3 Workplan tasks

Two categories of workplan tasks have been recommended:

1. Assessment Report updates, with the possibility that the Source Protection Plan would then also require revision.
  - a. Where research and analysis has been completed by others and the existing information can be brought directly into the Assessment Report, or.
  - b. Where new source protection analyses are required.
2. Source Protection Plan updates, where no new information is required to be added to the Assessment Report.



No municipalities have passed council resolutions to add systems to the Terms of Reference.

Where amendments to the Source Protection Plan policies are required, it is proposed a similar process be followed as described in the Explanatory Document for the original Source Protection Plan (NPCA, 2013c). The process included items such as:

- A Source Protection Planning Working Group (SPPWG) made up of SPC members and NPCA, Niagara Region and MOECC staff;
  - In this case staff involvement from the City of Hamilton and Haldimand County would also be sought with respect to groundwater protection.
- Guiding values: applicable, comprehensive, reasonable, acceptable, effective, timely, cost effective and implementable; and
- Background documents for drinking water threats to be addressed in the Source Protection Plan.

Stakeholder consultation on proposed changes, to the Source Protection Plan or Assessment Report, would be proposed to follow the consultation process as described in the Explanatory Document for the original Source Protection Plan (NPCA, 2013c). This is an item for which funding would be sought from the MOECC.

While other processes are also available we, and our stakeholders, recommend the Section 36 workplan update be as broad as possible, e.g. a single Assessment Report public consultation period rather than a series of Section 34 updates and similarly for a single public consultation on updating the Source Protection Plan.

## **2. REQUIRED UPDATES**

These updates are required to reflect changes to the landscape since the Assessment Report and Source Protection Plan were completed, or to reflect changes soon to be made. These updates are expected to change the location or extent of intake protection zones, vulnerability scores, number of significant drinking water threats and the properties affected.

### **2.1 NIAGARA FALLS WATER TREATMENT PLANT**

Niagara Region will be establishing a temporary intake in the Niagara River to supply the Niagara Falls water treatment plant, rather than drawing from the Welland River, due to Ontario Power Generation maintenance work (Figure 2). It should be noted at the existing intake location the Welland River currently flows backwards supplying water from the Niagara River. The temporary intake is expected to be used for two periods of six months starting in 2020 as flows will be reversed. The intake meets the definition of planned under the Clean Water Act (General Regulation 287/07) given this was the class environmental assessment preferred solution (Hatch Mott MacDonald, 2008). The temporary intake will avoid the temporary case of poorer quality Welland River water when Ontario Power Generation reverses flow in the Welland River. This reversal of flow will occur during closure of the hydro canal during maintenance (Niagara Region, 2017).

The current Niagara Falls intake protection zone 1 (IPZ-1) has a vulnerability score of 8, with some significant chemical and pathogen threat Source Protection Plan policies. However the intake protection zones for the temporary intake will be different than currently mapped in the Assessment Report (NPCA, 2013a). This change would need to be reflected in the Assessment Report and Source Protection Plan.

It is recommended that the Assessment Report be amended to include the temporary intake in the Niagara River. This work would include assignment of the intake vulnerability score, intake protection zone mapping and identification of threats. If new significant threats are identified in the Assessment Report, an amendment to the Source Protection Plan would be recommended.

The existing mapped IPZ-2 would also not be correct for the temporary intake as Welland River water would now be entering the Niagara River a little over 1 kilometre upstream of the temporary intake. However, the temporary intake has been sited to avoid a modelled maximum turbidity plume from the Welland River. It is recommended the SPC consider the information that will be provided by Niagara Region and make a recommendation of the need to re-consider the IPZ-2.

It is also recommended an evaluation of risks to this water treatment plant from an upstream oil pipeline risk be completed as discussed in Section 3.2.

## **2.2 DECEW FALLS WATER TREATMENT PLANT**

The physical setting at the DeCew Falls water treatment plant has changed since completion of the Updated Assessment Report (NPCA, 2013a). These changes, and further proposed changes (Niagara Region, 2013), should be reflected in intake protection zone mapping for the water treatment plant before completed in 2021. The future changes meet the definition of planned under the Clean Water Act (General Regulation 287/07) given these were the Class Environmental Assessment preferred solutions (Hatch Mott MacDonald, 2013). The updated intake protection zone mapping is expected to reduce the extent of significant threats and associated policies on private lands. For example, a berm has been constructed between the middle reservoir and the diversion channel (Figure 3) and portions of the water supply canal have been encapsulated into pipes. By 2021, the water supply canal will be piped and the Lake Gibson alternate intake will be moved (Figure 4).

The three current DeCew Falls IPZ-1s have a vulnerability scores of 8, with some significant chemical and pathogen threat Source Protection Plan policies. However the extent of these IPZ-1s are, and will, be different than currently mapped in the Assessment Report (NPCA, 2013a). It is recommended that the Assessment Report be amended to reflect the changes to the IPZ-1s. The amendments would include revised intake protection zones and identification of threats. This will affect the Schedules (mapping) of the Source Protection Plan and potentially also its policies.

It is also recommended that an evaluation of risks to this water treatment plant from an upstream oil pipeline risk be completed as discussed in Section 3.2.

## **2.3 ROSEHILL WATER TREATMENT PLANT**

The water supply for the Rosehill water treatment plant comes from Lake Erie and is classified as a Type A intake (Figure 5).

- The intake is currently 450 m from shore and 2.7 m deep. However, Niagara Region is planning on extending the intake further into Lake Erie where the water depth will be greater (Personal communication John Brunet, Niagara Region). The Class Environmental Assessment for this project is scheduled for 2019.
- The Assessment Report Technical Rules previously allowed a maximum source vulnerability factor of 0.7. This maximum value was assigned to the Rosehill intake. However the Technical Rules have changed and now allow for a maximum source vulnerability factor of 1 (MOECC, 2017) which may be more appropriate.

It is recommended the surface water intake protection zones (IPZ-1 and IPZ-2), vulnerability scores and threats assessment be evaluated for the new intake location and using the updated Technical Rules. Collection of additional Lake Erie flow current information at the new intake is also highly recommended as the previous IPZ-2 modelling was classified as having “High Uncertainty” (NPCA, 2013a)

## **2.4 PROJECT MANAGEMENT**

Using provincial funding, Niagara Region completed their municipal intake source water protection technical studies in 2010. Additional provincial funding was used by NPCA to complete event-based modelling of Welland Canal diesel spills in 2012.

The Municipal Class Environmental Assessment was amended in 2015 to include Section A.2.10.6 concerning the Clean Water Act. Within Section A.2.10.6 is a paragraph titled “Projects that create new or amended vulnerable areas” which states:

*“For any projects that alter or result in new vulnerable areas, the vulnerable areas will have to be incorporated into updated Source Protection Plans/Assessment Reports...it is recommended that the technical work required by the CWA (Clean Water Act) to identify the vulnerable areas and potential drinking water threats be undertaken concurrently with the Municipal Class EA process.”*

Niagara Region’s future municipal Class Environmental Assessment for the Rosehill water treatment plant intake will consider Source Water Protection and Intake Protection Zone revisions in 2019 (with construction in 2021). However, the Class Environmental Assessments for the Niagara Falls temporary intake and DeCew Falls raw water alternatives have already been completed (Hatch Mott MacDonald, 2008 and Hatch Mott MacDonald, 2013). These completed studies did not include re-mapping of intake protection zones. The Niagara Falls temporary intake is expected to begin construction in 2018 with an anticipated 2019 completion. The Niagara Falls construction contract will include re-mapping of the intake protection zones and a threats assessment completed by Niagara Region. The detailed design for the DeCew Falls work is expected to be completed in 2019 with construction expected in 2020/2021. The DeCew Falls detailed design completed by Niagara Region will include re-mapping of the intake protection zones and a threats assessment.

### **2.4.1 MOECC Support**

The NPSPA appreciates the continued capacity funding provided to have NPCA implement the Source Water Protection Program locally. It is recommended that this NPSPA funding include workplan provisions to assist Niagara Region and the Source Protection Committee (SPC) with revisions to the Assessment Report and Source Protection Plan as noted above. This includes SPC and Source Protection Plan Working Group coordination and funding.

The three “Required Updates” objectives were identified using the MOECC review factors introduced in Section 1.1.1 (Table 1) and require updating the Assessment Report followed by revisions to the Source Protection Plan.



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Table 1 – Required Updates Review Factors

<b>Water Treatment Plant</b>	<b>MOECC Review factors (Section 1.1.1)</b>		<b>Studies to MOECC</b>
Niagara Falls	Growth & Infrastructure Changes		2019
DeCew Falls			
Rosehill		Technical Rule Changes	

### **3. IMPROVING MUNICIPAL SUPPLY PROTECTION**

The NPSPA recommends a number of objectives be adopted in the Section 36 workplan to improve protection of Niagara's municipal supplies. This is a strong recommendation of our stakeholders, and the NPSPA, to further improve Source Water Protection by addressing limitations of the current Plan. The current Plan was unable to consider the recent changes to the Assessment Report Technical Rules (MOECC, 2017b) (Section 3.1), the location of an oil pipeline upstream of two of our water treatment plants (Section 3.2), additional transportation threats (Section 3.3), protection of Great Lakes water quality (Section 3.4) or climate change (Section 3.5). In addition, since implementing the Plan, areas have been identified for improvement of the existing Plan policies (Section 3.6).

The NPSPA considers these proposed objectives for improving municipal supply reasonable and implementable, and well within the scope of a Source Protection Plan. In addition, these proposed works align well with the recent Mature Source Protection Program Vision and core principles shared in October 2017 (Appendix E). From the vision and principles, with respect to Ontario's communities:

*“Remaining confident in the quality and long-term sustainability of their drinking water.*

*Taking appropriate and timely actions to ensure their drinking water systems remain protected; and*

*Actions outside CWA framework to protect drinking water are encouraged and supported.*

#### **3.1 PORT COLBORNE WATER TREATMENT PLANT**

The water supply for the Port Colborne water treatment plant comes from a Great Lakes Connecting channel (the Welland Canal) and is classified as a Type B intake (Figure 6). The Assessment Report Technical Rules previously allowed a maximum source vulnerability factor of 0.9. This maximum value was assigned to the Port Colborne intake. However the Technical Rules have changed and now allow for a maximum source vulnerability factor of 1 (MOECC, 2017b) which is likely the most appropriate given the intake's shallow depth and shoreline location.

It is recommended the source vulnerability factor be re-evaluated for the Port Colborne intake. If the SPC supports a value of 1 as more appropriate than 0.9, this should be reflected in the Assessment Report. A re-evaluation of the threats in the IPZ-1 and IPZ-2 would then be required as their vulnerability scores would change from 9.0 and 8.1 to 10 and 9, respectively. It is believed this work could be completed by the Source Protection Authority staff. Source Protection Plan policies would then require amending to address preventing future significant threats as well as some potential existing threats.

It is our understanding additional changes to the Assessment Report Technical Rules may be forthcoming. These changes once received should be reviewed by Source Protection

Authority and provided to the SPC for identification of any additional objectives for consideration under improving municipal supply protection.

### **3.2 OIL PIPELINE EVALUTION**

Enbridge Inc. operates Line 10, a 12 to 20 inch diameter crude oil pipeline in the Niagara Peninsula Source Protection Area. This pipeline transports 74,000 barrels a day of light, medium and heavy crude. The pipeline crosses the Niagara River and the Welland Canal (Figure 7) upstream of the Niagara Falls and DeCew Falls water treatment plants, respectively.

It is recommended the Assessment Report be amended to include mapping of the Enbridge Pipeline but no modelling be initiated. Instead of modelling, it is first recommended an evaluation of available policy options be completed by the Source Protection Authority for the Source Protection Planning Working Group and the Source Protection Committee. This evaluation would consider current Enbridge spill response policies and existing policy tools available under the Clean Water Act. If significant threat tools are determined to be needed, application could then be made to evaluate spill effects by modelling.

### **3.3 TRANSPORTATION THREATS**

Transportation (corridor) threats were added as local non-prescribed threats to the Assessment Report (NPCA, 2013a). The MOECC identified transportation of agricultural and non-agricultural source material as significant drinking water threats. The transportation of diesel and gasoline were also added to the Assessment Report by way of event-based modelling. A number of policies were included in the Source Protection Plan to address these threats (NPCA, 2013b).

However, key stakeholders have expressed concern existing Source Protection Plan policies are insufficient to address diesel and gasoline threats as well as the need to address transportation of hazardous materials not currently ranked as significant drinking water threats.

It is recommended an evaluation be completed of available policy options by the Source Protection Authority for the Source Protection Planning Working Group and the Source Protection Committee. This evaluation would consider policy tools available under the Clean Water Act and be in the spirit of “continuous improvement” as mentioned in the Mature Source Protection Program core principles.

### **3.4 GREAT LAKES WATER QUALITY PROTECTION**

NPCA believes the Niagara Peninsula Source Protection Plan should have a role to play in protecting and improving Great Lakes water quality with the intent of safeguarding drinking water supplies. We advocate doing so through an update to the Assessment Report evaluating chloride, phosphorus and algae water quality concerns (NPCA, 2013a) as drinking water issues using new information available from Niagara Region. With the potential to consider policy options for our Source Protection Plan. The evaluation of

policy options would then be completed using the Source Protection Plan Working Group as these concerns have already been identified in the Assessment Report (see Section 3.3.1). Proposed policies could then be proposed for adoption in the Source Protection Plan.

The timing to address these concerns under the Section 36 update appears favourable to complement the February 2018 release of the Canada-Ontario Action Plan on Phosphorus Reduction in Lake Erie (<http://www.letstalklakeerie.ca/>) to meet the 40% phosphorus reduction target. This appears a relevant approach as referenced by the province in its 12-point plan on blue green algal blooms (<https://www.ontario.ca/page/blue-green-algae>):

*“Local source protection plans use different strategies depending on the risk of algal blooms near drinking water intakes. Plans may manage activities like storage and handling of manure and maintenance of sewage systems, including septic systems, which may contribute nutrients and encourage algal blooms. Other plans encourage more research into the causes of the blooms, increased monitoring and providing information to watershed residents about actions they can take to reduce nutrient run-off.”*

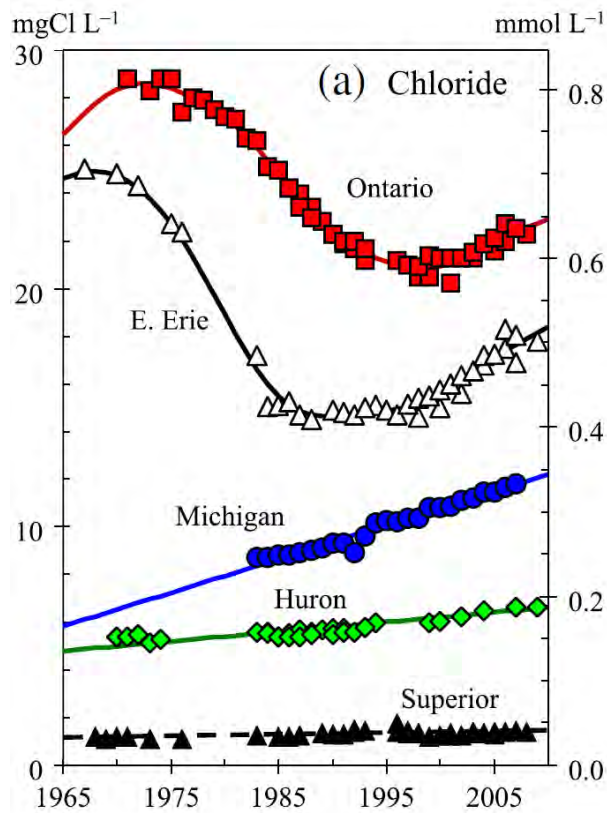
### **3.4.1 Background**

The Niagara Peninsula Assessment Report (NPCA, 2013a) has previously noted “...general observations of the source water quality include: ...

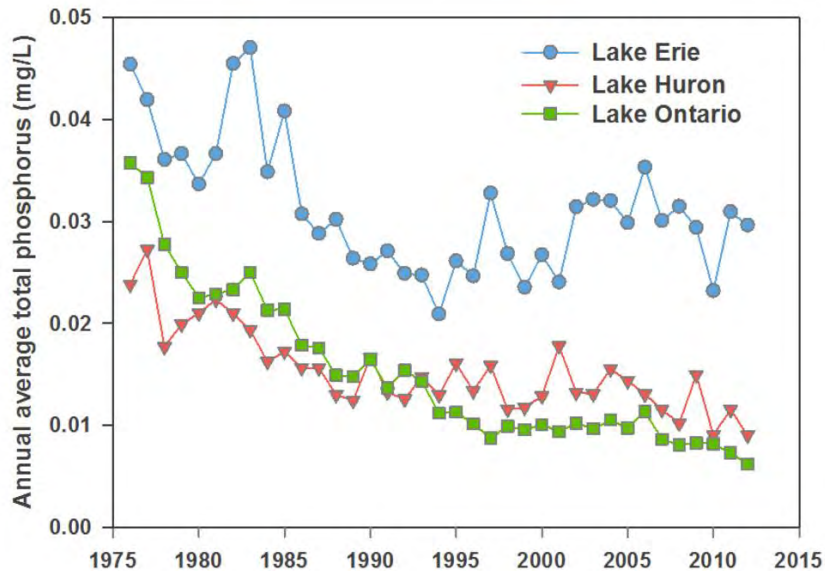
- *Overall increasing trends in chloride in both Lake Erie and Lake Ontario...*
- *Phosphorus concentrations generally exceeded Provincial Water Quality Objectives for the Great Lakes. These objectives are for control of algae which can be a source of toxins.”*

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These trends have been noted by others:



*“Starting in the early 1970s, first Lake Erie and then Lake Ontario showed dramatic decreases in chloride and sodium concentrations. However, they are now increasing again, albeit at a somewhat slower rate.” (Chapra et al, 2012)*



*“In Lake Erie, levels of phosphorus... have increased in recent years, particularly in the western basin where large blooms of potentially toxic cyanobacteria have correspondingly re-occurred.” (MOECC, 2014)*

*“These observations indicate further efforts are needed to reduce nutrient loading to the Great Lakes... Under the binational Great Lakes Water Quality Agreement (GLWQA) process, scientists on both sides of the Canada-U.S. border concluded that to control*

*nuisance and harmful algal blooms in Lake Erie, the best approach is to reduce the amount of phosphorus entering the lake. Subsequently, Canada and the U.S. have formally adopted binational phosphorus loading reduction targets of 40 percent to improve Lake Erie water quality. Ontario is actively working with Canada through the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014 (COA) to establish by 2018 a Lake Erie Domestic Action Plan for meeting the binational targets which apply to Ontario's portion of Lake Erie.” (MOECC, 2014)*

*“...scientists have observed increases in the extent of nuisance algae growing on the lakebed, particularly in eastern Lake Erie and western Lake Ontario. When these algae detach and accumulate along the coast they decompose and foul beaches and shorelines (where not only municipal but communal and private intakes are located)...Scientists are concerned that as the climate changes, earlier winter thaws, increased spring stream flows, and more intense rainfall events may wash more nutrients into the Great lakes. These, combined with longer warm water periods, have the potential to increase the amount of unwanted algae.” (MOECC, 2016b)*

### **3.5 CLIMATE CHANGE**

*“A number of climate changes have also been projected... an increase in intensity and frequency of extreme events (heat waves, drought, intense precipitation).” (NPCA, 2013a)*

There is lack of understanding if municipal intake water quality is vulnerable to climate change from degraded water quality under storm event conditions. Collection of current baseline conditions under various storm events is recommended at the Port Colborne and Rosehill water treatment plants as the water treatment plant operators have noted raw turbidity increases during storm events. It is believed that the Niagara Region laboratory will be able to provide sufficient parameters for initial study of results. In addition, the MOECC may be interested in collaborating on designing and reporting on this initiative.

This initiative will involve collaboration between Niagara Region and the Source Protection Authority. Study results would be provided to the SPC for consideration. The results of these investigations can then be included in the Assessment Report and inform any policies recommended for the Source Protection Plan. This initiative supports the MOECC interest in ensuring “consideration of climate change mitigation and adaptation (resilience) is embedded into every decision and action.”.

Stakeholders have also requested consideration of the impact of changing Great Lakes water levels on municipal supplies. A summary of this issue could accompany the above report for consideration by the SPC.

### **3.6 POLICY IMPROVEMENT**

Source Protection Plan implementers have recommended reconsidering some existing Plan policies. This review would consider adjusting policies towards improved applicability, reasonableness and implementability. It is recommended the Source

Protection Plan Working Group be re-established and policy implementer input be considered to improve existing Source Protection Plan policies. Re-establishment of the Source Protection Plan Working Group would require re-establishment of this financial commitment from the MOECC to involve the SPC.

An example of policies to be reviewed include education and outreach policy PC-19 shown below, and NF-4 (which has the same wording but applies to the Niagara Falls Intake Protection Zone 1).

*“In consideration of existing or future significant threats related to stormwater discharges within the Port Colborne IPZ-1 or IPZ-2, an Outreach and Education program shall be established by the Niagara Peninsula Conservation Authority (NPCA) that promotes good stewardship of water resources and stormwater management systems. The Outreach and Education program should target local industries and residents located within the Port Colborne IPZ-1 and IPZ-2. This Outreach and Education program may be implemented by NPCA in combination with other Outreach and Education programs at its discretion.” (NPCA, 2013b)*

Implementers have asked how to measure implementation success of such policies and if implementation of these policies has an end date or a minimum required level of effort? These questions are proposed to be clarified.

### **3.7 PROJECT MANAGEMENT**

The two categories of proposed objectives for improvement of municipal supply protection in the Niagara Peninsula are:

- (a) technical studies completed by the SPA source water protection staff for consideration by the SPC (Sections 3.1 and 3.4). These may be included in the Assessment Report and inform policies in the Source Protection Plan after consideration by the Source Protection Plan Working Group and SPC; and
- (b) policy review with the Source Protection Plan Working Group and SPC (Sections 3.2, 3.3 and 3.5). Policies may then be recommended for the Source Protection Plan.

#### **3.7.1 MOECC Support**

It is believed current MOECC capacity funding levels will need to be maintained for Source Protection Authority staffing and the SPC to pursue these objectives. However, additional funding to support SPC involvement in the Source Protection Plan Working Group is required. It is proposed most items could be pursued in the 2018-2019 workplan to address improving municipal supply protection while the Required Updates (Section 2.0) technical studies are being completed by Niagara Region at the same time. The objectives were identified using the MOECC review factors introduced in Section 1.1.1 (Table 2):

*Niagara Peninsula Source Protection Area  
Section 36 Workplan Proposal  
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Table 2 – Improving Municipal Supply Protection Review Factors

Water Treatment Plant	MOECC Review factors (Section 1.1.1)		Studies to MOECC
Port Colborne	Technical Rule changes		2019
Oil Pipeline (Niagara Falls and DeCew Falls)		Local considerations	
Transportation Threats (all Plants)			
Great Lakes Water Quality Protection & Climate Change (all Plants)	Results of Environmental Monitoring Programs		2020
Port Colborne	Policy Effectiveness	Implementation Challenges	2019
DeCew Falls			
Niagara Falls			
Welland			



## **4. GROUNDWATER PROTECTION**

The Assessment Report (NPCA, 2013a) estimated that in 2006, over 77,000 persons obtained their water supplies from a well or cistern in the Niagara Peninsula Source Protection Area. While the number of cisterns versus wells is not known, the NPCA Groundwater Study estimated most of the rural population uses private wells for domestic water use (WHI, 2005).

Groundwater protection in the Niagara Peninsula Source Protection Area has been greatly helped since Highly Vulnerable Aquifers were mapped by the Source Water Protection program (NPCA, 2009). Since then the NPSPA has identified priority objectives to address compliance with the Provincial Policy Statement (MMAH, 2014) such as Sections 1.6.6.1 and 1.6.6.4 (shown below),

*“Planning and sewage and water services shall:*

*b) ensure that these systems are provided in a manner that:*

- 1. can be sustained by the water resources upon which such services rely;*
- 2. is feasible, financial viable and complies with all regulatory requirements; and*
- 3. protects human health and the natural environment.”*

*“...individual on-site sewage services and individual on-site water services may be used provided that site conditions are suitable for the long-term provision of such services with no negative impacts.”*

In an effort to ensure current and future rural residents enjoy similar protection to that provided to residents on municipal servicing, three issues requiring addressing include hydrogeologically sensitive areas, naturally occurring groundwater concerns, and gas wells. In addition, addressing these issues can assist the MOECC in responding to the 2014 Auditor General Recommendation 5 (see Sections 4.2 and 4.3).

Stakeholders have voiced support at both our SPC, the stakeholder workshop and in individual communications for improving protection of Highly Vulnerable Aquifers and to help protect groundwater users. NPSPA believes improving groundwater source protection is best addressed through the Source Protection Planning process such as in the Cataraqui Source Protection Plan. Their Source Protection Plan includes improving protection of private sources of drinking water. For example, the Plan includes a chapter on Policies for Regional Areas of Sensitive Groundwater:

*“This chapter of the Source Protection Plan is dedicated to identifying actions that could be taken to help protect vulnerable regional groundwater sources from contamination, in particular where groundwater is used as a private source of drinking water (e.g. by individuals, businesses, institutions and community organizations).” (Cataraqui Source Protection Authority, 2014)*

#### 4.1 HYDROGEOLOGICALLY SENSITIVE AREAS

Hydrogeologically sensitive areas are “karstic areas, areas of fractured bedrock exposed at surface, areas of thin soil cover, or areas of highly permeable soils” (MOE, 1996). These areas are shown (Figure 8) within the Highly Vulnerable Aquifers (NPCA, 2009) as they are the most vulnerable areas to impacts from land use water quality activities.

Historically the MOECC would have recommended against development on these areas:

*“Approval authorities... should only consider support for development applications involving individual on-site sewage systems where the proponent and/or consultant has... demonstrated that the area is not obviously hydrogeologically sensitive”.* (MOE, 1996)

Existing and future development on these hydrogeologically sensitive areas are of particular concern. NPSPA seeks to use the strengths of the Source Protection Planning process such as enabling broad stakeholder collaboration to address drinking water threats. Such collaboration is required to enable source protection of hydrogeologically sensitive areas through improved coordination of three key tools: planning approvals, Part 8 building code septic approvals and the Provincial Wells Regulation (O.Reg.903). For example, re-evaluating Building Code minimum set-backs between sewage infrastructure and water supply wells in hydrogeologically sensitive areas is recommended. Evidence suggesting the current minimum set-backs are insufficient in the Niagara Peninsula (and other areas in Ontario with bedrock aquifers at surface) has been advanced by Public Health Ontario (Krolik et al, 2013).

Public Health Ontario identified the Niagara Peninsula as an area of “elevated risk of E.coli contamination” (Krolik, et al, 2013) in private water supplies (see #2 on Figure 9) with “Fecal contamination of human origin... detected in... 50% of the samples” (Krolik et al, 2016).

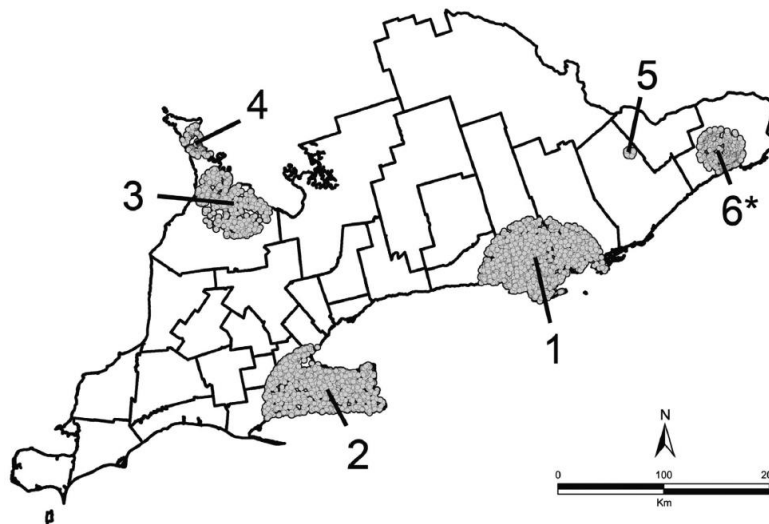


Figure 9 – Southern Ontario map of E.coli clusters (Krolik at al, 2013)

Nitrate also remains an issue for private groundwater systems in the Wainfleet Lakeshore Area (NPCA, 2013a) largely classified as a hydrogeologically sensitive area (Figure 8).

It is proposed to amend the Assessment Report to include mapping of hydrogeologically sensitive areas and other supporting information completed by others (e.g. Krolik, et al, 2013/2016). It is also proposed to use the Source Protection Planning Working Group to develop policies to address for safe and sustainable rural servicing with our municipal and provincial partners.

## **4.2 NATURALLY OCCURRING GROUNDWATER CONCERNS**

*“the NPSP (Niagara Peninsula Source Protection) area also has some naturally occurring, but previously under-reported, concentrations of metals above safe drinking water levels. Nitrate groundwater contamination also exists in the NPSP Area as a result of human activities.” (NPCA, 2013a)*

In 2015, the NPCA Board received the annual water quality report with the following stated action:

*“In the fall of 2015, the NPCA will organize a Symposium to develop a protocol to address naturally occurring groundwater exceedances in private drinking water supplies. This Symposium will include several agencies including Public Health Units, Ontario Ministry of Environment and Climate Change, Conservation Authorities and Academics.” (NPCA, 2015)*

In September 2015 the Ministry of the Environment and Climate Change were invited to participate in the symposium scheduled for November 2015. The purpose of the symposium was to answer the question *“How should government agencies educate and empower private groundwater users about naturally occurring groundwater concerns?”*. NPCA postponed the symposium after receiving an invitation from the MOECC’s Director of Environmental Monitoring and Reporting Branch to join their working group on this same issue (MOECC, 2015).

As identified by the Director in his letter, their working group “stems from the 2014 Annual Report from the Office of the Auditor General of Ontario and a recommendation made under Chapter 3.12 – Source Water Protection” (underlining by NPCA):

*“To strengthen source water protection, the Ministry of the Environment and Climate Change should consider the feasibility of requiring source protection plans to identify and address threats to sources of water that supply private wells and intakes and threats that abandoned wells may pose to sources of groundwater. As well, in conjunction with the Ministry of Health and Long-term Care and public health units, the Ministry should put mechanisms in place to notify private well owners when bacterial and chemical levels are known to exceed acceptable levels in their area”*

(Office of the Ontario Auditor General of Ontario, 2014)

NPCA staff have participated in the working group over the past 2 years, however the working group has not been able to complete its work at the time of writing this report. It is unclear when this work may be completed.

It is recommended the Source Protection Plan be amended with policies to locally address this issue, for example education and outreach. Also, since completing the Assessment Report, additional information has become available on the occurrence of groundwater quality above (and below) provincial criteria that should be included in the Assessment Report to better inform this policy development and the public users of the report, for example the occurrence of uranium in shallow overburden wells (WSP, 2017).

### **4.3 GAS WELLS**

*“...the evidence supports large-scale upward movement of fluids in the centre of the Niagara geochemical anomaly (Figure 10) and more sporadic upward transport of gases over a wider area of the peninsula. The most likely vector is through corroded and leaking casings or boreholes of abandoned (century) gas wells that are common across the peninsula.” (Smal, 2016).*

Smal (2016) recently confirmed earlier assumptions by the Ontario Geological Survey (Hamilton et al, 2011) that gas wells are negatively changing the water quality of aquifers in Niagara.

It is recommended these results be added to the Assessment Report and Source Protection Plan policies (such as transport pathways) be developed with the Ministry of Natural Resources and Forestry to address this concern. It is believed this is reasonable to pursue as part of the Source Protection Plan update considering Recommendation 5 of the 2014 Auditor General’s Report on Source Water Protection (underlining by NPCA):

*“To strengthen source water protection, the Ministry of the Environment and Climate Change should consider the feasibility of requiring source protection plans to identify and address threats to sources of water that supply private wells and intakes and threats that abandoned wells may pose to sources of groundwater.” (Office of the Ontario Auditor General of Ontario, 2014)*

#### **4.3.1 Background**

A M.Sc. thesis completed at McMaster University by Caitlin Smal (2016), in collaboration with the Ontario Geological Survey (OGS) and the NPCA, characterized the quality of regional bedrock groundwater on the Niagara Peninsula. This study identified controls on groundwater quality including natural conditions such as the host bedrock and soils, and shallow human inputs, including septic systems, fertilizers and road salt. After characterizing the primary sources constituting the geochemical makeup of groundwater in the NPCA watershed, it was observed that several samples had groundwater chemistry not reflective of natural sources and localized surface inputs. These samples have indicators of a deeper source of mineralized fluids, and/or the presence of natural gas from hundreds of metres below surface that have migrated upwards into shallow drinking water aquifers via vertical conduits (Figure 10 – groundwater samples influenced by deeper water and

samples with high methane in groundwater transported along gas well casings). Legacy ‘century’ gas wells are present across much of the Niagara Peninsula (Figure 10), and have been observed to be corroded by hydrogen sulfide present in shallow to intermediate depth regional aquifers.

#### **4.4 PROJECT MANAGEMENT**

The proposed objectives to protect groundwater in the Niagara Peninsula consist of two tasks:

- (a) Source Protection Authority staff bringing technical studies to the SPC for consideration to be added to the Assessment Report.
- (b) Policy review with the Source Protection Plan Working Group and SPC for consideration to be added to Source Protection Plan.

NPCA is well-positioned to pursue these objectives as they complement existing initiatives such as our:

- Memorandum of Understanding with Niagara Region to review planning applications in vulnerable groundwater areas; and
- Collaborative projects with the Ontario Geological Survey on the sediments of the Peninsula (Burt, 2016) and geochemistry of select bedrock aquifer systems (McEwan et al, 2015 and, Campbell and Burt 2015).

##### **4.4.1 MOECC Support**

It is believed current MOECC capacity funding levels should be maintained for Source Protection Authority staffing and the SPC to pursue these objectives. However, some additional funding to support SPC involvement in the Source Protection Plan Working Group is recommended. It is expected that local planning authorities and septic approval officials will continue their support for groundwater protection through staff participation in the Source Protection Plan Working Group.

It is proposed these items could be pursued in the 2018-2019 work plan. However it is believed the work would likely need to extend to 2020 to be able to facilitate the needed consultation with four key provincial ministries; Ministry of Municipal Affairs and Housing, MOECC, Ministry of Health and Long-Term Care and the Ministry of Natural Resources and Forestry.

The objectives were identified using the MOECC review factors introduced in Section 1.1.1 (Table 3). However, it is also hoped the MOECC would see this workplan as an opportunity to continue to address the Auditor General’s Recommendation #5 (Office of the Ontario Auditor General of Ontario, 2014).

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Table 3 – Groundwater Protection Review Factors

<b>Groundwater Protection</b>	<b>MOECC Review factors (Section 1.1.1)</b>			<b>Studies to MOECC</b>
Hydrogeologically Sensitive Areas	Results of environmental monitoring programs	Local considerations	Growth & Infrastructure changes	2020
Naturally occurring groundwater concerns				
Gas wells				

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## **FIGURES**

Figure 1: Niagara Peninsula Source Protection Area

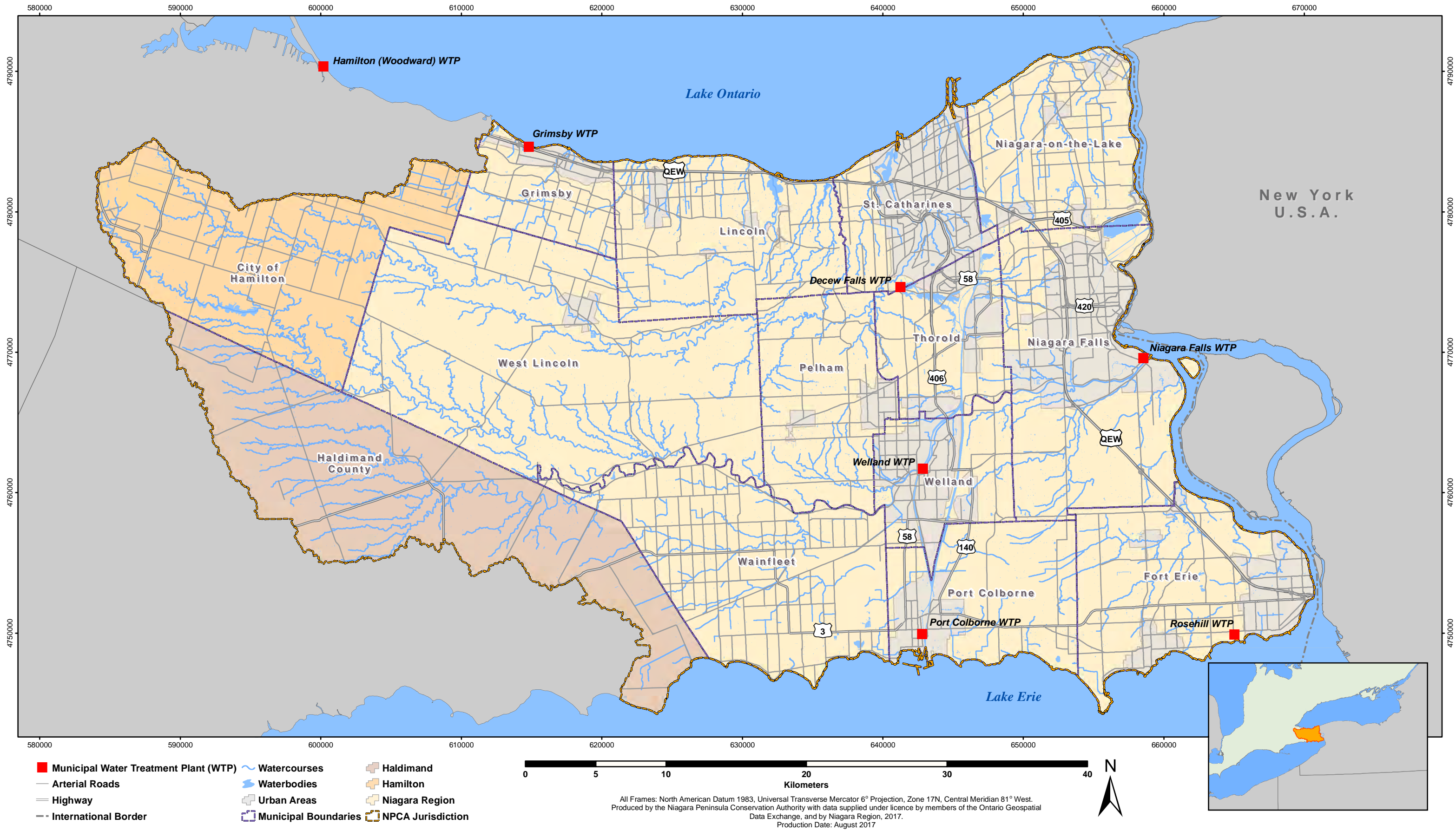




Figure 2: Niagara Falls Temporary Intake and IPZ-1

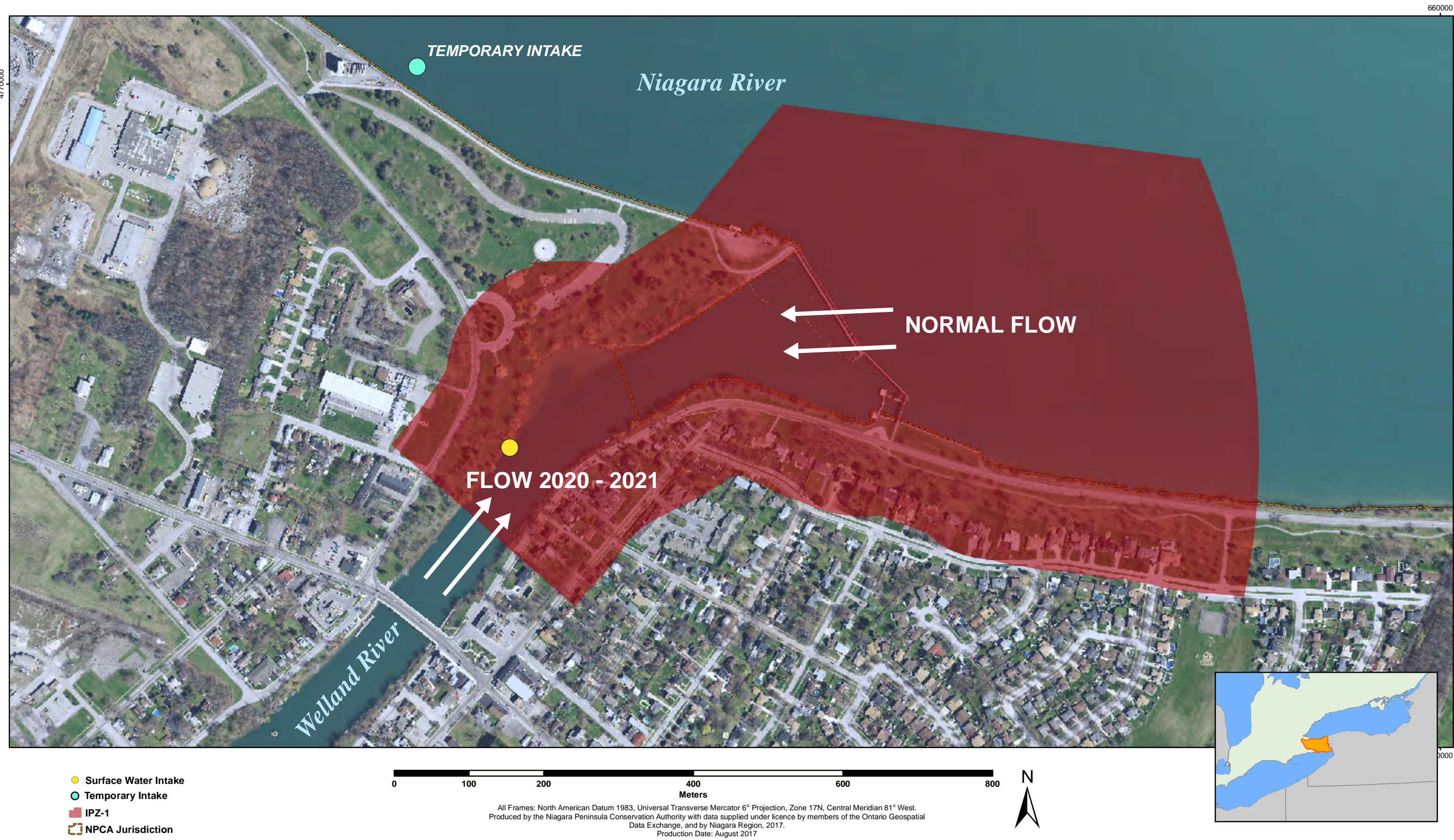




Figure 3: DeCew Falls Main Intake Protection Zones

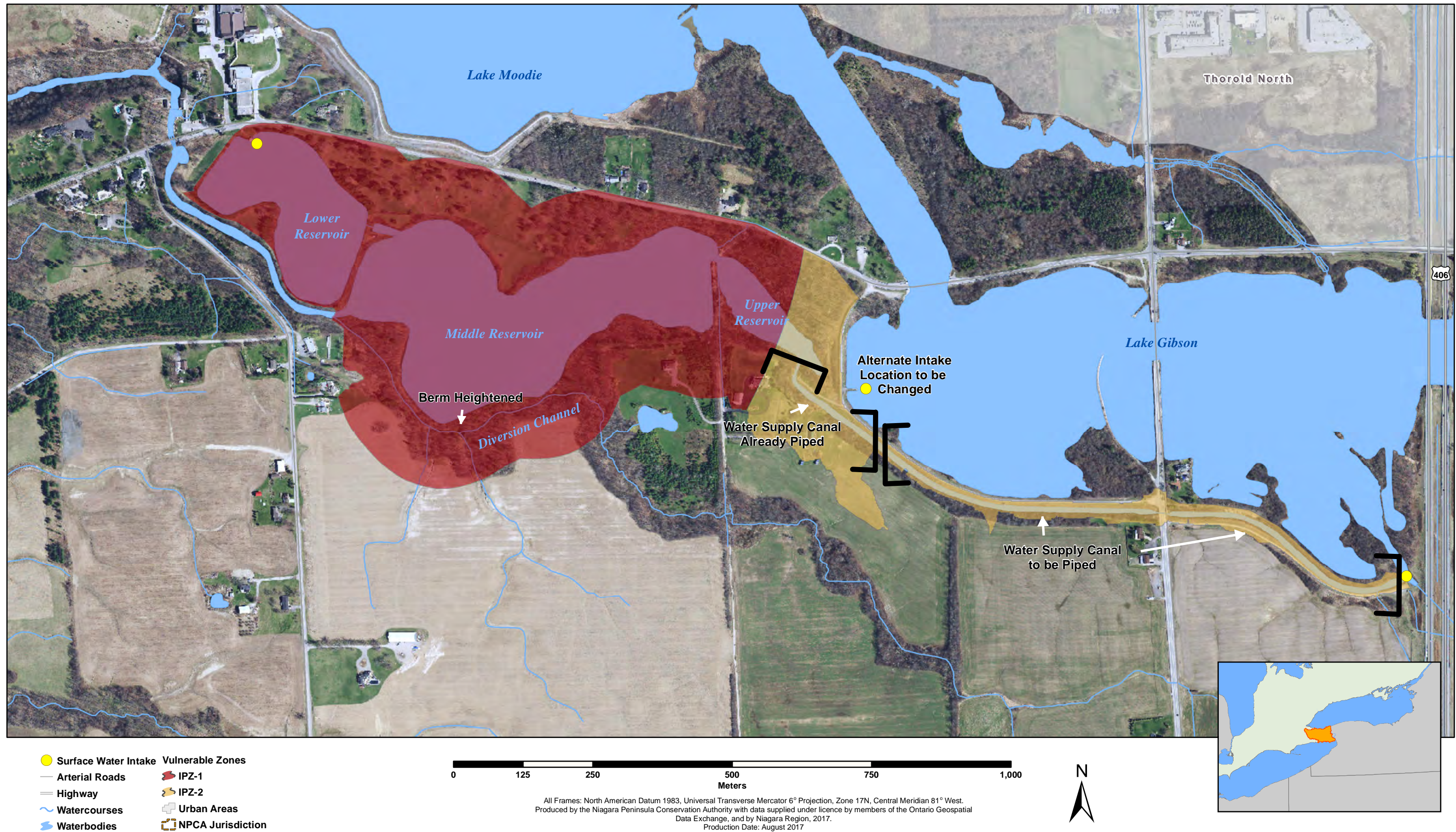




Figure 4: DeCew Falls Highway 406 IPZ-1/ IPZ-2

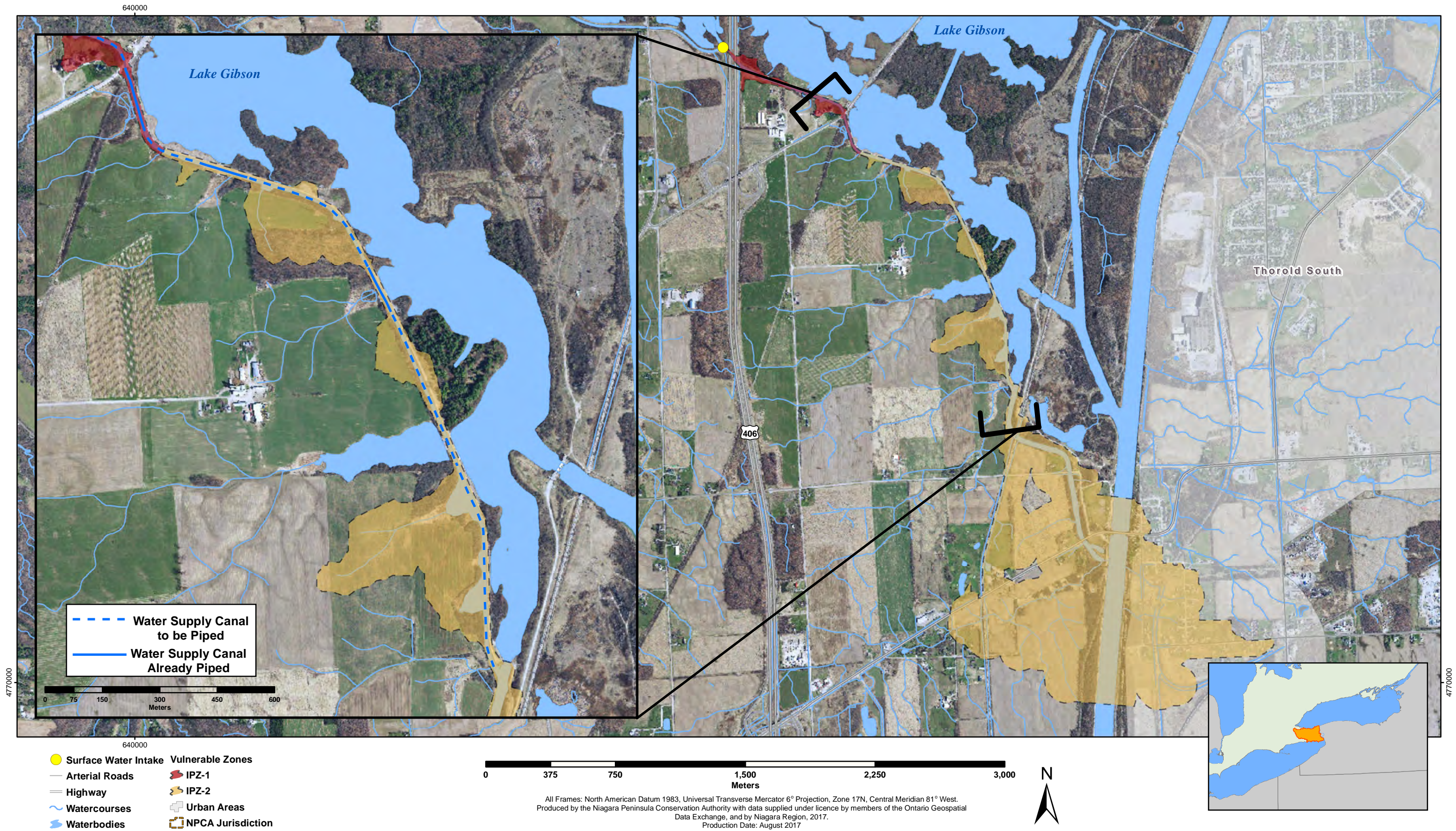




Figure 5: Rosehill IPZ-1/ IPZ-2

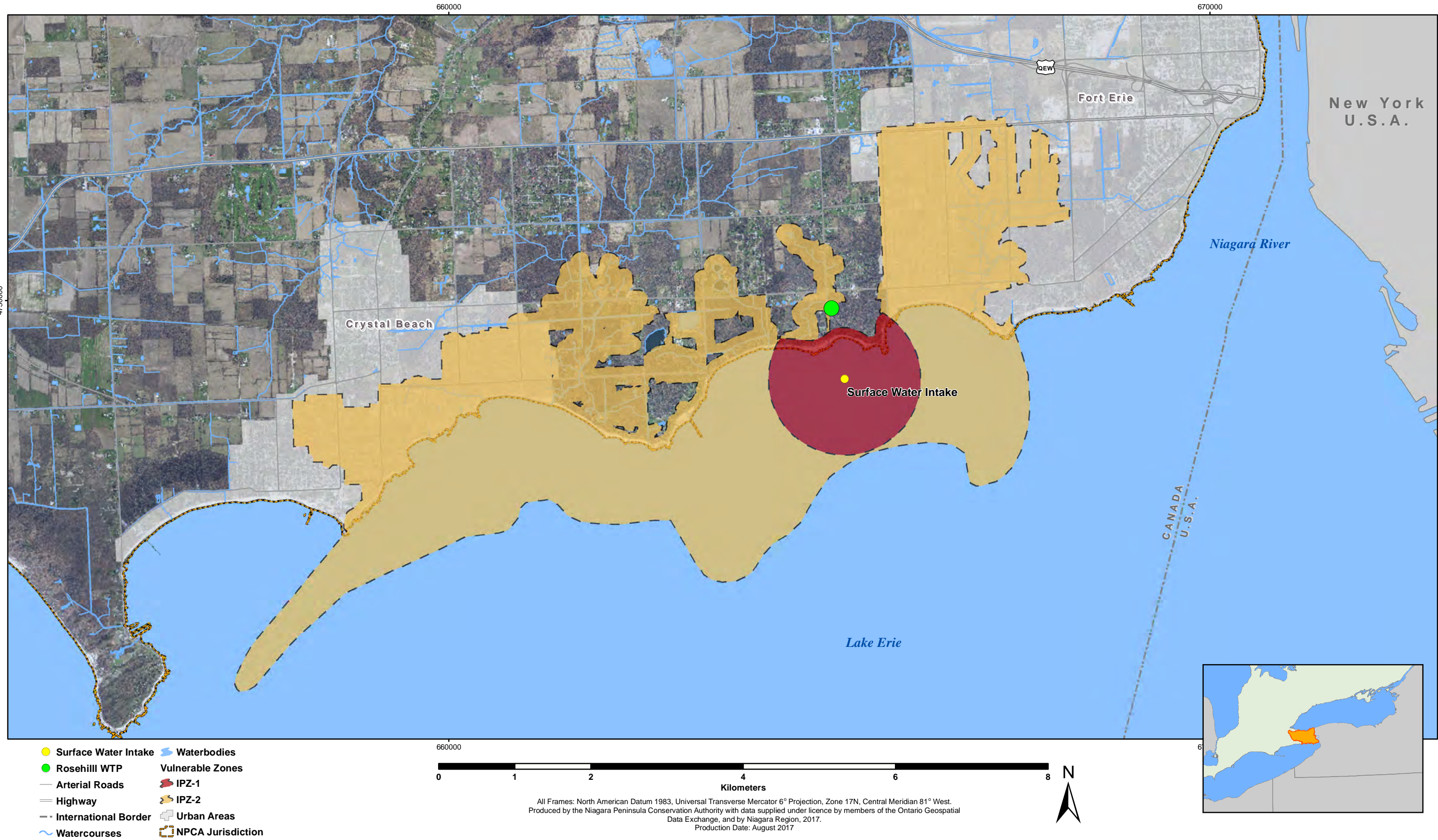
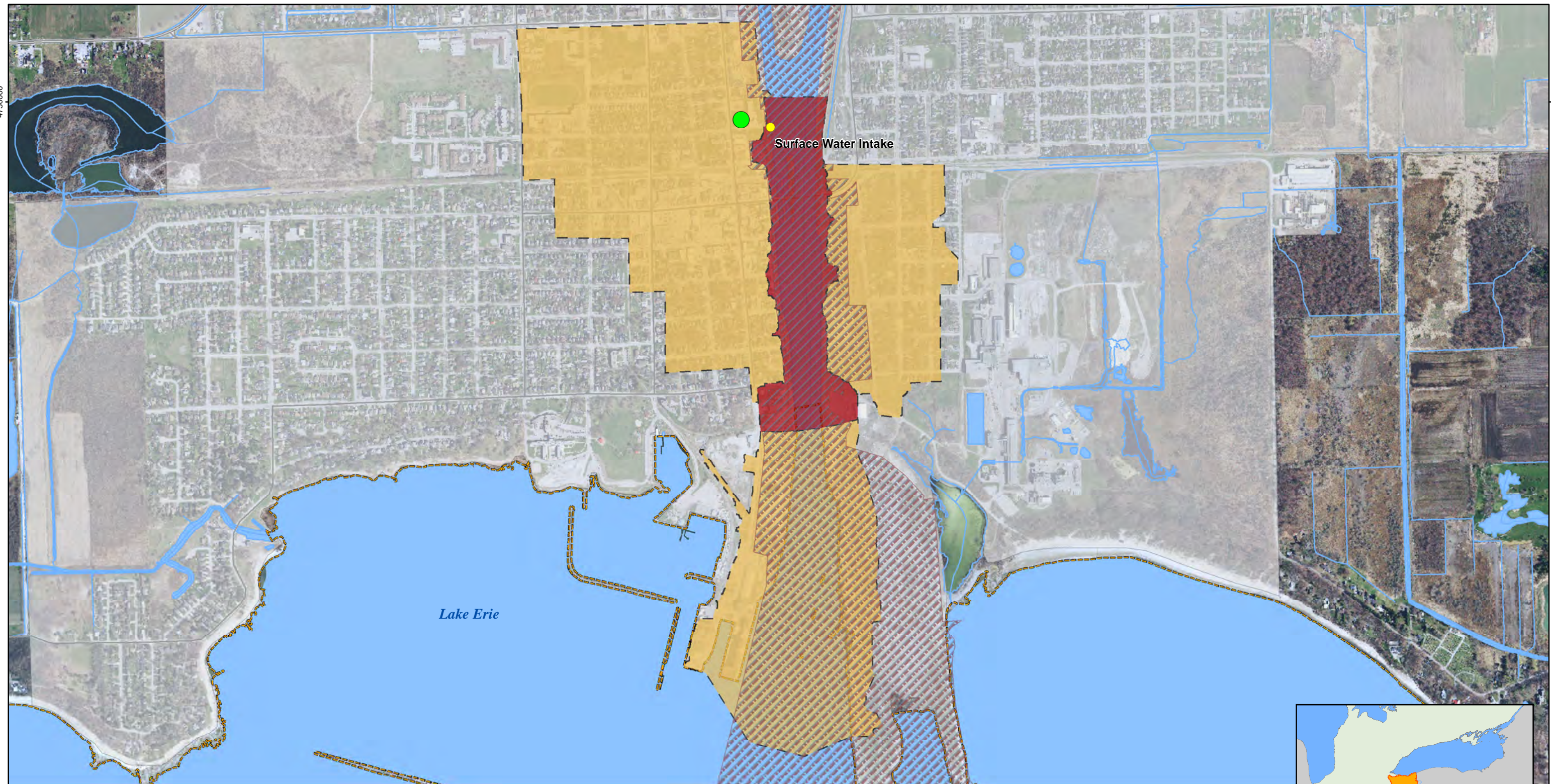
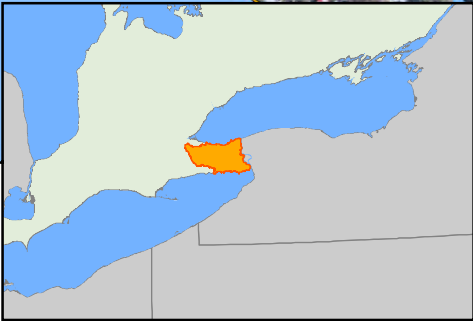
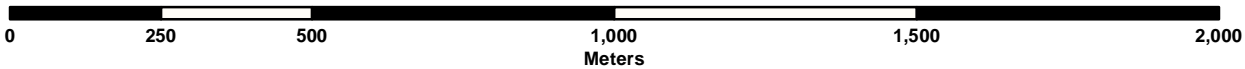




Figure 6: Port Colborne IPZ-1/ IPZ-2



- |                        |                         |
|------------------------|-------------------------|
| ● Surface Water Intake | <b>Vulnerable Zones</b> |
| ● Port Colborne WTP    | ■ IPZ-1                 |
| — Arterial Roads       | ■ IPZ-2                 |
| — Highway              | ■ Urban Areas           |
| ~ Watercourses         | ■ Federal Lands         |
| ~ Waterbodies          | ■ NPCA Jurisdiction     |



All Frames: North American Datum 1983, Universal Transverse Mercator 6° Projection, Zone 17N, Central Meridian 81° West.  
Produced by the Niagara Peninsula Conservation Authority with data supplied under licence by members of the Ontario Geospatial Data Exchange, and by Niagara Region, 2017.  
Production Date: August 2017



Figure 7: Intake Protection Zones and Oil Pipeline

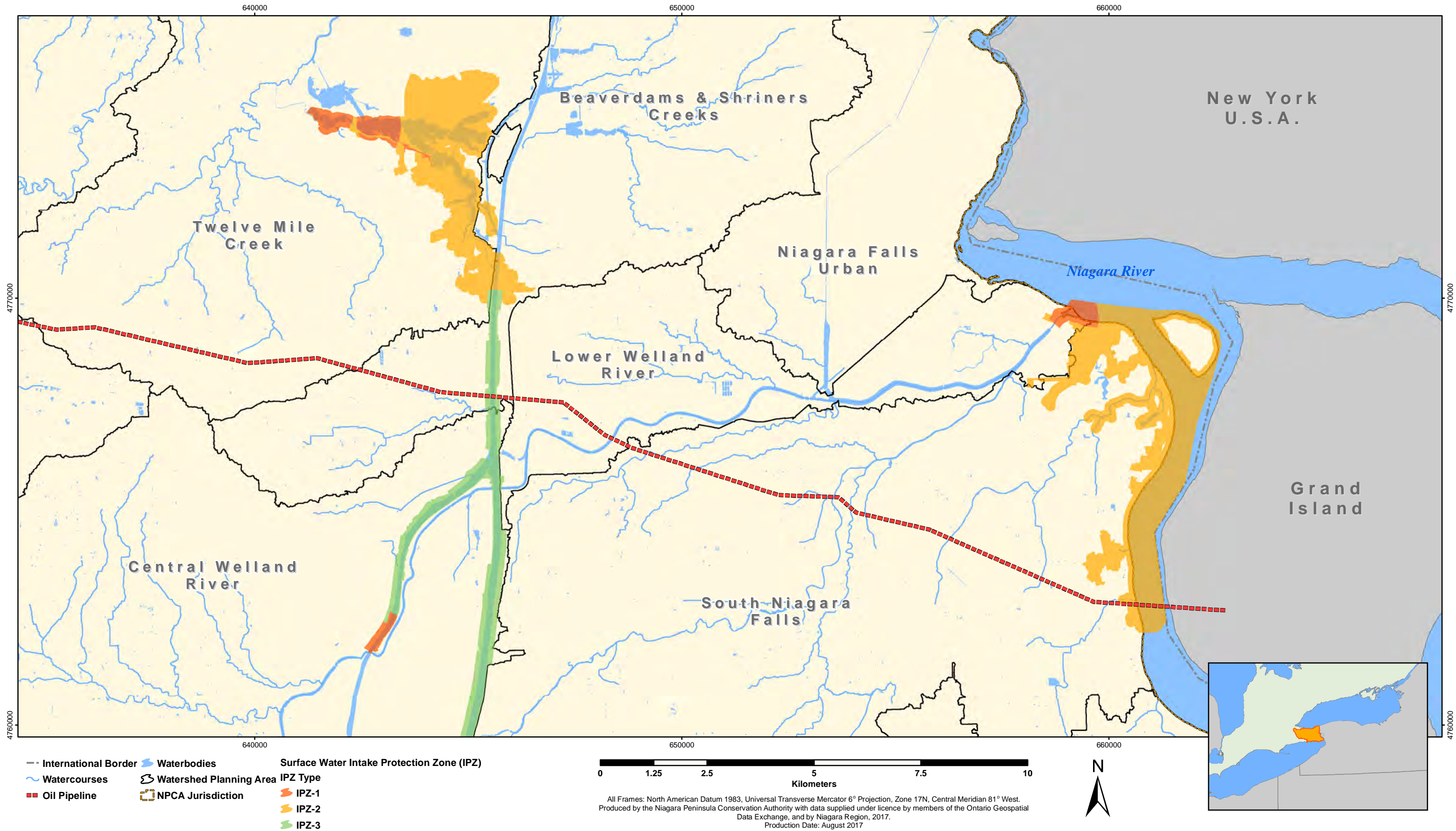




Figure 8: Hydrogeologically Sensitive Areas and Highly Vulnerable Aquifers

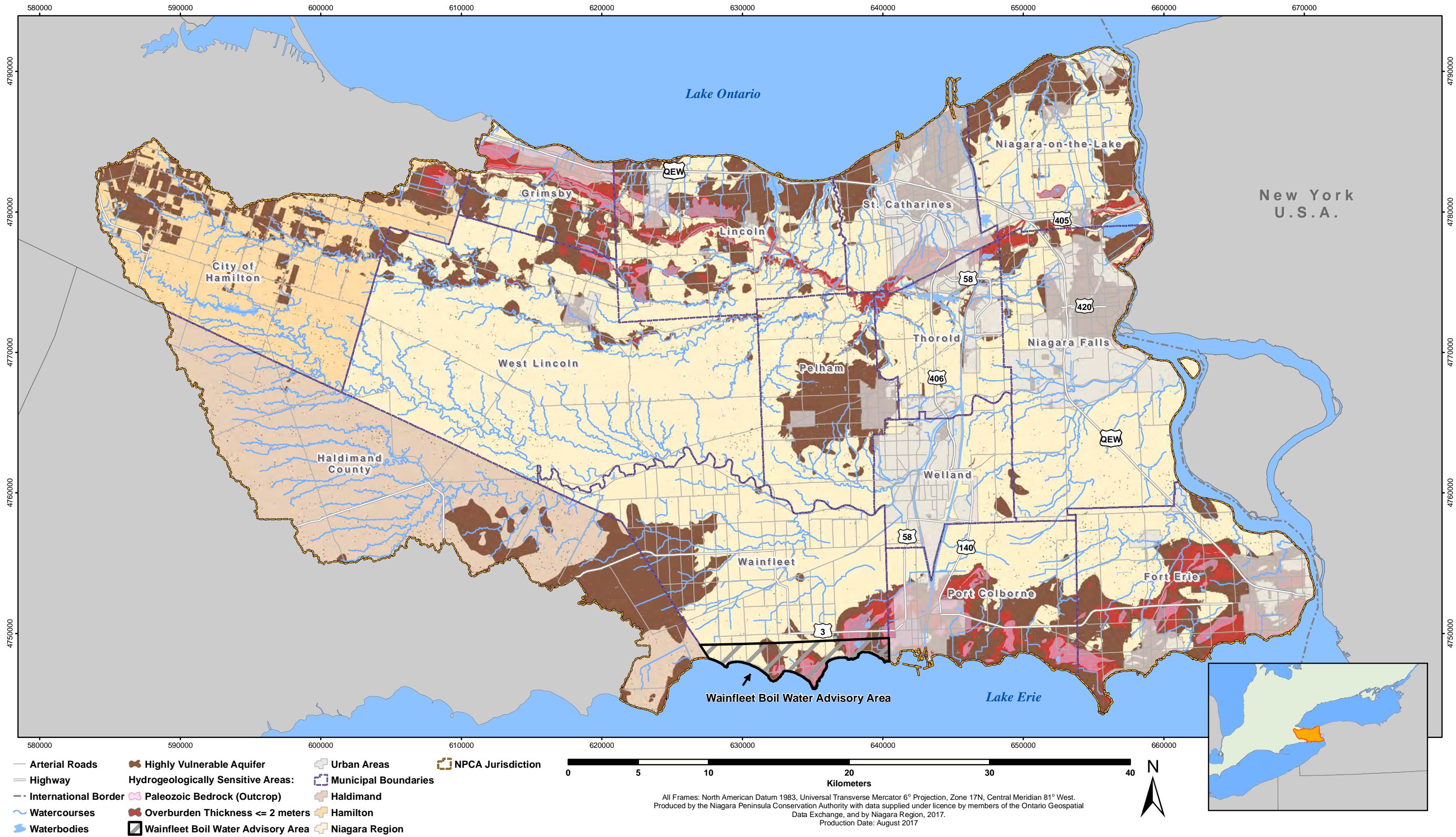
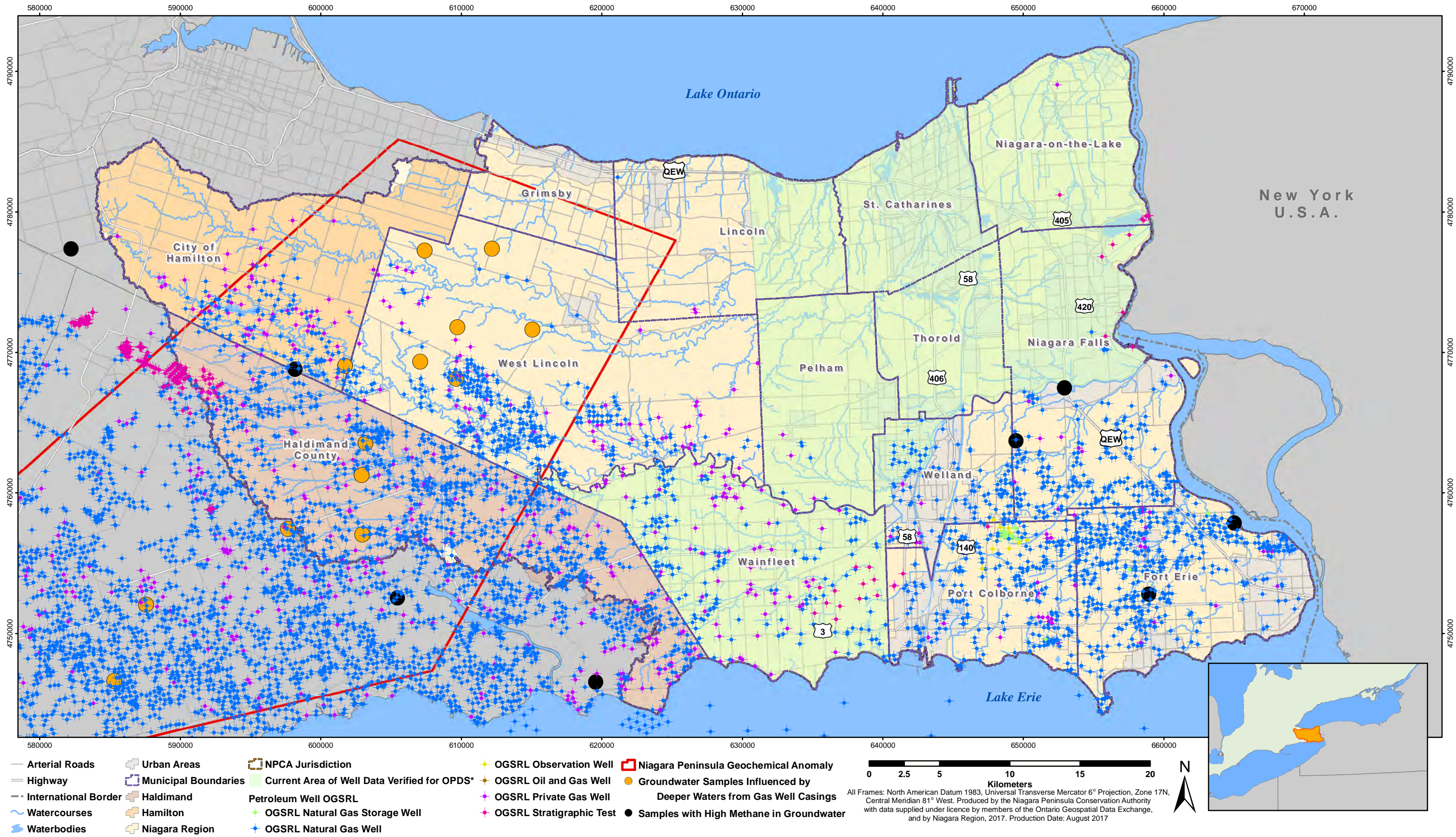




Figure 10: Gas Wells and Identified Impact Areas





## **Appendix A**

Ministry of the Environment  
and Climate Change

Ministère de l'Environnement et de  
l'Action en matière de changement  
climatique

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OCT 13 2015

ENV1283MC-2012-2158

Mr. Mark Neufeld  
Chair, Niagara Source Protection Committee  
740 Ridge Road North  
Ridgeway, ON, L0S 1N0

Mr. Bruce Timms  
Chair, Niagara Source Protection Authority  
250 Thorold Road West, 3rd Floor  
Welland, ON, L3C 3W2

Dear Mr. Neufeld and Mr. Timms:

I am writing to you, further to the approval of the Niagara Peninsula source protection plan. You will recall that when the previous Minister, the Honourable Jim Bradley, approved the plan on December 12, 2013, there was no decision on the timing for the future review of the plan. Staff have since consulted with the Niagara Peninsula source protection authority and the source protection committee on the preferred approach for future plan review, and I am issuing you an updated Section 36 Order, consistent with those I have issued for other approved plans in the province, containing details regarding this approach.

Pursuant to clauses 36 (1) (c) and (d), and as an initial step in the development of detailed requirements to govern the plan's review, the Niagara Peninsula source protection authority shall prepare and submit a workplan to the ministry. The workplan shall propose the detailed steps for the review of the plan, including which portions of the plan are to be reviewed, the timeframes for each step of the review, the consultation that would be undertaken as part of the review, and rationale for each step. A summary of how the workplan was developed shall also be included. The workplan shall be developed in consultation with the Niagara Peninsula source protection committee, participating municipalities of the source protection area, and the Ministry of the Environment and Climate Change.

The development of the workplan must take into consideration any experience that has been gained from implementing the source protection plan and information from the first annual progress report on plan implementation (due May 2017). Accordingly, the workplan shall be submitted to the ministry no later than November 30, 2017.

Once the workplan is submitted and reviewed by the ministry, and following any further consultation that the ministry considers advisable, a further order can be issued under section 36 that specifies more detailed requirements outlining the content and timeframes that will govern the review of the Niagara Peninsula source protection plan.

Staff have informed me of the actions that have been taken by those responsible for the policies within the Niagara Peninsula, and your community is to be commended on the manner in which implementation is proceeding. Significant progress has been made in source protection and the Province looks forward to continuing to work with you and all stakeholders to protect drinking water.

Once again, thank you for your commitment to protect Ontario's source waters, and please accept my best wishes.

Sincerely,



Glen Murray  
Minister

- c: Paul Evens, Deputy Minister, Ministry of the Environment and Climate Change  
Sue Lo, Assistant Deputy Minister, DWMD, Ministry of the Environment and Climate Change  
Heather Malcomson, Director, SPPB, Ministry of the Environment and Climate Change

## **Appendix B**



# **Source Protection Plan Bulletin – Overview of Requirements for Assessment Report and Source Protection Plan Amendments under S.36 of the Clean Water Act**



December 2016

## **Introduction**

The purpose of the Clean Water Act (CWA) is to protect Ontario's existing and future sources of drinking water as part of an overall commitment to safeguard human health and the environment. A key focus of the legislation is the preparation of science-based assessment reports and locally-developed source protection plans. The source protection plans consist of a range of policies that together, will reduce risks to water quality and quantity.

Under this framework, the source protection planning process ensures that affected and interested parties have opportunities to contribute to the preparation of amendments to source protection plans and assessment reports. Source protection planning is a locally-driven, collaborative process between many partners, and includes significant municipal and public involvement through the source protection committees (SPCs), supported by local source protection authorities (SPAs).

## **Plan Revisions under the CWA**

The CWA enables assessment reports and source protection plans to be revised using one of four methods: 1) a locally initiated amendment under section 34; 2) a Minister ordered amendment under section 35; 3) an update resulting from a review under section 36; or 4) an amendment under section 51 of O.Reg.287/07 for minor/administrative revisions. Ultimately, the method used will depend on factors such as the level of complexity of the revisions and their time sensitivity.

This bulletin provides guidance for SPAs on considerations for the review of their source protection plan under section 36 of the CWA. Guidance on the considerations and process for reviewing and updating assessment reports and plans under sections 34 and 35 is available under a separate bulletin.

While every effort has been made to ensure the accuracy of the information in this document, it should not be construed as legal advice or relied on as a substitute for the legislation.

## Background

At the time each of the source protection plans were approved, the Minister was required to issue an order to specify which parts of the source protection plan and assessment report were to be reviewed under section 36 of the CWA. When the plans were being approved, we recognized that the review needed to be informed by the first few years of implementation, and that we needed input from the SPAs, SPCs and municipalities on the extent of the review of each plan. Given this, the Minister's order put in place a requirement for one of the following as an initial step in the development of detailed requirements to govern the plan's review:

1. A requirement for a workplan, developed in consultation with the local SPC, SPAs, municipalities and the MOECC, that will set out what aspects of the assessment report and source protection plan should be reviewed. Based on this workplan, the Minister may then issue another order specifying more detailed requirements governing the content and timeframes of the review. This approach is in place for 20 of the 22 plans.
2. A requirement that the SPA align the review of their source protection plan with the timing of the local municipality's official plan update. Based on this review, and following consultation between the MOECC and the SPA, the Minister may then issue another order specifying the content of the review of the plan and submission timelines.

Regardless of the approach set out in the Minister's approval letter, the lead SPA will need to undertake an analysis of the existing assessment report and source protection plan and develop a recommendation on the extent and timeline of their review. The only difference between the two approaches is that 20 of these workplans must be submitted to the province, whereas it's optional for the remaining 2 (Sudbury and Mattagami) to submit their workplans.

Considerations and factors that may help a SPA identify which parts of the assessment report and source protection plan need review are detailed in the 'Factors Influencing the Extent of a Review' section of this document.

When assessing these factors, the SPAs should keep in mind that updates under section 36 of the CWA are not intended to focus on simply making the source protection plans read better, rather the updates are intended to build in new information that advances understanding of risks to sources of drinking water and incorporates local growth.

In general, whether developing a workplan to inform a review or undertaking a review the SPA must take into consideration any experience gained from implementing the plans and information learned from the first annual progress report on implementation. In addition, any workplan must be developed in consultation with the SPC, participating municipalities within the Source Protection Area/Region, other SPAs within the region, and the MOECC.

## Factors Influencing the Extent of a Review

When determining the scope of assessment report and source protection plan updates that will be addressed within the workplan, the SPA should consider the local nature of the source protection plan and continue engaging local stakeholders to further understand local risks, growth and development pressures. The SPA should also consider the cyclical nature of plan updates, and whether they are needed in this cycle, or should be addressed in future cycles.

At a minimum, the SPA should take into account the following considerations and factors when assessing and prioritizing which portions of the assessment report and plan are to be reviewed and potentially updated, and the timelines for the review and/or updates:

- a. Results of environmental monitoring programs (Do the results of local environmental monitoring analysis identify a trend; Do results indicate policy approaches are/are not effective at meeting the 'cease to be significant' test under s22 of the CWA; Is there a need for additional environmental monitoring to inform future decisions and source protection plan updates).
- b. Growth and infrastructure changes (Has there been substantial growth within the Source Protection Area; Is new growth planned that was not considered in the original plan; Are there new drinking water systems; Are any municipalities planning to new or expanded drinking water systems; Are there new wells or intakes in existing systems).
- c. Council resolutions (Has there been any municipal council or First Nation Band council resolutions to add new drinking water systems; Are you aware of any plans for council resolutions to include other types of drinking water systems).
- d. Policy effectiveness (What is your annual report saying about your plan implementation; Is there a need to make changes to address new policy gaps or ineffective policies).
- e. Implementation challenges (Are there local concerns with source protection plan implementation that need to be addressed).
- f. Technical rule changes (Did your assessment report indicate your Great Lakes drinking water systems were more vulnerable to contamination than deeper systems; Are there Changes in the Tables of Drinking Water Threats that affect activities in your Area/Region; Are there changes to the Director Technical Rules that significantly changes the conclusions of your assessment report, or the outcomes of your source protection plan).
- g. Where your plan used prohibition policies for agricultural activities outside of the WHPA-A, you should undertake an assessment of the impacts of these prohibition policies on the agricultural community. The analysis should include an assessment of the effectiveness and impact of the prohibition policies versus what could be achieved through possible management approaches to the agricultural drinking water risks.
- h. Specific directions in your approval letters which is applicable to: North Bay-Mattawa; Essex; Thames-Sydenham; Saugeen, Grey Sauble, Northern Bruce

Peninsula; Lake Erie-Long Point; Lake Erie-Grand River.

- i. Other local considerations.

It is important to document your analysis in the submitted workplans to the MOECC as this will inform any recommendations to the Minister on the review of your plans.

## Workplan Content

Once the SPA has completed the preliminary assessment noted above, they should develop their workplan outlining the recommended content and timelines for their assessment report and plan review. Early engagement with the MOECC and municipalities on the contents of your proposed workplan is advisable. Based on this early feedback received from the MOECC and affected municipalities, the SPAs would then develop the workplan.

At this time, the MOECC is not prescribing a specific format or limits for the workplan; however, the workplan must be completed in a 'word' document and contain the following information:

1. Insert the names of all the source protection plans that this workplan applies to.
2. A brief description of your source protection area/region that specifies the upper and lower tier municipalities, their drinking water systems, and the number of current and planned wells and intakes associated with each.
3. Highlight the experience gained from implementing the plan(s) to date.
4. Highlight information from the first annual progress report on plan(s) implementation that helped you arrive at this workplan proposal.
5. Additional requirements as outlined in your initial Minister plan(s) approval letter (if applicable).
6. Identify the portions of the assessment report and plan that warrant further review, detailed rationale for including each portion, and who will carry out the review and associated updates, where updates are necessary.
7. The detailed steps for carrying out the review.
8. The timeframes for each step of the review.
9. Include the roles and responsibilities for plan amendments and identify if any municipality within your Source Protection Area/Region passed a council resolution consenting to perform a task identified by the SPC in connection with the preparation of the assessment report or source protection plan.
10. The consultation that will be undertaken as part of the review.

## Workplan Consultation

While the initial workplan content will be developed by the SPA (or lead SPA identified in the Minister plan approval letter), effective engagement with a number of key stakeholders throughout the process is necessary to ensure a comprehensive/local

workplan is submitted to the MOECC.

Participating Municipalities within the Source Protection Area/Region: Regularly engaging municipalities is important in order to identify potential new sources of drinking water (wells or intakes) or new systems that local municipalities plan to bring on-line in the future, and better understand local risks. Furthermore, consulting with local municipalities affords them the opportunity to identify a desire to lead any technical work and/or plan updates going forward.

Other SPAs within the Region: Consultation with other SPAs within the source protection region will help identify local concerns in plan implementation and afford opportunities to find efficiencies.

SPC: The local SPC should play an active role in the development of the workplan. This will help ensure local stakeholder content is addressed and will ensure the knowledge and experience of the SPC informs the plan review.

MOECC: Consultation with the MOECC on the proposed workplan in order to identify any potential issues of concern, as well as appropriate content.

## Workplan Submission and Review/Approval Process

Completed workplans are required to be submitted electronically to the [source.protection@ontario.ca](mailto:source.protection@ontario.ca) email address by the date prescribed in your initial Minister plan(s) approval letter (see Table 1 for summary).

Following submission of the workplans, the MOECC will review and consult with the lead SPA to finalize the scope of work as prescribed in each workplan. The Minister would then consider the issuance of a further order under section 36 that would set out detailed requirements for review of the assessment report and plans.

SPAs not required to submit a workplan, can choose to follow this same process. Their workplans will be considered in the same way as the mandatory workplans.

## Resources Available

When developing the workplan, and also during consultation on the workplan proposal with the MOECC, SPAs can contact your local Liaison Officer as well as the [source.protection@ontario.ca](mailto:source.protection@ontario.ca) email address.

Table 1: Workplan submission deadlines

<b>Source Protection Plan</b>	<b>Plan Effective Date</b>	<b>Date First Annual Progress Report Due</b>	<b>Workplan Due</b>
1.Lakehead	October 1, 2013	May 2016	November 30, 2017
2.Niagara Peninsula	October 1, 2014	May 2017	November 30, 2017
3.Mattagami	October 1, 2014	May 2017	N/A: A workplan was not formally requested; however, could be developed and submitted.
4. Mississippi-Rideau	January 1, 2015	May 2018	November 30, 2018
5.Lake Erie -Kettle Creek	January 1, 2015	May 2018	November 30, 2018
6.Quinte	January 1, 2015	May 2018	November 30, 2018
7.Lake Erie -Catfish Creek	January 1, 2015	May 2018	November 30, 2018
8.Sudbury	April 1, 2015	May 2018	N/A: A workplan was not formally requested; however, could be developed and submitted.
9.TCC	January 1, 2015	May 2018	November 30, 2018
10.Raisin South Nation	April 1, 2015	May 2018	November 30, 2018
11.Cataraqui	April 1, 2015	May 2018	November 30, 2018
12.Ausable Bayfield Maitland Valley	April 1, 2015	May 2018	November 30, 2018
13.South Georgian Bay Lake Simcoe	July 1, 2015	May 2018	November 30, 2018
14.North Bay Mattawa	July 1, 2015	May 2018	November 30, 2018
15.Sault Ste. Marie	July 1, 2015	May 2018	November 30, 2018
16.Essex	October 1, 2015	May 2018	November 30, 2018
17.CTC	December 31, 2015	May 2018	November 30, 2018
18.Halton-Hamilton	December 31, 2015	May 2018	November 30, 2018
19. Thames Sydenham	December 31, 2015	May 2018	November 30, 2018
20.Saugeen Grey Sauble Northern Bruce Peninsula	July 1, 2016	May 2019	November 30, 2019
21.Lake Erie -LongPoint	July 1, 2016	May 2019	November 30, 2019
22. Lake Erie -Grand River	July 1, 2016	May 2019	November 30, 2019

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## **Niagara Peninsula Source Protection Area Source Protection Plan Update Workshop**

June 21, 2017 – 2:00 to 4:00 p.m. and 6:00 to 8:00 p.m.  
Ball's Falls Centre for Conservation at 3292 Sixth Avenue, Vineland

### **Meeting Summary**

#### **1. Agenda Review, Opening Remarks and Introduction**

James Knott of Lura Consulting welcomed attendees and thanked them for attending the session. Mr. Knott led a round of introductions among all attendees. He reviewed the agenda for the session and explained to attendees that the purpose of the workshop was the start of a conversation on the workplan to update the Source Protection Plan (as directed by the Ministry of Environment and Climate Change).

Jayne Campbell of the NPCA provided a background presentation to ensure attendees had sufficient knowledge and context of relevant material. The presentation included an overview of:

- The Source Protection Program;
- The Assessment Report;
- The Source Protection Plan; and
- Annual Reporting.

Jayne Campbell later provided a more detailed presentation on the Source Protection Plan Update Workplan Considerations, which was structured around specific topic areas defined by the MOECC. Following each set of presentations, attendees were invited to ask questions of clarification.

#### **2. Facilitated Discussion**

Attendees were guided through a facilitated discussion on each of the topic areas that will shape the scope of the SPP Update Workplan. The following provides a summary of the recurring themes and ideas discussed by participants on the Niagara Peninsula Source Protection Plan Update.



## Environmental Monitoring

*Participants identified what works well in the current SPP in regard to environmental monitoring:*

- Some participants highlighted that the Niagara Region is respected for its municipal water quality and monitoring, as the Region goes beyond the minimum required monitoring standards.
- One participant commented they are pleased with the lack of permits issued within IPZ-1, asserting that a lack of permits signifies that the existing SPP is working well.
- One participant noted that stakeholders seem to be cooperating to implement the SPP.
- One participant commented that from a planning perspective, monitoring is working well, and that forms provided are fairly straight forward and easy to deal with.
- One participant commented that there has been consistent communication with appropriate stakeholders surrounding the SPP, and that this should continue.

*Participants identified questions and concerns regarding environmental monitoring in the SPP:*

- One participant identified wastewater treatment plants as a concern.
- Multiple participants identified cross-border chloride, phosphorus, and algae issues as a major concern.
- One participant expressed concern about property owners building berms which affect drainage.
- One participant is concerned about how climate change will be addressed in the update.
- One participant inquired if discharge from residential sites along lakefronts had been taken into consideration as a direct pollutant to source water.
- One participant inquired about whether the NPCA had detailed information on the Line 10 oil pipeline.
  - NPCA replied that they did not have this information yet.

*Participants suggested recommendations and considerations for moving forward:*

- One participant recommended gathering baseline information on environmental conditions (e.g. algal blooms at the DeCew Reservoirs).
  - The RON indicated there have been some such efforts by Niagara Region to gather that baseline information, including an international Canada-U. S committee.
- One participant recommended including a baseline for water quality in the SPP.
- One participant recommended comparing intake water quality to nearby NPCA surface water quality monitoring data.
- One participant suggested speaking with Water Treatment Plant operators to gain additional insight into the implementation of the existing SPP.
- One participant suggested monitoring private sewage systems located along lakefronts.
- One participant suggested the Region and NPCA crosscheck current policy and program efforts by the Region to ensure they coincide with the NPCA.
- One participant suggested creating a report on external activities that impact the SPP, with annual updates.

## Growth and Infrastructure

*Participants identified new drinking water systems and intakes constructed since 2013:*

- One participant identified a non-municipal intake system adopted in Uxville.
- Participants identified that a new temporary intake is proposed for Niagara Falls to address Ontario Power Generation changing the water flow along the Welland River/Chippawa Channel.

*Participants identified proposed council resolutions to construct drinking water systems, communal systems, and well clusters:*

- One participant identified a proposal for a new water intake at Niagara Falls.
- One participant identified potential well clusters and communal system opportunities in the Township of Wainfleet. He expressed concern over the potential developments and suggested a letter of enquiry be sent to the Township.

*Participants suggested recommendations and considerations for moving forward:*

- One participant inquired if secondary plan growth should be considered in the update.
- One participant suggested that well cluster proposals and approvals should be the responsibility of Risk Management Officials, or municipalities, as specified in the SPP policies.
- One participant explained that Niagara Region and NPCA Memorandum of Understanding are a challenge around Highly Vulnerable Aquifers and suggested that adequate intensification of development in these vulnerable areas requires changes to the Official Plan, or the provision of new tools like development agreements.
- One participant commented that this review is now the time to address issues with municipalities, especially regarding actions around highly vulnerable aquifers.
- One participant suggested addressing rural well issues (e.g. Wainfleet concerns).
  - One participant suggested verifying the requirements of where wells can be drilled.

## Policy Effectiveness

*Participants identified SPP policy strengths:*

- One participant stated that no permits have been issued in the IPZ's.
- One participant stated that current levels of signage are working well.

*Participants identified questions and concerns regarding SPP policy effectiveness:*

- One participant inquired if equal consideration was given to rural and urban policies in the SPP.
- One participant was concerned that Intake Protection Zones had changed.

*Participants suggested recommendations and considerations for moving forward:*

- Multiple participants identified a need to remove ineffective policies which make the SPP seem less relevant overall (e.g. The National Airport Prohibition Policy and the Snow Storage Policy).
  - Multiple participants noted that if a policy is removed during the update, there must be mechanisms in place to ensure that the threat the policy is meant to address is still incorporated elsewhere.
- Participants identified a number of existing policies, plans and programs that should be considered during the SPP update to ensure they correspond with the plan, and vice versa, including:

- The Niagara Region Water and Wastewater Master Plan
- Official Plans
- Ontario Building Code regulations
- New Ontario Planning Policies
- One participant suggested broadening public awareness of the SPP and related issues.

## **Implementation Challenges**

*Participants identified questions and concerns with regarding existing SPP implementation:*

- One participant questioned why the MOECC tables of drinking water threats include glyphosphate (Roundup).
  - One participant stated that may be reviewed during Phase II of the update.
- One participant is concerned about the challenges regional staff encounter when installing signs on local municipal roadways.
- One participant is concerned that current SPP implementation practices are making some agricultural stakeholders feel as though they are being singled out, making implementation with agricultural stakeholders more challenging.
- Participants raised concerns over available funding for SPP related initiatives.
  - The MOECC clarified that it is unknown if the Province will have any funding for future source water initiatives in addition to capacity funding. He suggested funding for source protection plan updates should be explored between the conservation authority and the municipality.
- One participant inquired if homeowner development applications would trigger a warning if there was a potential threat to source water.
  - The Region of Niagara noted that this process is new and the Region does not see every application. If there is a trigger, the application is sent to risk management officials to screen.

*Participants identified landscape changes that may impact the SPP:*

- One participant commented that there have been changes to the landscape since the Maps were created, however, there is no large-scale development near Water Treatment Plant Intakes planned in Niagara Region.
- One participant commented that the recent and future changes to the OPG water supply canal from the Welland Canal to the DeCew water treatment plant should be reflected in the SPP update, including through mapping.

*Participants suggested recommendations and considerations for moving forward:*

- One participant suggested the source water planning process be streamlined.
  - The Region of Niagara explained that Section 59 has been developed to address this.
- One participant suggested education for staff around SPP implementation should continue.

## **Technical Rule Changes**

- One participant suggested reviewing the appropriateness of raising the vulnerability scores at Port Colborne and Rosehill to better protect source water at these locations.
  - One participant suggested that Port Colborne and Rosehill vulnerability scores may be affected by the new technical rules.

- One participant suggested reviewing the technical rules around groundwater and surface water to help agricultural stakeholders feel less singled out through the SPP.
- One participant inquired about pesticide rules.
  - The NPCA responded that pesticide threats are being reviewed in the upcoming new table of drinking water threats.
- One participant suggested outlining a method to capture risks associated with above ground fuel storage in the SPP update.
- One participant commented that a Section 60 Risk Assessment approach may be applied through the SPP, however technical rules for that type of assessment are yet to be released from the MOECC.

### **Local Considerations**

- One participant identified concern surrounding the sludge from Crystal Beach wastewater treatment plant potentially impacting Lake Erie water quality and the Rosehill water treatment plant.
- One participant explained that the extra Highway 406 intake does not appear appropriate given the main intake at the DeCew Falls water treatment plant.
- One participant expressed interest in addressing issues related to transportation corridors (e.g. hazardous materials).
  - One participant indicated that other committees have worked on transportation corridor issues following Director approval (e.g. Sudbury and North Bay).
- Participants discussed the temporary (estimated two sets of 6-months) Niagara Falls IPZ-1.
  - One participant suggested the site may be less vulnerable and modelling and policy may not be necessary (however the site's vulnerability still needs to be assessed).
  - One participant inquired if the impacts of Buffalo wastewater treatment plants are adequately considered with respect to the Niagara Falls water treatment plants.
- One participant suggested incorporating monitoring and policy recommendations into the Plan update to reflect oil pipelines and external (outside of watershed) activity.
- One participant inquired what the work plan will look like, and what level of data will be required.
  - The MOECC responded there is no template for the workplan.

### **Other – Outside Scope**

- One participant shared concerns about historical water takings and nutrient excess in 12 Mile Creek and 15 Mile Creek. (Staff at meeting clarified that these issues appear to be out of scope for the Source Protection Plan unless related directly to drinking water. Hence these concerns would best be directed to the MOECC District Office).
- One participant shared concerns about the landfill in Welland on the Welland River at Woodlawn.
  - Jayme Campbell (NPCA) explained that the recent operators of the landfill Walker Industries have installed remedial measures to protect the Welland River as part of operating it. Also, no municipal water supplies take from the Welland River in that area so an out-of-scope item for Source water protection.
- One participant suggested the poor water quality in 12, 15 and 16-mile creeks be a key consideration during the SPP update.

- MOECC responded this does not fit with the SPP or CWA, staff will give him the correct contact information.

#### **4. Closing Remarks**

Attendees were thanked for taking the time to participate in the workshop. Jayme Campbell provided an overview of the next steps for work plan development and invited attendees to provide their comments and/or request a one-on-one meeting for further discussions.

## Appendix A – List of Attendees

Afternoon	
Company	Name
City of Niagara Falls	Francesca Berardi
City of Port Colborne	Ron Hanson
City of Port Colborne	Lindsay Richardson
MOECC	Elizabeth Forrest
MOECC	Neil Gervais
Niagara Escarpment Commission	John Stuart
Niagara Region	Jen Croswell
Niagara Region	Kailen Goerz
Niagara Region	Tanya Killins
Niagara Region	Alexandria Tikky
NPCA	Heather Ireland
NPCA	Peter Graham
NPCA	Jayne Campbell
NPCA	Steve Miller
NPCA	Debbie Gullett
Source Protection Authority	J. Stewart Beattie
Source Protection Committee	Maria Bellantino-Perco
Source Protection Committee	Tony Dalimonte
Source Protection Committee	Paul Grenier
Source Protection Committee	Robert Bator
Source Protection Committee	Adrin Willems
Source Protection Committee	Drew Semple
Town of Lincoln	Madyson Yule
Township of West Lincoln	Brian Treble
Evening	
Company	Name
City of St. Catharines	Nancy Brzozowski
NPCA Community Liaison Advisory Committee	Moe Edwards
MOECC	Neil Gervais
Niagara Region	Jen Croswell
NPCA	Sarah Mastroianni
NPCA	Jayne Campbell
NPCA	Steve Miller
NPCA	Debbie Gullett
Source Protection Committee	Maria Bellantino-Perco
St. Lawrence Seaway Management Corp.	Steven Murray
Town of Niagara-on-the-Lake	Mark Iamarino

## **Source Protection Plan Update Stakeholder Consultation**

**Under Section 36, Ontario Regulation 287/07, Clean Water Act, 2006**

The Niagara Peninsula Source Protection Authority is proposing to update the 2013 Niagara Peninsula Source Protection Plan and Assessment Report. We are seeking input and comments on updating these documents. The current documents can be found at <http://www.sourceprotection-niagara.ca/>.

Proposed updates to these documents will consider future changes to municipal infrastructure, new provincial technical rules, and current Source Protection Plan policy effectiveness and implementation challenges. Additional considerations will include new information from environmental monitoring and other local considerations.

You are invited to attend a June 21<sup>st</sup> afternoon (2-4pm) or evening (6-8pm) workshop at our Ball's Falls Centre for Conservation at 3292 Sixth Avenue, Lincoln. At the workshop we will (i) present our preliminary analyses of issues and challenges facing the existing Plan, (ii) provide recommendations for areas of the Plan to be updated and (iii) receive feedback and comments from you regarding the proposed updates. Please e-mail RSVP to Debbie Gullet by June 15 at [dgullet@npca.ca](mailto:dgullet@npca.ca).

If you are unable to attend we would be pleased to receive your comments directly by mail, fax or e mail before August 31, 2017 for incorporation into the workplan. Contact information is located below. The Ministry of the Environment and Climate Change requires NPCA to prepare a workplan to update the Source Protection Plan and Assessment Report by November 30, 2017. We look forward to your participation in the stakeholder consultation process.

### **Niagara Peninsula Source Protection Authority**

Attention: Jayme D. Campbell, P.Eng.,  
Supervisor, Special Projects  
250 Thorold Road West, 3rd Floor  
Welland, Ontario, L3C 3W2  
**Tel: 905-788-3135 ext. 261**  
**Email: [jcampbell@npca.ca](mailto:jcampbell@npca.ca)**

## **Appendix D**



**Niagara Peninsula's Section 36 Workplan Proposal – Draft Report**  
**Source Protection Programs Branch Staff Assessment & Comments**

**October 3, 2017**

*Source Protection Authority (NPCA) responses in highlighted italics*

**Introduction:**

Thank you for submitting your draft Section 36 (s36) workplan to the Source Protection Programs Branch (SPPB) of the Ministry of the Environment and Climate Change (MOECC) on August 30, 2017. The comments and suggested revisions in this document are included to help add clarity to the s36 workplan and to recommend that stakeholders are engaged concerning the local impacts of updates being proposed to the Niagara Peninsula assessment report and source protection plan. The SPPB may provide additional technical comments at a later date and will continue to support source protection authority staff as they work to submit their completed workplan on November 30, 2017.

On October 13, 2015 the Minister issued an order requiring the Niagara Peninsula source protection authority to submit a workplan to the MOECC by November 30, 2017. The order specified that the workplan propose which portions of the source protection plan needed to be reviewed, including timeframes, consultation to be undertaken as well as rationale to support the workplan. The workplan must also take into account experiences gained from implementing the source protection plan and information from the first annual progress report (May 2017). The s36 workplan will help the MOECC understand what the source protection authority believes is in need of updates at the local level which will help inform a decision by the Minister on a further s36 Order under the *Clean Water Act*.

**MOECC Comments on Niagara Peninsula's Draft s36 Workplan**

**General Comments:**

- New or amended drinking water systems:
  - The workplan identified a number of “planned” drinking water systems and identifies the need to include these systems in the source protection plan.
  - As you are aware, municipalities should be incorporating source protection technical work and early policy development into the costs of new or amended drinking water systems. Given this, as part of your work planning process, when you engage municipalities about new or amended systems, please remind them that they should be undertaking this work, either through their own consultants or in collaboration with the source

protection authority before they bring their drinking water system on-line. Where appropriate, this can be done during or after their class environmental assessment as their preferred alternative is identified.

- As the work is completed by the municipality, the source protection authority can work with them to ensure the appropriate consultation is completed, and work with them to engage the source protection committee and affected stakeholders.
- The source protection authority will need to work with the municipality to determine if they need to incorporate it into the source protection plan early through a section 34 update, or through their section 36 update. That decision should consider when the system will come on-line and ensure that the plan is updated before the system comes into operation.

*Source Protection Authority response: NPCA would note Niagara Region representatives have supported the proposed municipal water system updates be included in a single Section 36 update.*

- Systems not captured in the Source Protection Plan:
  - The workplan references the need to protect other sources of drinking water and identifies the source protection authority's plans to include policies to address moderate and low drinking water risks to help address water quality issues in the region.
  - Municipalities and the province must have regard to moderate and low risk policies, meaning they must consider the vulnerability of source water in their decisions, but they don't have to specifically comply with the policies.
  - Municipalities already have the obligation to consider vulnerable area mapping in land use planning as required through the Provincial Policy Statement. They are responsible for implementing water policies to protect sensitive hydrologic features, including highly vulnerable aquifers.
  - Given this, we recommend that the source protection authority work with municipalities to determine whether or not an update to the source protection plan is necessary to take action, or whether they can take action to protect private sources and other types of drinking water systems by utilizing their authorities under the *Planning Act*, *Municipal Act* and the *Building Code Act*.

*Source Protection Authority response: NPCA would note Niagara Region and City of Hamilton representatives have supported an update to the Source Protection Plan (and Assessment Report) as the preferred approach to developing improved protection of private drinking water sources and aquifers.*

- Where a municipality feels the tools under the *Clean Water Act* are necessary to protect other vulnerable sources of drinking water, they have the authority to pass a resolution to include that system in the source protection plan.
- The MOECC has responded to the Auditor General of Ontario concerning recommendations made around the source protection program. We continue to encourage municipalities and source protection authorities to have discussions about the best options to manage risk to other source of drinking water within their local areas.

**Source Protection Authority response: Comments noted**

- Plan Updates (general):
  - The S36 review is not intended to lead to a re-evaluation of the work done within the assessment report and source protection plan to date. Recommendations for updates to assessment reports and source protection plans should focus on areas where there is clear evidence that an update to the plan is necessary (i.e.: Implementation challenges, gaps in policies, new or amended drinking water system, etc.). Therefore, the s36 workplan should not propose amendments relating the re-evaluation of the technical work within an assessment report or policies within a source protection plan without having the evidence to support such a proposal.
  - One area of confusion about the need for technical work relates to the March 2017 Director Technical Rules. Changes around vulnerability scoring for intake protection zones were intended to apply to systems where there was clear evidence that the drinking water system was vulnerable to contamination and that the vulnerability score did not properly reflect this.
    - During the development of the assessment reports, one of the requirements was to document the nature of the intake and any evidence of contamination issues at the intake.
    - If the current version of your assessment report does not indicate that a Great Lake intake is in a near-shore environment with linkages to it being vulnerable to contamination, and there is no new evidence of the intake being more vulnerable to contamination, then there is no strong rationale to revisit the vulnerability scoring.
  - Therefore, please consider the information in the approved assessment report on the vulnerability of your Great Lakes or connecting channel systems, and evaluate any new evidence before recommending a system be reassessed. If your analysis does not provide you with the justification

needed for re-assessing the vulnerability scoring of your Great Lake intake, then the source protection authority should consider removing this component from your s36 workplan recommendations.

*Source Protection Authority response: NPCA believes a new vulnerability score is appropriate for the Port Colborne intake as Technical Rule 95.1 (March 2017) states this rule can apply if it is in shallow waters or close proximity to the shoreline, not just if there is a history of water quality concerns. In addition, as source protection plan policies are to address new threats from occurring (not just to address existing threats) we see benefit in being able to prevent a number of potential future water quality threats in the IPZ-1 and IPZ-2.*

- Finding the right balance for the work being proposed:
  - It appears the workplan includes a significant amount of work that goes beyond what's needed to ensure the source protection plan remains relevant. Further to guidance provided at past source protection chairs and project managers meetings, the source protection authority needs to strike a balance between their 'needs' as opposed to their 'wants'. It's unclear if this lens has been applied when making recommendations for work on the Port Colborne WTP, Oil Pipeline, Transportation Threats, Great Lakes Water Quality, Climate Change, and Policy Improvement.

*Source Protection Authority response: NPCA believes that these items proposed align with the recent Mature Source Protection Program Vision and core principles shared in October 2017. From the vision and principles, with respect to Ontario's communities:*

*Remaining confident in the quality and long-term sustainability of their drinking water.*

*Taking appropriate and timely actions to ensure their drinking water systems remain protected; and*

*Actions outside CWA framework to protect drinking water are encouraged and supported.*

*Also it appears the proposed works align with future MOECC initiatives such as potentially adding pipelines to the prescribed list of threats.*

#### Executive Summary:

- The executive summary at the front end of the workplan is excellent; however, it would be helpful to include proposed timelines for the plan updates to be completed.

**Source Protection Authority response: Timelines will be amended to include expected submission dates to the MOECC.**

Table of Contents:

- Excellent idea to include this in the s36 workplan – well done.
- If time allows and if it works for the source protection authority, one option to allow for a simplified flow of the workplan information is for the s36 workplan to follow the structure communicated in the December 2016 MOECC guidance bulletin, or the format that Conservation Ontario is developing. However, if this is not feasible the current format of the Niagara Peninsula s36 workplan is fine.

**Source Protection Authority response: Comments noted**

Specific Comments on Workplan Content:

- Section 1.1.2 (Workplan Consultation): You could add that the source protection authority consulted with the MOECC in the spring of 2017 with regards to the content of the s36 workplan (we had several calls and emails earlier this year).
- Section 1.1.3 (Workplan tasks): This section includes details on the “Workplan Content” guidance that was distributed in December 2016; however the information is difficult to sort through. As mentioned above, if it’s feasible, the source protection authority could follow the structure communicated in the December 2016 MOECC guidance bulletin, or the format that Conservation Ontario is developing.
- Section 2.1 (Niagara Falls WTP):
  - Typo in first sentence.
  - Details concerning the temporary intake are well documented.
  - Third paragraph: “...an amendment to the Source Protection Plan would be recommended” – it would be important to note that the science within the assessment report would also need to be updated.
  - Fourth paragraph: in the last sentence, you reference the ‘SPC’ – did you mean your local municipality?
  - The March 2017 Director Technical Rule changes to the source vulnerability factors for Type A and Type B intakes now enable the identification of significant drinking water threats without the use of event based modelling. If the vulnerability scores are still not able to address a suspected concern, then a source protection authority may be able to explore the event based modelling option. Sufficient rationale should be supplied to the MOECC to support this should the source protection authority recommend this option.

***Source Protection Authority response: Comments noted***

- Section 2.4 (Project Management):
  - Good content in paragraph 2 on the Municipal Class EA process. As mentioned previously, it is intended that vulnerable area mapping, scoring, and potential policy impacts as a result of changes to municipal drinking water systems be carried out in accordance with the Director Technical Rules during a Class EA project or once a preferred option is identified. The information can then be easily incorporated into updated assessment reports and source protection plans. For this reason it's important for municipalities and source protection authorities have good communication throughout updates for new and amended drinking water systems
- Section 3 (Improving Municipal Supply Protection):
  - As previously indicated, the March 2017 changes to the Director Technical Rules that pertain to the source vulnerability factor for intake protection zones were intended to apply only when: (1) there is information previously noted in the assessment report or supporting studies to demonstrate the source is more inherently vulnerable than the previous rules allowed for; or (2) there is new evidence that the intake is vulnerable to contamination. You will need to provide evidence that there is a reason to re-evaluate the source vulnerability factor for the Port Colborne Water Treatment Plant.

***Source Protection Authority response: Please see our previous answer under Plan updates (general).***

- With regards to the three 'concerns' noted in the approved assessment report – chloride, phosphorus and algae – before including a proposal for policies that address the contributing activities of these concerns, the technical rules require that an issue be identified in accordance with the technical rules and issues contributing areas be delineated. Is there sufficient information to satisfy the requirements of the technical rules for these concerns to be elevated to drinking water issues?

***Source Protection Authority response: There is sufficient new information available from Niagara Region to evaluate the three concerns under the technical rules for designation as drinking water issues.***

- Has the source protection authority considered if the evaluation and inclusion of additional transportation policies is necessary? The plan currently contains several transportation and event-based modelling threat policies (signage, E & O, emergency response plan updates and

implementation of risk management measures). Is there new information available to warrant further research into policy options available to address these risks to source water?

*Source Protection Authority response: NPCA notes our stakeholders strongly advised that transportation threats be reviewed as such we recommend this issue be included in the workplan. This would be in the spirit of “continuous improvement” as mentioned in the Mature Source Protection Program core principles.*

- Great Lakes:
  - Since the passing of the *Clean Water Act*, Ontario has passed the *Great Lakes Protection Act* to keep the Great Lakes drinkable, fishable and swimmable for future generations. With this in place, Ontario is looking at how to protect the Great Lakes for more than just drinking water, and the impacts of this act will influence how we take action under the *Clean Water Act*.
  - Currently, Ontario is consulting on an action plan to reduce phosphorous and blue green algae in Lake Erie. Given this, plan updates should focus only on exiting or trending issues where it makes sense to address them under the *Clean Water Act*.

*Source Protection Authority response: Comments noted*

- Climate Change:
  - The Director Technical Rules do not require this work be completed. Furthermore, there is some uncertainty at the present time as to how the risk of climate change should be evaluated. The MOECC is working on guidance to assess the risk and will distribute it once completed.

*Source Protection Authority response: NPCA strongly recommends consideration of this initiative. It is in the spirit of the recently proposed recommendations to achieve the Mature Source Protection Program Vision. This recommendation states that “Ensure consideration of climate change mitigation and adaptation (resilience) is embedded into every decision and action.”*

- The section speaking to the monitoring of baseline conditions would help indicate if the drinking water systems are resilient to contamination. How will the source protection authority be using the monitoring data to assess the changes in the risk posed by activities on vulnerable areas? Furthermore, several years of data collection would be necessary in order to quantitatively evaluate water quality and quantity responses from the impacts of climate



change. Has the source protection authority considered a vulnerability/qualitative climate change assessment as an option?

*Source Protection Authority response: NPCA concurs that such monitoring would help indicate if the Port Colborne water treatment plant is resilient to contamination under storm event conditions. The data would be evaluated to determine the water quality composition during storm events and if water quality changed, the chemistry analyzed to determine if likely from urban areas and the types of land uses contributing. The NPCA concurs that analysis over-time would be beneficial to continue. Rather than decision scaling we would advocate collection of local water quality data that we can review with our own precipitation monitoring.*

- Policy Improvement:

- The workplan should expand on their rationale behind changes to policies. For example, have implementing bodies indicated there are implementation challenges through their annual reports?

*Source Protection Authority response: The NPCA notes that implementing bodies have shared a number of implementation challenges. This occurred both at our Section 36 workshop as well at one-on-one meetings.*

- The language currently in the workplan under section 3.6 states that the implementing bodies be “canvased” for input and that a working group be used to review policies. This information should already be available to the source protection authority through ongoing dialogue with implementing bodies.

*Source Protection Authority response: Comment noted*

- Section 4 (Groundwater Protection):

- Hydrogeologically Sensitive Areas: When considering how to protect these areas, please consider our earlier comments about the authorities that municipalities already have to protect these areas. Municipal actions can come from the authorities granted to them by the *Planning Act*, *Municipal Act* and the *Building Code Act* - all of which are available to municipalities with any vulnerable area already mapped in the assessment report. The *Clean Water Act* Part IV tools are not authorized for use in vulnerable areas except for significant drinking water threats, which wouldn’t be applicable in highly vulnerable aquifers.
  - Given the above, municipalities in NPSPA can take the lead on carrying out many of the actions outlined in section 4 without making changes to the source protection plan. To what extent has



the source protection authority engaged local municipalities about this?

*Source Protection Authority response: The NPCA notes as mentioned earlier, Niagara Region and City of Hamilton representatives have supported an update to the source protection plan (and assessment report) as the preferred approach to developing improved protection of private drinking water sources and aquifers.*

- Naturally occurring groundwater concerns: There are no tools under the *Clean Water Act* to address naturally occurring chemicals in groundwater. They cannot be identified as issues, and policies cannot be developed. Nor can the *Clean Water Act* influence notifications on natural water quality. Given this, we are uncertain what this section of the workplan is intending.

*Source Protection Authority response: The NPCA notes that the Assessment Report (Section 2.4) already has a section on some naturally occurring groundwater concerns. There is a strong desire to update this information as much has been learned since the Assessment Report has been completed. Also the information contained within the Assessment Report serves as a key tool for education. The NPCA recommends reconsideration of this work program item by the MOECC to match their “recommendation to achieve vision” statement “Encourage protection of sources of drinking water that are not currently included in source protection plans.”*

- Gas wells: Under the *Clean Water Act* framework, there is no authority to address improperly abandoned wells. These are addressed through Regulation 903 under the *Ontario Water Resources Act* or through the *Oil, Gas and Salt Resources Act*. Given this, we are uncertain what this section of the work plan is intending.

*Source Protection Authority response: The NPCA notes that the Assessment Report (Section 4.1.3.3) already has a section on oil and gas wells. Some of these have been identified as transport pathways increasing aquifer vulnerability. As described in our draft report it is recommended more recent results be added to our Assessment Report. The information contained within the Assessment Report serves as a key tool for education. The NPCA recommends reconsideration of this work program item by the MOECC to match their “recommendation to achieve vision” statement “Encourage protection of sources of drinking water that are not currently included in source protection plans.”*

***Source Protection Authority (NPCA) responses in highlighted italics***

Since we are considering updating our Assessment Report and our Source Protection Plan it may be beneficial to look at Source Water Protection planning in the United States. They begin by recording baseline source water quality, then regularly monitor it to see if it improves. The purpose of Source Protection in the States is cleaner, purer water at their treatment plants.

Source Protection Planning in the United States

The 1996 Safe Drinking Water Act (SDWA) requires states to develop programs to assess potential contamination threats to the watersheds and groundwater protection areas of drinking water sources. After an Assessment is made a Source Water Protection Plan is developed and implemented in accordance with the U.S. Environmental Protection Agency. The EPA embraces a watershed or “place-based” approach to protect aquatic resources where communities, neighbour to neighbour, can engage, educate and persuade one another, as to the most cost-effective opportunity to have uncompromised drinking water. Such efforts by multi-agencies, multi-stakeholders and general public will ensure the most efficient and economical means of protecting source water and as a result produce the best drinking water. To accomplish this, funding is secured from the federal, state and city government funds with the remainder paid by the Water Treatment Plants which pass the costs down to their consumers. No expenses are born by the agricultural landholders in the watersheds that supply the water sources, unless on a voluntary basis.

Basis of a Source Protection Plan

The Source Protection Plan is an ongoing framework which spans 50 years. The tasks are divided into short term (less than 3 years), intermediate (4 – 10 years) and long term implementation frames. The plans:

1. Summarize the results of Source Water Assessment Reports and evaluates early warning monitoring systems.
2. Surveys other U.S. SPP's on their status, progress, and success.
3. Develop a timeframe for implementation of tasks.
4. Consider watershed management with regard to daily load.
5. Storm water management.
6. Great Lakes area regulations-Great Lakes Charter Annex 2001, Great Lakes Initiatives.

Framework for Source Protection Plans

1. Gather watershed information- establish baselines.
2. Build a watershed team and establish public support.
3. Establish goals and select protection measures.
4. Set priorities-implement measures having the greatest effect early on.
5. Measure successes and adjust program.

### Observations from U.S. Source Protection Plans

1. Agriculture and agricultural pathogens are not a big concern. Where they are, the properties are purchased outright. ( A survey of the American Water Works Association found that their number 1 concern was oil and petroleum products, followed by algae growth. Dissolved heavy metal salts were also a concern.)

*Source Protection Authority response: Comment noted*

2. Concerns from agricultural nutrients is that they fuel algae growth which clog water filters so more expensive equipment is needed.

*Source Protection Authority response: Comment noted*

3. Wildlife (like geese) are recognized as a real problem while here we put all the blame on agriculture.

*Source Protection Authority response: Comment noted*

4. Education and signage to make people aware of actions which may harm source water (don't feed geese along waterways or more will come) The general public should be involved. Here the general public hasn't heard of source water protection (almost no-one showed up for public meetings at each stage)

*Source Protection Authority response: Comment noted*

5. The early actions include spill and emergency actions in case of a one-time catastrophe. We know that our WTP operators know what to do?

*Source Protection Authority response: Niagara Region water treatment plant operators participate in spill response exercises*

6. Their SPP's are continuously evaluated to see what is working and improve on things that aren't. They do this by originating baseline quality measurements to follow the progress. We don't have any goals or standards to evaluate our progress. (Is not having another Walkerton the only measure of success?)

*Source Protection Authority response: Comment noted.*

7. The U.S. SPP's recognize that source water originates from the entire watershed which extends for 100's of kilometres from the WTP intakes. WE pretend that all the water originates in the tiny sterile area of our IPZ's. In Niagara 0.0000% of the volume of water at our intakes originates within our IPZ's.( A discharge from a sewage treatment plant in Thunder Bay has as much effect on the source water at our intakes. )

*Source Protection Authority response: The NPCA have proposed to the MOECC to consider water quality impacts to the Great Lakes as indicated by concerns with chloride, phosphorus and algae.*

8. Analysis of U.S. SPP's shows a measurable benefit for every dollar spent. Even though consumers and tax payers foot the bills there is an offset with lower costs to treat water for use by consumers. Here, we haven't established criteria for evaluating if our SPP's are making any difference at all. So here, in Ontario, if we throw lots of money at a problem, then we assume it's fixed!

*Source Protection Authority response: Comment noted.*

***Source Protection Authority (NPCA) responses in highlighted italics***

Thank you to Jayme Campbell for the invitation to respond to the Source Protection Area Section 36 Workplan Proposal Draft Report.

The limits of regulation for the tributary areas surrounding the Intake Protection Zones (IPZs) as described in the Source Protection Plan appear to include a prescribed setback from the IPZs. This is an acceptable approach for areas without storm sewer servicing such as agricultural and rural areas. However, many of the areas around the IPZs are developed, with Residential, Institutional, Commercial and Industrial development. While not all of the developed lands are serviced with storm sewers, they would then have combined sewers, and some of these would have overflows to watercourses in cases of extreme weather. Those that have storm sewers would have direct outlets to the watercourses. In relatively few cases, these outlets would be provided with stormwater treatment ponds, or oil/grit separators.

***Source Protection Authority response: NPCA concurs there are two combined sewer overflows mapped within intake protection zones (Crystal Beach wastewater treatment plant discharge to the Rosehill/Fort Erie water treatment plant IPZ-2 and the Biggar Lagoon discharge to the Grimsby water treatment plant IPZ-2)***

In the potential case of a “spill” on any of the developed lands, liquid components would enter the collection systems through catchbasins and drainage inlets. These would be transported through the systems of drains and pipes to the outlets. This would occur regardless of the distance the spill occurred from the outlet. Unless the outlets are fitted with some treatment, the spill would enter the IPZ and dependent on the nature of the spill, could potential require a shut-down of the Water Treatment Plant.

***Source Protection Authority response: Comment noted***

The setbacks as shown on the IPZ areas do not reflect the limits of the drainage areas that are tributary to the IPZ. Because of the physical infrastructure, it is herewith suggested that the areas around the IPZs recognize the entire areas tributary to the IPZ, and any new developments, or any new drainage infrastructure be required to include stormwater treatment pond(s) or oil/grit separator(s).

***Source Protection Authority response: NPCA notes intake protection zones were mapped to urban stormsewer catchment boundaries and in rural watercourses to the 2-hour time of travel.***

Comments on Groundwater Protection in the areas of the High Vulnerable Aquifers were provided by others, and I would concur with their concerns. In areas of quarrying, such as Port Colborne Quarries (PCQ), the bedrock and aquifer is directly exposed, quarrying is below the natural top water level, and any spill would immediately impact the groundwater. This risk continues while quarry equipment continues to use the exposed areas, and will continue until suitable rehabilitation takes place. The rehabilitation plans are established to provide ultimate protection. Recognizing that limestone is a non-renewable resource only available in particular locations, quarrying is required, but rehabilitation is prescribed. In the case of PCQ, the rehabilitation in the license is Passive Water Recreation. This would be similar to the Welland Recreation Canal, the water source for the Welland WTP, where the designation is “go slow” restricting powered boats which could contribute fuel spillage. The sooner the rehabilitation is completed, the lower the risk to the aquifer.

***Source Protection Authority response: Comment noted***

I would be pleased to meet with you to further detail my comments.

Respectfully submitted,

JACK S HELLINGA, CET

Comments by H. Wells, Private citizen

***Source Protection Authority (NPCA) responses in highlighted italics***

**From:** "Harry Wells"

**Date:** September 15, 2017 at 10:16:06 PM EDT

**To:** <[sourcewaterprotection@niagararegion.ca](mailto:sourcewaterprotection@niagararegion.ca)>, "Maria Bellantino Perco"

<[Maria.BellantinoPerco@vale.com](mailto:Maria.BellantinoPerco@vale.com)>

**Cc:** "'Jack Hellinga'"

**Subject:** SPP for Port Colborne Vulnerable Aquifer

Dear Ms. Croswell and Ms. Bellantino Perco

I was directed by the staff for the City of Port Colborne to raise my concern with the Drinking Water Source Protection Plan Committee following my presentation to Council during their process for amending Port Colborne's Official plan. In short I'm sure you are aware of Port Colborne Quarries (PCQ) proposal to have their exhausted aggregate quarries rezoned from Extractive Industrial to Heavy Industrial. The intent of PCQ is to be able to establish any type of heavy industry they desire in the exhausted quarries. These exhausted quarries are within the area identified as a highly vulnerable aquifer from which I and many other rural citizens of Port Colborne our drinking water. The depth of the quarries is below the ground water table and the geological makeup of the area make the highly vulnerable aquifer easily impacted by any releases accidental or otherwise from heavy industries established in the quarries. Any negative impact including contamination of the aquifer would be non-remedial and could have a disastrous adverse effect on those people using that aquifer as a source of drinking water. I would be pleased to provide you with the detail on this at your request.

***Source Protection Authority response: Comment noted, industrial use considerations may be included in future policy evaluations for hydrogeologically sensitive areas***

It is my understanding the SPP Committee is in the process of amending the SPP. I'm requesting that consideration be given in the SPP to include protection of the highly vulnerable aquifer from any impact resulting from the industrial development of Port Colborne Quarries instead of the progressive remediation of the exhausted quarries to a passive lake as they are required to be doing as a condition of the aggregate license.

***Source Protection Authority response: Comment noted.***

I look forward to your assistance in protecting our natural resources.

Yours truly,  
Harry Wells

## **Appendix E**

# PROGRAM VISION



ENVIRONMENTAL  
PROTECTION

Sources of drinking water across Ontario for systems within and outside conservation authority boundaries are protected. All Ontarians are confident in the quality and long-term sustainability of their drinking water.

Communities take appropriate and timely actions to ensure their drinking water systems remain protected.

Source protection framework remains consistent and relevant through continuous improvement, and source protection plans are up-to-date.

Program is adaptive and responsive to evolving priorities, opportunities, and emerging issues.

Communities, including Indigenous groups, are empowered to make place-based decisions through a transparent process.

Source protection is aligned with other provincial, federal, municipal and Indigenous frameworks, contributing to integrated decision making.

Knowledge and experience are leveraged and shared. Actions outside CWA framework to protect drinking water are encouraged and supported.

Locally-driven environmental protection approach that is sustainable over the long term.

Clarity regarding roles and responsibilities in program delivery. Commitment from all partners and stakeholders.

Long term funding needs are identified and incorporated into daily business and operational plans of all partners and stakeholders.

CORE PRINCIPLES

# Mature Program Vision & Core Principles

Effective, sustainable source water protection

- Strengthen **drinking water safety net**. Ensure quality and long term sustainability of sources of drinking water across Ontario.
- Ensure source protection framework remains **consistent** and **relevant** through continuous improvement (e.g., clarify rules, address gaps, incorporate new science).

Efficient, integrated, locally-driven decision-making

- Empower communities to take **appropriate** and **timely** actions to ensure their drinking water systems remain protected.
  - Enable **place-based** environmental decisions through an **efficient** and **transparent** process; maintain transparency already enshrined in legislation.
- Provide **clarity** on roles and responsibilities in program delivery.

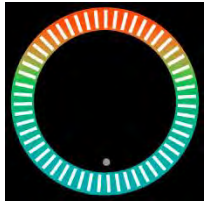


# MOECC Strategic Plan Alignment

Clean Air, Land and Water Objective

Priority Initiatives:

- Water: Protect water quality and quantity by implementing source protection program.



Modern Regulator objective

Priority Initiatives:

- Embed a risk-based approach to environmental permissions.
  - Rewards good actions – recognizes source protection committee / authority efforts in working responsibly with municipalities and province to develop effective plans.
- Develop and adopt a community, place-based environmental protection approach that allows for environmental problem solving.
- Create and maintain an effective legislative and regulatory framework.

# Recommendations to Achieve Vision

Outcome: Improved effectiveness of protective framework

Outcome: Maximized efficiency of program delivery

Outcome: Strengthened local environmental decision-making

Outcome: Commitment & enhanced partnerships

Ensure **environmental protections** remain consistent and relevant through continuous improvement of the technical framework – clarify rules, address gaps, incorporate new science, simplify processes and Tables of Drinking Water Threats.

Increase **municipal accountability** for the protection of new or expanded drinking water systems. Ensure new or amended municipal residential systems in source protection areas are included and protected by the CWA expediently.

**Reduce burden** in plan development / amendment processes, i.e., remove onerous ministry approval requirements and streamline review processes.

Encourage protection of sources of drinking water that are not currently included in source protection plans, i.e., systems servicing Indigenous populations, municipalities outside of conservation authorities, other systems.

Align the source protection program to better support **Indigenous inclusion** and **recognition**.

Ensure consideration of **climate change mitigation** and **adaptation** (resilience) is embedded into every decision and action.