

Workshop Overview

Source Protection Plan Update Workshop
June 21, 2017

Agenda

- Welcome and Introductions
- Workshop Overview
- Background Presentation
- Q and A
- Break
- Source Protection Plan Update Workplan Considerations – Overview
- Q and A
- Source Protection Plan Update Workplan Considerations – Discussion
- Next Steps

Why this workshop?

- The MOECC has directed NPCA to prepare a workplan to update the Source Protection Plan by November 2017
- This workplan is to be developed in consultation with stakeholders. This workshop is part of that consultation.
- Today is only the start, comments will be received into the fall on a draft workplan.

Workshop goals

- Provide a framework to:
 1. Understand the source water protection program in Niagara
 2. Highlight opportunities for a future update of the Source Protection Plan
 3. Obtain comments on updating the Source Protection Plan.

Questions

- Time has been allotted time after each presentation for questions
- If you prefer please record them and we can discuss later
- Also if you would like a separate meeting we can meet with you to further discuss.

Source Protection Program Overview

Source Protection Plan Update Workshop
June 21, 2017

Objectives of the Source Protection Plan

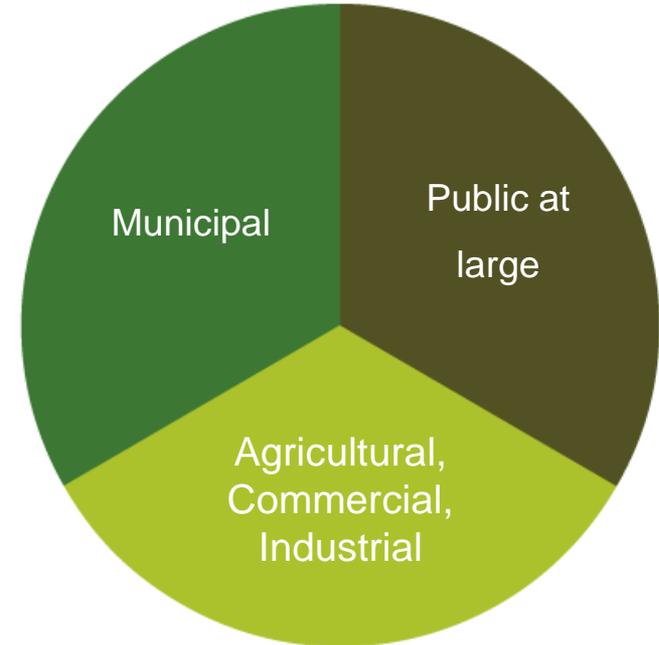
- 1. Protecting existing and future drinking water sources in the Niagara Peninsula Source Protection Area; and*
- 2. Ensuring through management or prohibition, that activities identified as threats to drinking water either never become a significant threat or, if the activity is already taking place, the activity ceases to be a significant threat.*

(Section 2.1, Niagara Peninsula Source Protection Plan)

Key Players

Source Protection Committee (SPC)

- Multi-stakeholder committee comprised of 9 members, 1/3 municipal representation. Non-voting liaisons from SPA, Health Unit and MOECC.
- Makes recommendations to the Source Protection Authority regarding the annual reporting and potential revisions of the Source Protection Plan.



Source Protection Authority (Niagara Peninsula Conservation Authority)

- SPA Board appoints the SPC, SPA staff provide administrative and technical support to the Source Protection Committee
- Ultimately responsible for Source Protection Plan monitoring implementation, reporting, and revisions.

Other Key Players

Municipalities

- Participated in the initial development of the Terms of Reference (ToR), Assessment Report (AR) and Source Protection Plan (SPP).
- Implementers/enforcers of local measures, actions, and policies to address drinking water threats.
- Ongoing role in plan updates & ensuring new drinking water systems are included.

Province

- Develop, update and provide guidance on Clean Water Act, Regulations and technical rules.
- Provide funding.
- Approvals (ToR, AR, SPP and revisions to plans)
- Implement policies including legally binding decisions on prescribed instruments (e.g. permits, approvals, licences etc.) and other non-legally binding policies (e.g. funding, research, education and outreach etc.)
- Reporting on implementation progress.

Source Protection Process

Assessment Report (November 2013)

- Vulnerable zones and vulnerability scores delineated
- Significant threats identified

Source Protection Plan (legal effect October 2014)

- Policies to address significant threats
- Implementer timelines and responsibilities

2nd in the
province

Implementation of Source Protection Plan (2014-2017/19)

- By municipalities, provincial ministries, etc.
- Annual monitoring reporting by SPA

1 of 3 in
province

Update of Source Protection Plan (2017)

- Submission of SPA workplan to MOECC for consideration



DeCew Falls
Highway 406



Lake Gibson
Alternate Intake

Niagara Peninsula Assessment Report



Port
Colborne

Source Protection Plan Update Workshop
June 21, 2017



Welland

12/20/2006 3:07 pm

Assessment Report Presentation Outline

- What is an Assessment Report?
- Intake Protection Zones IPZ-1 / IPZ-2 / IPZ-3
 - Vulnerability
 - Fuel Spills
- Highly Vulnerable Aquifers

What is an Assessment Report?

1. Summary of technical studies
2. Identifies threats to water quality
3. Completed according to provincial rules

“science that informs policy”

Types of Vulnerable Areas



Primary:

- Municipal Surface Water Intake Protection Zones (IPZs)
- ~~Municipal Wellhead Protection Areas (WHPAs)~~

Secondary:

- Highly Vulnerable Aquifers (HVAs)
- Significant Groundwater Recharge Areas (SGRAs)

Surface Water Vulnerability

1. Classification of Intake

Type A:
Great Lake

Type B:
Connecting Channel

Type C:
Inland River

Type D:
Other

DeCew Falls - B

Niagara Falls - B

Grimsby - A

Welland Canal

Niagara River

Lake Ontario

Welland - B

Port Colborne - B Fort Erie/Rosehill - A

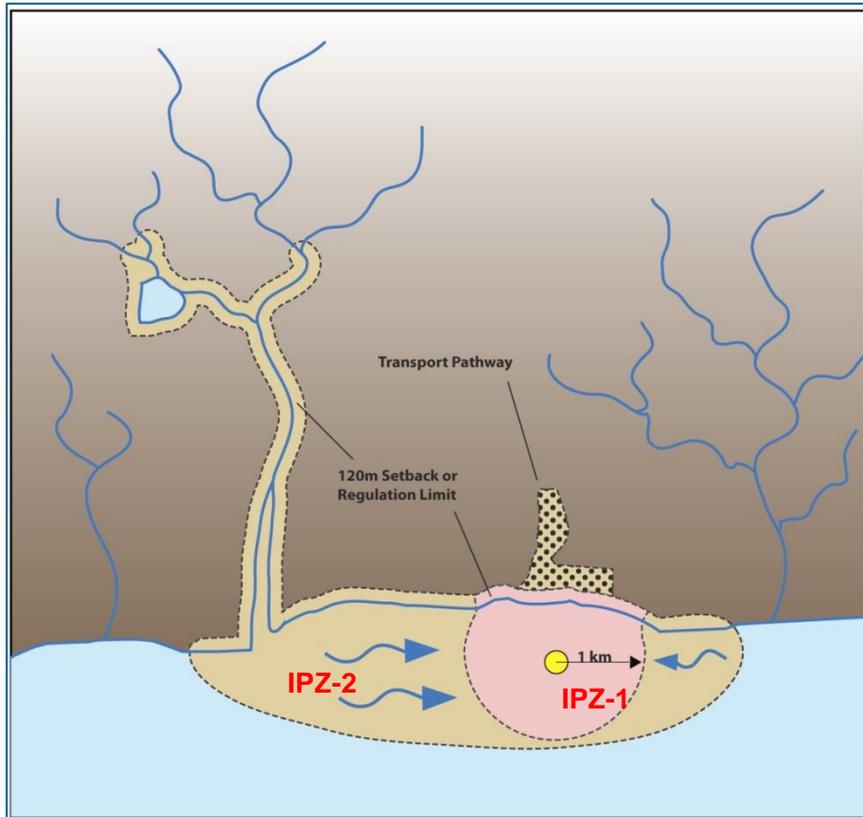
Old Welland Canal

Welland Canal

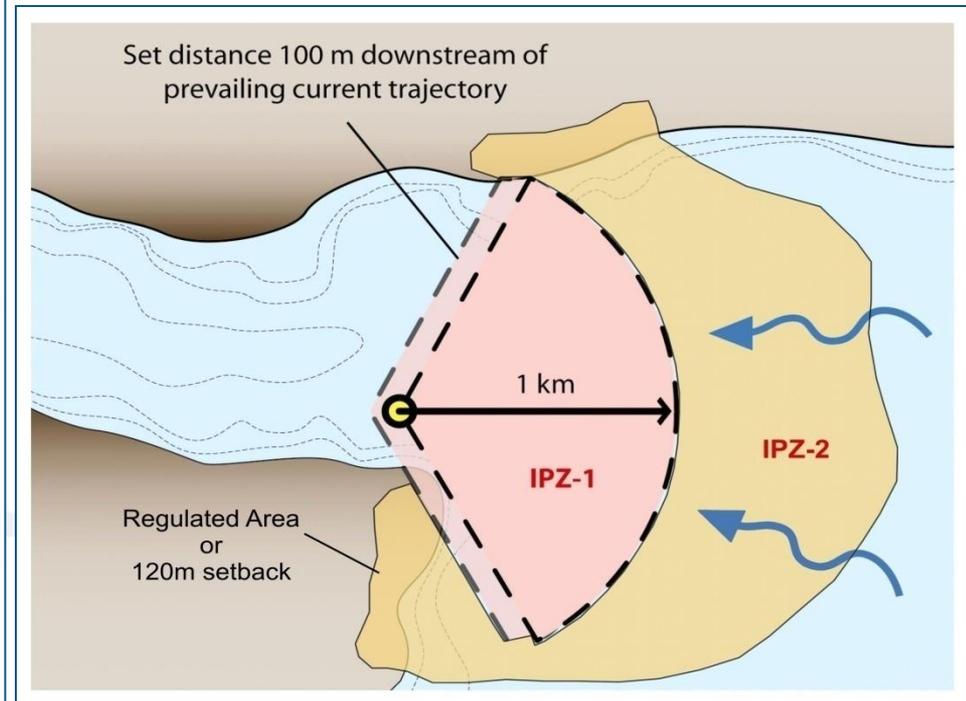
Lake Erie

Delineation of Surface Water IPZs

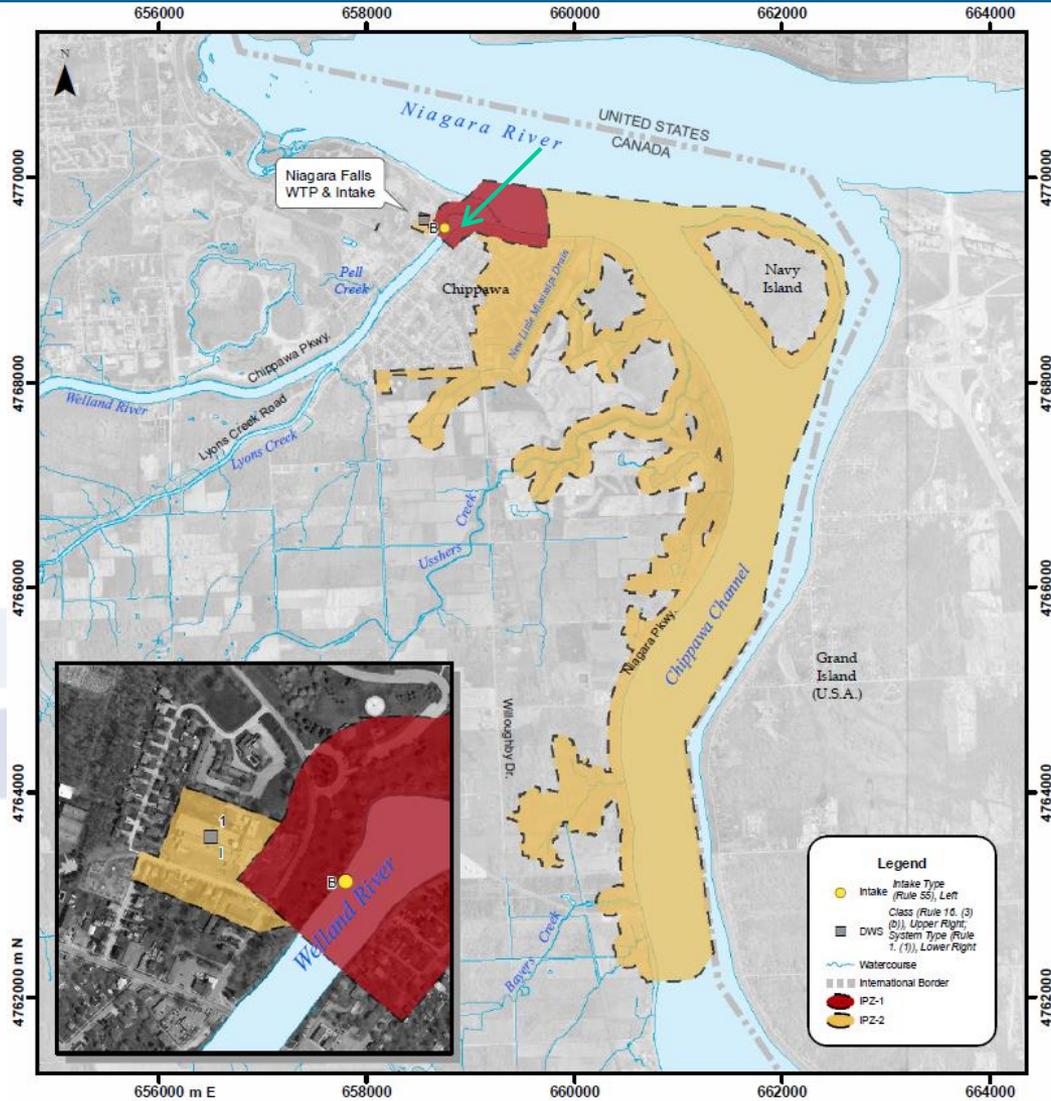
Type A (Grimsby, Fort Erie)



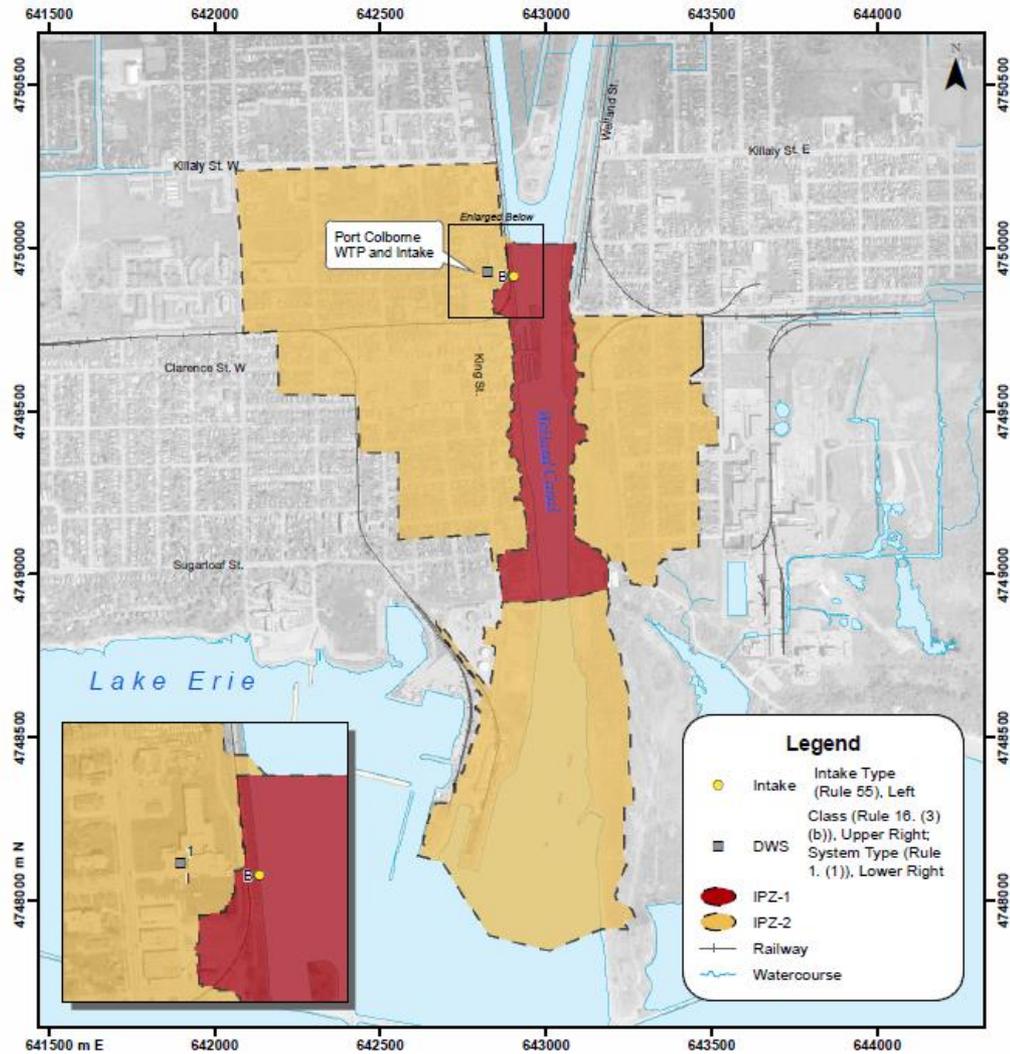
Type B (Port Colborne, Welland, DeCew Falls, Niagara Falls)



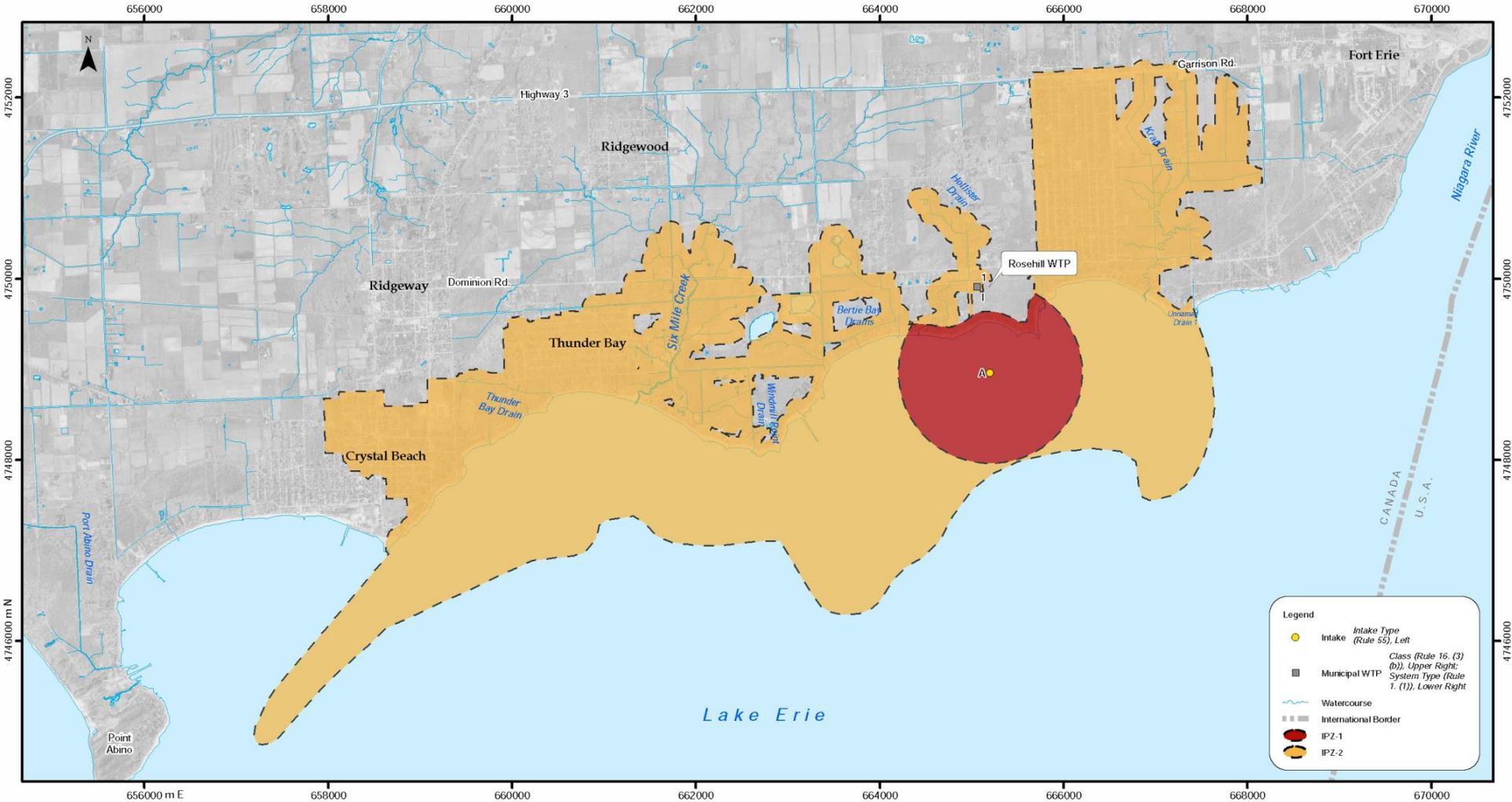
Niagara Falls



Port Colborne



Rosehill (Fort Erie)



Assignment of Vulnerability Score

$$\text{Vulnerability Score} = \text{Area Vulnerability Factor} \times \text{Source Vulnerability Factor}$$

■ Area Vulnerability Factor

- Land cover, soil type, permeability, slope of setbacks
- Hydrological and hydrogeological conditions
- Percentage of area composed of land

■ Source Vulnerability Factor

- Distance of intake from land
- Depth of intake from top of water surface
- Number of recorded drinking water issues related to intake

Niagara's Vulnerability Scores

Intake	Type	IPZ-1 Vulnerability Score	IPZ-2 Vulnerability Score
Niagara Falls	B	8.0	6.4
Port Colborne	B	9.0	8.1
Welland	B	7.0	N/A
Decew Main Intake and 406	B	8.0	4.9
Decew Lake Gibson	B	8.0	5.6
Rosehill	A	7.0	5.6
Grimsby	A	5.0	4.0

Surface Water Vulnerability

1. Classification of Intake

Type A:
Great Lake

Type B:
Connecting Channel

Type C:
Inland River

Type D:
Other



2. Delineation of Surface Water Intake Protection Zones



3. Assignment of Vulnerability Score



4. Identification of Potential and Existing Threats

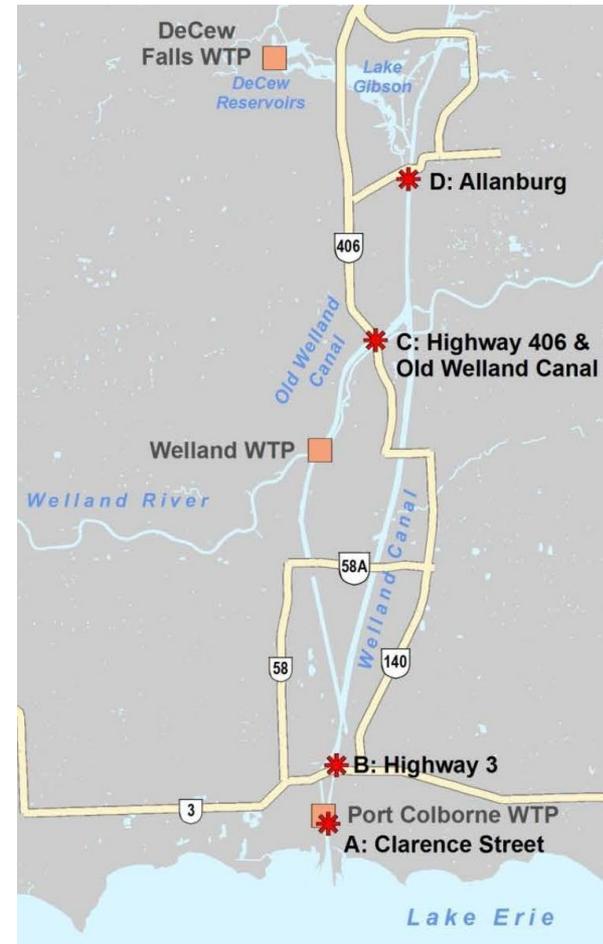
Prescribed Threats

Non-Prescribed
Locally-based Activities

Conditions From
Past Activities

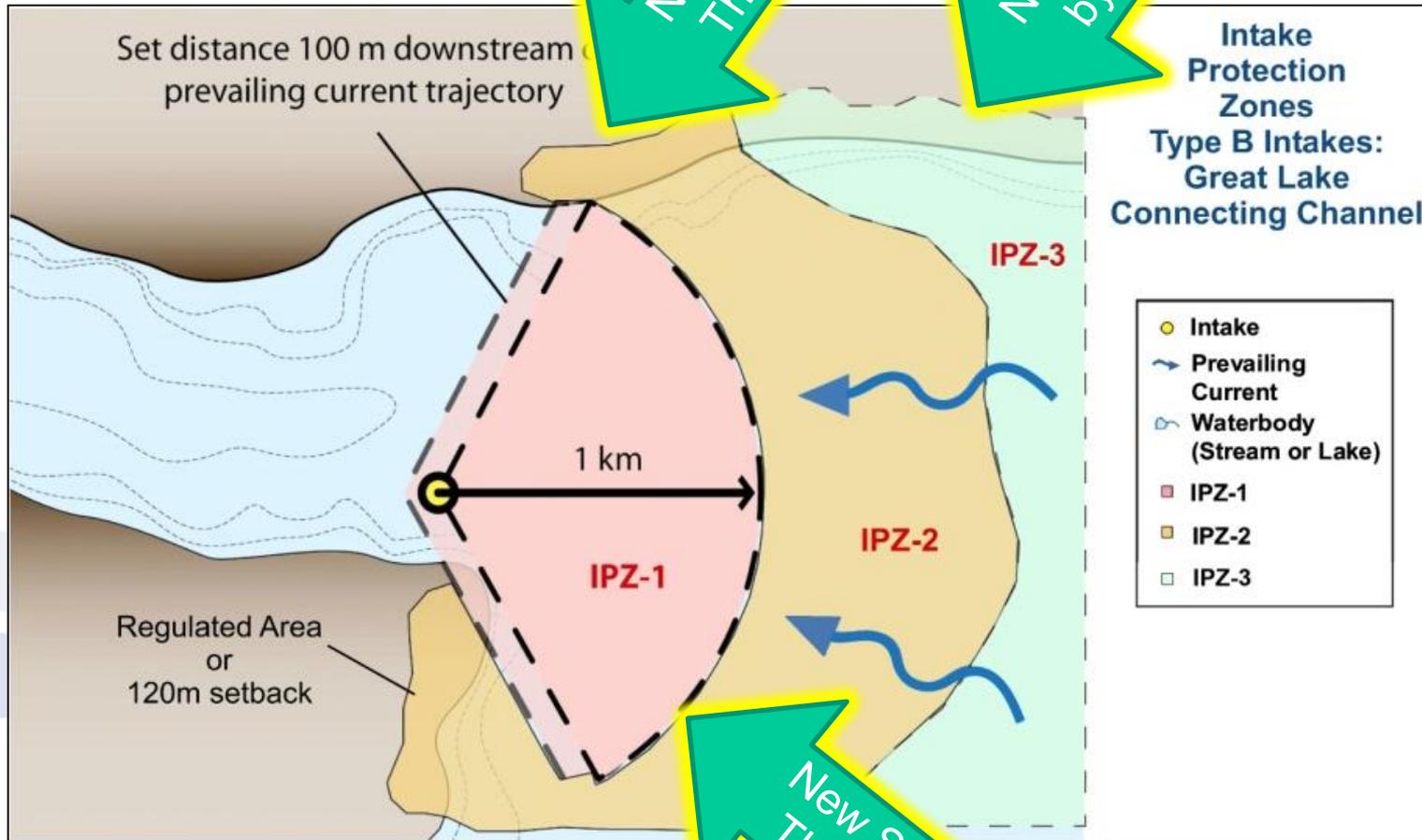
Diesel - Locally-Based Threat

- What: Diesel spills were modelled to see if contaminant concentrations would exceed drinking water standards at the water treatment plant
- Where: Four potential Welland Canal spill locations, and analysis of effects to the Port Colborne, Welland and DeCew Falls water treatment plants

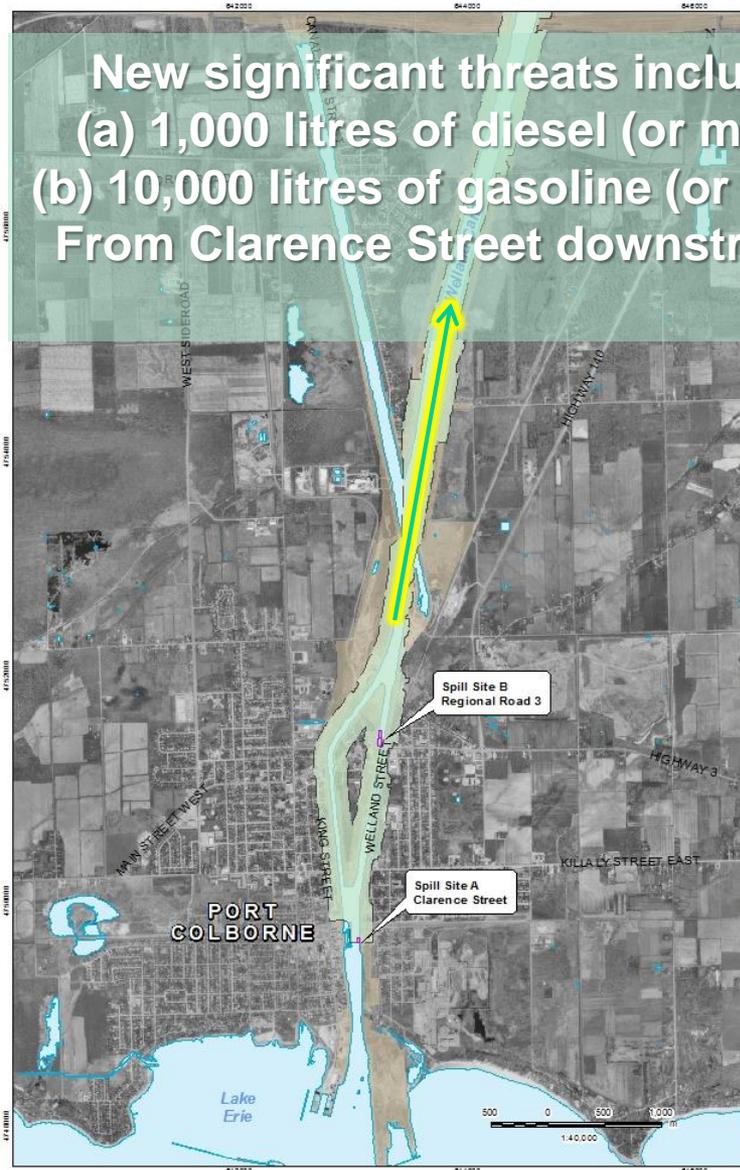
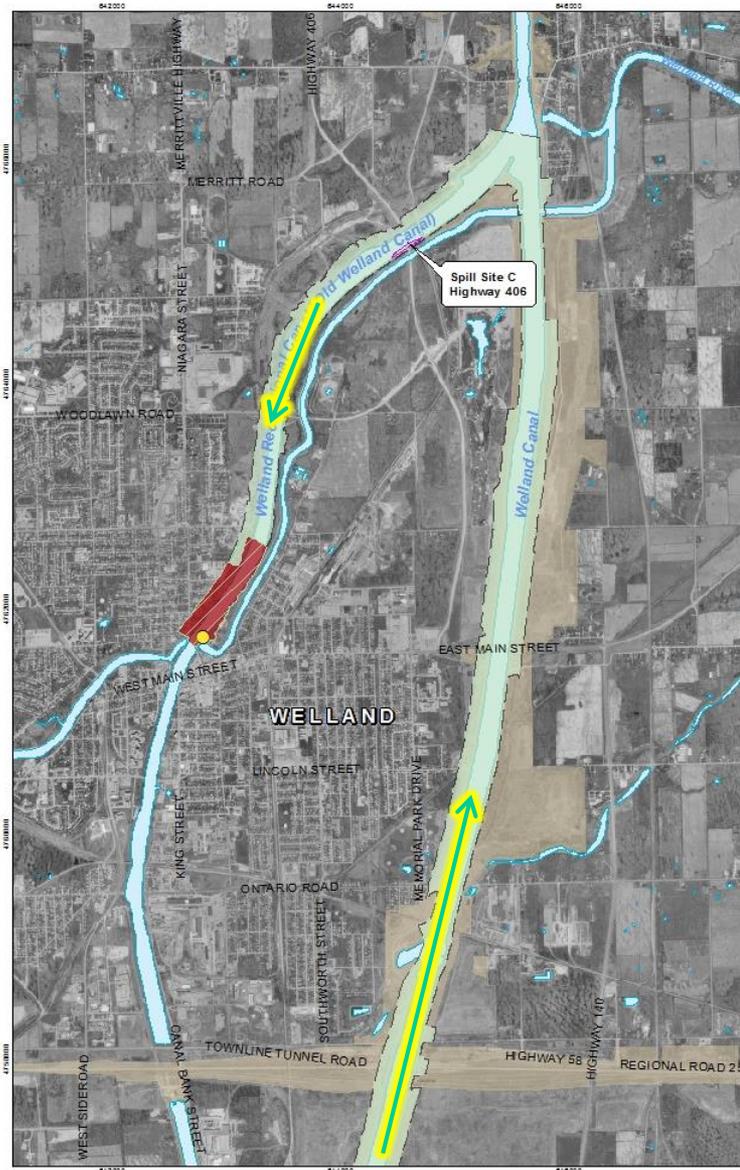


What is an IPZ-3?

An area outside of an IPZ1/IPZ2 where an activity would degrade water quality at a municipal intake



Welland Modelling Results



New significant threats include:
 (a) 1,000 litres of diesel (or more)
 (b) 10,000 litres of gasoline (or more)
 From Clarence Street downstream.



Legend

- Surface Water Intake
- IPZ-1
- IPZ-3
- Also Subject to IPZ-3 Significant Threat Policies
- Federal Lands
- Modeled Spill Location

Notes:

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Imagery produced under license with the Niagara Peninsula Conservation Authority.

Project

Niagara Peninsula
 Source Protection Area
 Assessment Report

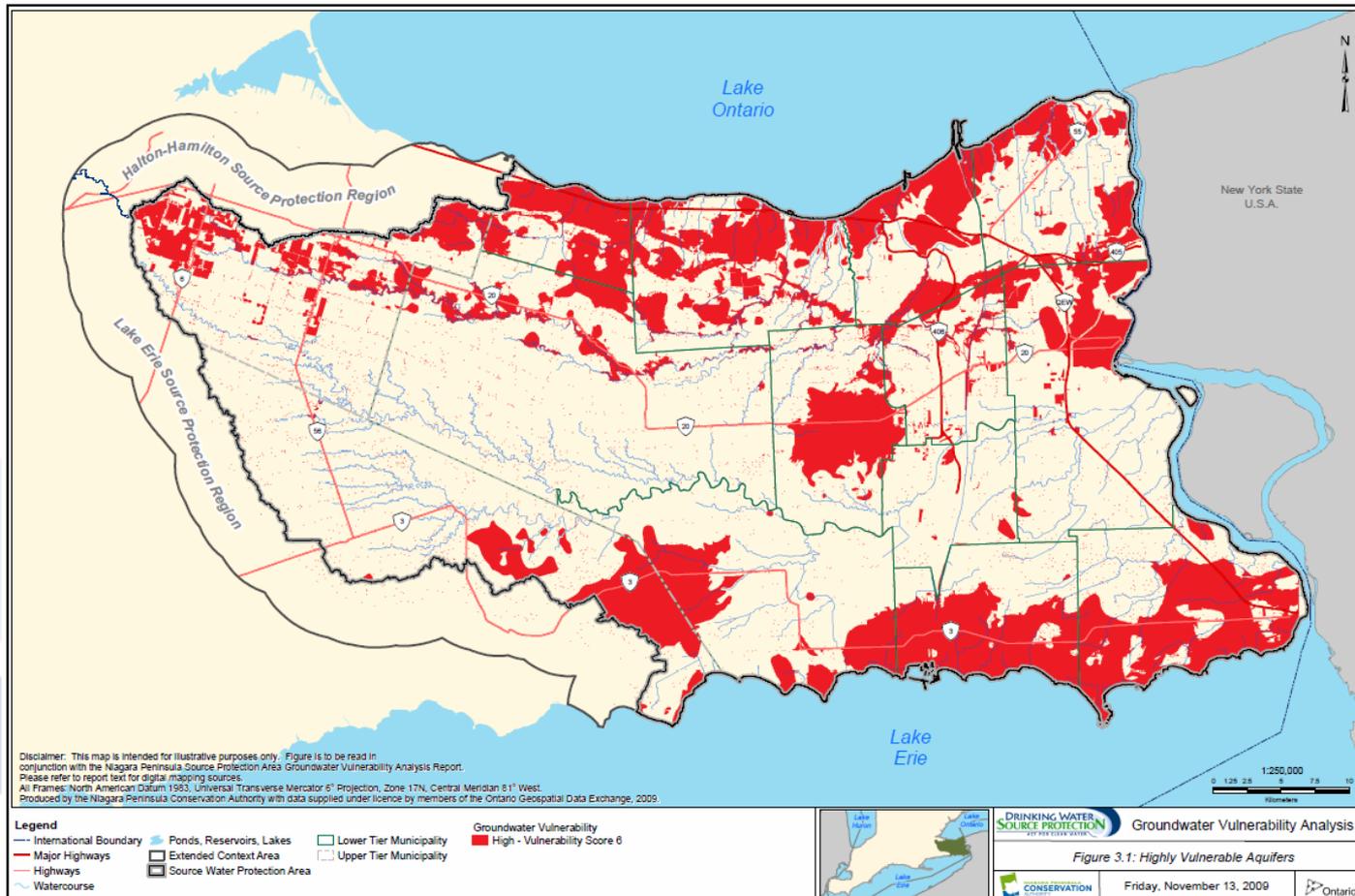
Figure No.	Revision No.	Date
6.5	1	June 2013

Title

Welland WTP
 IPZ-3 Delineation



Highly Vulnerable Aquifers



Niagara Peninsula Source Protection Plan

Source Protection Plan Update Workshop
June 21, 2017

What is a Source Protection Plan?

A local document that sets out policies

to ensure significant drinking water threats cease to exist

and that significant threats never occur in the future.

SOURCE PROTECTION PLAN

for the Niagara Peninsula Source Protection Area

*Under the Clean Water Act, 2006
(Ontario Regulation 287/07)*

The Minister has approved this plan. The effective date is October 1, 2014.



December 17, 2013



Made possible through the support of the Government of Ontario

EXPLANATORY DOCUMENT

for the

SOURCE PROTECTION PLAN

Niagara Peninsula Source Protection Area

*Under the Clean Water Act, 2006
(Ontario Regulation 287/07)*

May 16, 2012



What threats does the Niagara Plan address?

- Waste disposal sites
- Stormwater and sewage
- Manure and livestock
- Biosolids
- Pesticides
- Road salt
- Snow storage
- Diesel and gasoline

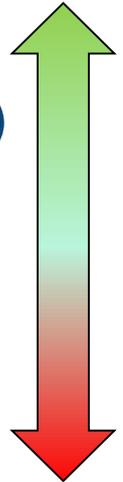
How were threat policies developed?

- A Source Protection Plan Working Group and sectorial experts advised the Source Protection Committee
- Consultation was conducted with stakeholders, policy implementers and the general public
- Provincial guidance
- Focused on significant threats
- Relied on existing tools first

Types of policy approaches used

- Education and outreach programs
- Land use planning (Official Plans / Zoning By-laws)
- Provincial instruments (MOECC Compliance Approvals)
- NEW Risk Management Plans
 - (Part IV of Clean Water Act)
- NEW Prohibition
 - (Part IV of Clean Water Act)
- Other (e.g. St. Lawrence Seaway Management Corporation specify action policies)

Less Restrictive

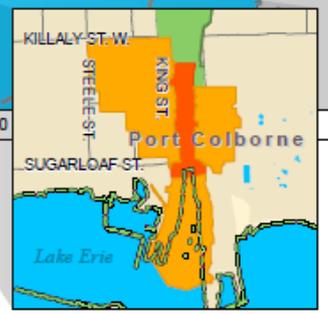
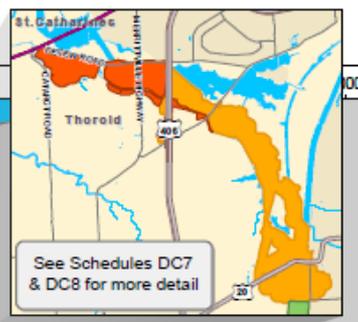


More restrictive

Niagara Peninsula Source Protection Plan

PA: Intake Protection Zones Where Source Protection Plan Policies Apply

Where do policies apply?



- Major Highways
- Major Roads
- Watercourses
- Waterbodies
- International Border
- Municipal Boundaries
- Urban Area Boundaries
- Plan Jurisdiction
- IPZ-1
- IPZ-2
- IPZ-3

Disclaimer: This map is intended for illustrative purposes only. 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, 2013.

Policy example – Stormwater/wastewater

- **DC-2:** No new combined sewers, wastewater treatment facilities, stormwater management facilities, or industrial effluent systems shall be permitted where they would be a significant threat within the DeCew Falls IPZ-1s (Source Protection Plan)
- **Policy DC-2:** uses a land use planning approach and a provincially prescribed instrument to prohibit new stormwater management facilities, combined sewer systems, or industrial sewage facilities that would be a significant threat and would discharge into the DeCew Falls IPZ-1s (Explanatory document)

Source Protection Plan Implementation Monitoring

Source Protection Plan Update Workshop
April 26th, 2017

Introduction

The Source Protection Authority annually prepares a report that describes the:

- Measures taken to implement the Source Protection Plan; and
- Extent to which the Source Protection Plan objectives have been achieved.

Report Card

NAME _____ EVALUATED BY _____

Subject	Grade	Comments

Grading Scale

A - C -
B - D -

Background

- The Niagara Source Protection Plan came into effect Oct 2014
- The 1st annual 'implementation' report covered 3 years:
 - October to December 2014
 - 2015, and
 - 2016

ANNUAL REPORTING

<http://www.sourceprotection-niagara.ca/documents/annual-reporting/>

The annual report outlines the progress made in implementing our source protection plan for the Niagara Peninsula Source Protection Area, as required by the Clean Water Act and regulations.

VIEW ANNUAL REPORT



2017 Annual Progress Report

Source Protection Plan Implementers

- Ministry of Environment & Climate Change,
- Ministry of Transportation, and
- Ministry of Agriculture Food & Rural Affairs
- Niagara Region
- Cities of Thorold, Niagara Falls, Port Colborne and Welland
- St. Lawrence Seaway Management Corporation
- Niagara Peninsula Conservation Authority

Source Protection Plan Policies

- Of the 47 Significant drinking water threat policies
 - 70% Implemented (33 policies)
 - 30% In progress/some progress made (14 policies)
- Of the non-Threat Specific Policies (strategic action signage and Education & Outreach)
 - 20% Implemented (1 policy)
 - 80% In progress (4 policies)

Source Protection Committee

Opinion on implementer progress in achieving the Source Protection Plan objectives:

“Progressing Well/ On Target”

“Early source protection plan implementers have generally met their timelines. The remaining implementers appear on track to meet their October 2017 deadlines.”



Questions, Comments?

www.sourceprotection-niagara.ca

Source Protection Plan Update Workplan Considerations

Source Protection Plan Update Workshop
June 21, 2017

Background

- “...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.”
- “...updates are intended to build in new information that advances understanding of risks to sources of drinking water and incorporates local growth.” (MOECC Bulletin, 2016)

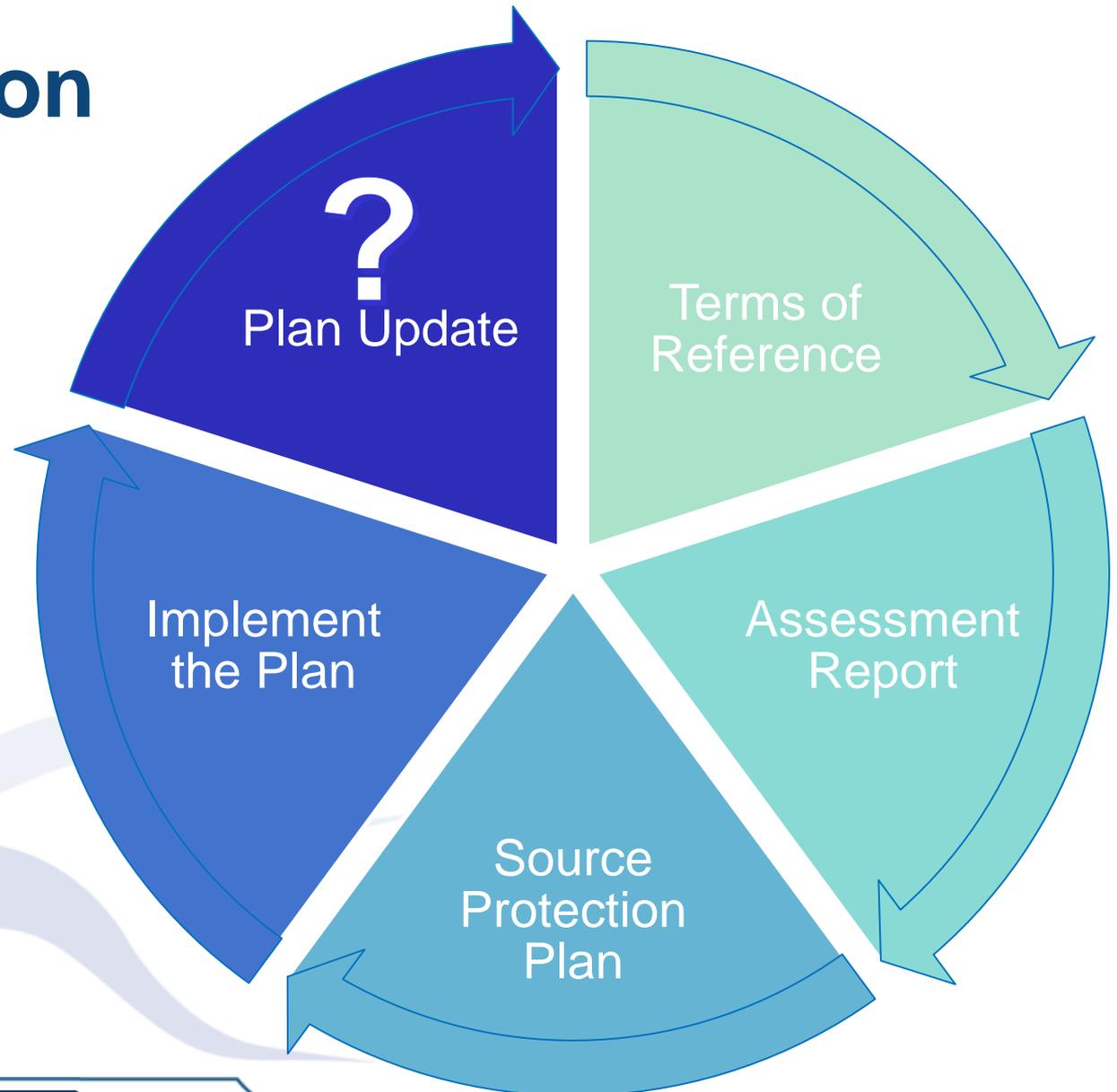
Workplan development

- Consider any experience gained from implementation
- Develop in consultation with the:
 - Source Protection Committee,
 - Municipalities within the Source Protection Area;
 - the Ministry of the Environment and Climate Change;
and
 - Other interested stakeholders
- Scope of updates should consider the local risks, growth and development pressures

The question

Should we recommend changes to:

- Terms of Reference
- Assessment Report; and/or
- Source Protection Plan



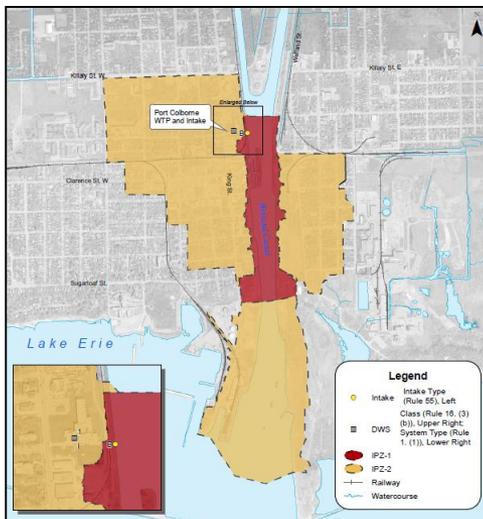


Should we prepare for a new temporary intake location in Niagara Falls?

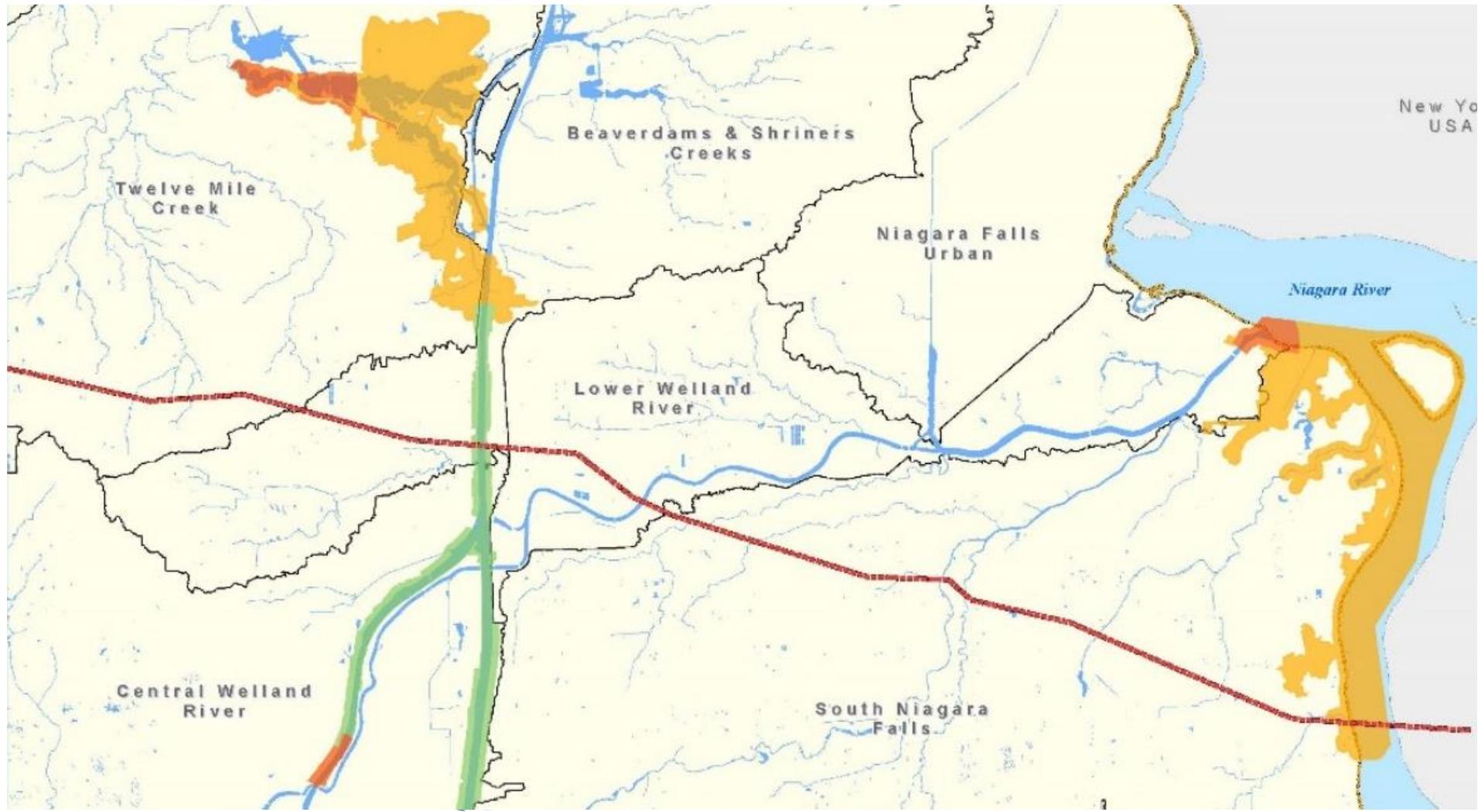


Should we investigate improving municipal supply protection?

Recent MOECC 2017 technical rule change may enable a higher source vulnerability factor for the Port Colborne and Rosehill/Fort Erie intakes. This could better protect the intakes by increasing the number of significant threats that could be addressed and/or prevented.

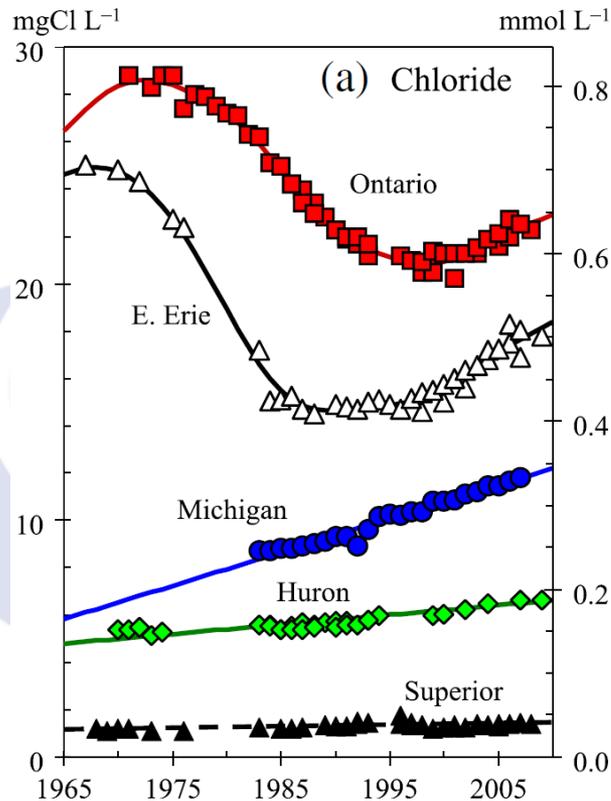


Should we model the effect of an oil pipeline leaks on intakes?

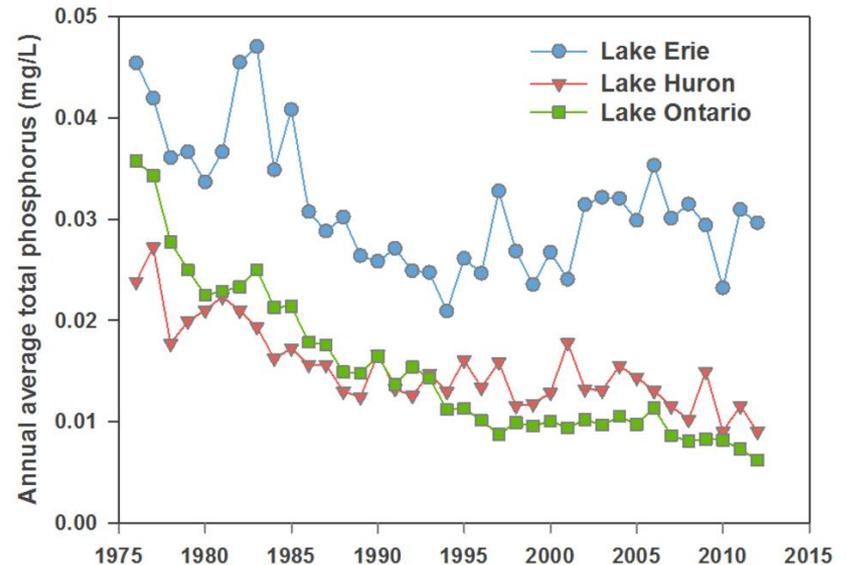


Should we investigate policies for Great Lakes quality protection?

Chloride (Chapra et al, 2012)



Phosphorus (Ontario Water Quality Report, 2014)



Should we investigate climate change impacts on water quality?

- *“A number of climate changes have also been projected... an increase in intensity and frequency of extreme events (heat waves, drought, intense precipitation)”*. (Assessment Report, 2013)
- There is a lack of understanding if municipal intake water quality is vulnerable to climate change from degraded water quality under storm event conditions

Should we help protect groundwater users?

- Naturally occurring drinking water issues, such as boron, selenium, sodium, fluoride, uranium and lead
- Abandoned gas wells affecting groundwater quality



Should we be considering anything else?

- Environmental monitoring
- Growth and Infrastructure
- Council Resolutions
- Policy effectiveness
- Implementation challenges
- Other local considerations





Questions, Comments?

www.sourceprotection-niagara.ca

Discussion

- Environmental monitoring
 1. What is working well with respect to environmental monitoring?
 2. Have any issues arisen? Do you have any concerns?
 3. Could anything be improved? Could anything be added?

Discussion

- Growth and infrastructure/council resolutions
 1. Is new growth planned that was not considered in the existing SPP?
 2. Are there new drinking water systems or new intakes constructed since 2013? Are any proposed?
 3. Are there proposed expansions to existing drinking water systems?
 4. Since 2013, have there been any new or proposed council resolutions to construct new drinking water systems. Communal systems? Well clusters?

Discussion

- Policy effectiveness
 1. What is working well with respect to SPP policies?
 2. Have any issues arisen? Do you have any concerns?
 3. Could anything be improved? Could anything be added?

Discussion

- Implementation challenges
 1. Are there any concerns with the existing SPP implementation that need to be addressed? Have any issues arisen?
 2. Could anything be improved? Could anything be added?
 3. Has anything changed on the landscape that may require a revision to existing maps? Is anything proposed?

Discussion

- Technical rule changes
 1. Is there anything you would suggest we consider with respect to technical rule changes?

Discussion

- Other local considerations
 1. Is there anything else we should consider as part of the update to the existing SPP?
 2. Any other concerns, comments, or issues that you feel should be addressed?

Next Steps

Source Protection Plan Update Workshop
June 21, 2017

Work plan development next steps:

- Consider comments and recommendations received at, and after the workshops before August 15th
- Prepare workplan to undertake the updates, including:
 - What requires updating or review
 - Detailed steps of the reviews
 - Review timeframes
 - Roles & responsibilities
 - Consultation plan
- Circulate draft workplan for comment by August 31st

Finalization of the work plan:

- Comments received on draft workplan by September 15th
- Revised draft workplan to Source Protection Committee September 26th
- Staff finalized workplan submitted to the Source Protection Authority in October
- Submission of the workplan to the Ministry of the Environment and Climate Change (November)

Thank you

- We sincerely appreciate your attendance at this workshop
- Please provide:
 - your comments on the forms provided, or
 - feel free to contact us directly, or
 - request a meeting to provide more information
- A draft workplan report will be coming for your consideration at the end of August