

# South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment

## Public Information Centre No. 2

Wednesday, November 20, 2019

5:00 to 7:00 p.m.

MacBain Community Centre – Coronation Room

Please sign in and take a comment sheet.

Meeting is a “drop-in” format with display materials.

Take an information bulletin and review the display materials.

Members of the study team are available to answer questions.

We welcome your feedback as your opinion can influence this study.

Please place comment sheets in the box provided.

Please note that photos and videos will be taken during this event. If you have any concerns, please speak to a member of the project team.



## Themes for today's Public Information Centre

1. Present the components for reviewing the alternatives:
  - Treatment plant site
  - Collection system strategy
  - Outfall location and receiving waterbody
2. Present the long list of holistic strategies and reasonable alternatives
3. Provide clarity on the process for developing and evaluating alternatives
4. Receive feedback on the proposed evaluation criteria and weighting



**Foundation for this Study:** The Niagara Region Water and Wastewater Master Servicing Plan Update (MSP 2017)

**Key issues addressed by the MSP (2017):**

- Accommodating growth
- Improving and increasing capacity in the existing sanitary and combined stormwater systems
- Managing wet weather flows

**Preferred Solution from the MSP (2017):**

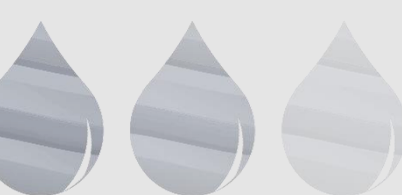
- Build a new wastewater treatment plant in South Niagara Falls
- Improve the existing sewer system and connect it to the new plant

**The Master Servicing Plan Update was adopted by Niagara Region Council in 2017.**

**The purpose of the South Niagara Falls Wastewater Solutions Class EA is to determine:**

- Where to locate the new wastewater treatment plant in South Niagara Falls
- Which body of water will receive the clean, treated water from the new plant
- How best to integrate the wastewater network to address growth, make the system as efficient as possible, and manage wet weather

*This is defined as the Problem Opportunity Statement under the Class EA process*



## Protect the Environment

- Reduce pollution into rivers and the environment
- Minimize flooding

## Provide Flexibility for the Future

- Ensure the facility has the ability to respond to changing regulations and needs
- Free up capacity in existing infrastructure such as the Stanley Ave. Wastewater Treatment Plant

## Accommodate Growth

- Increase system capacity
- Support economic development

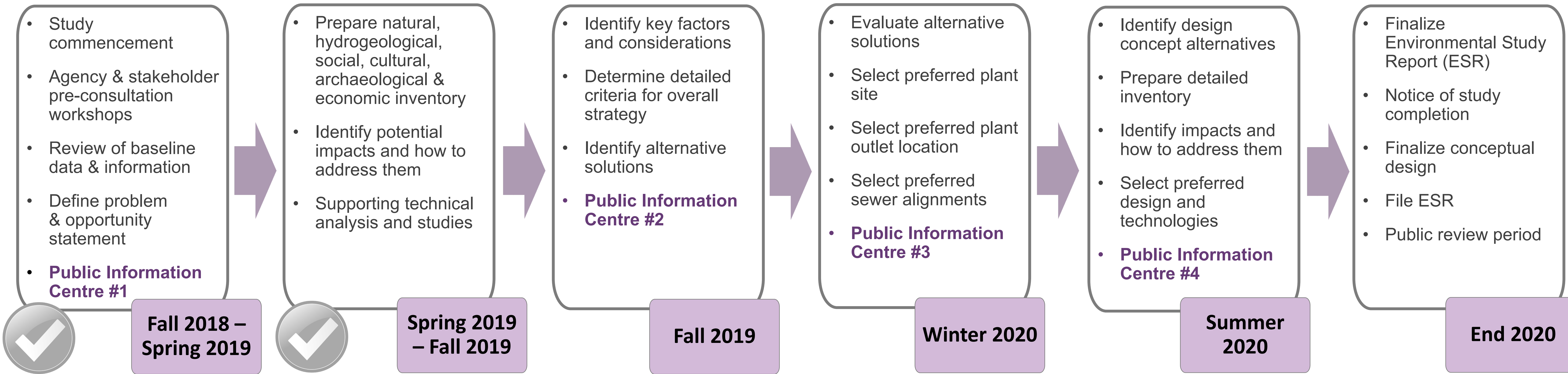
## Establish the new Wastewater Treatment Plant as a Community Asset

- Ensure the new facility fits well within the local community
- Engage the local technical & academic community in the solution
- Mitigate and manage issues such as odour, noise and traffic

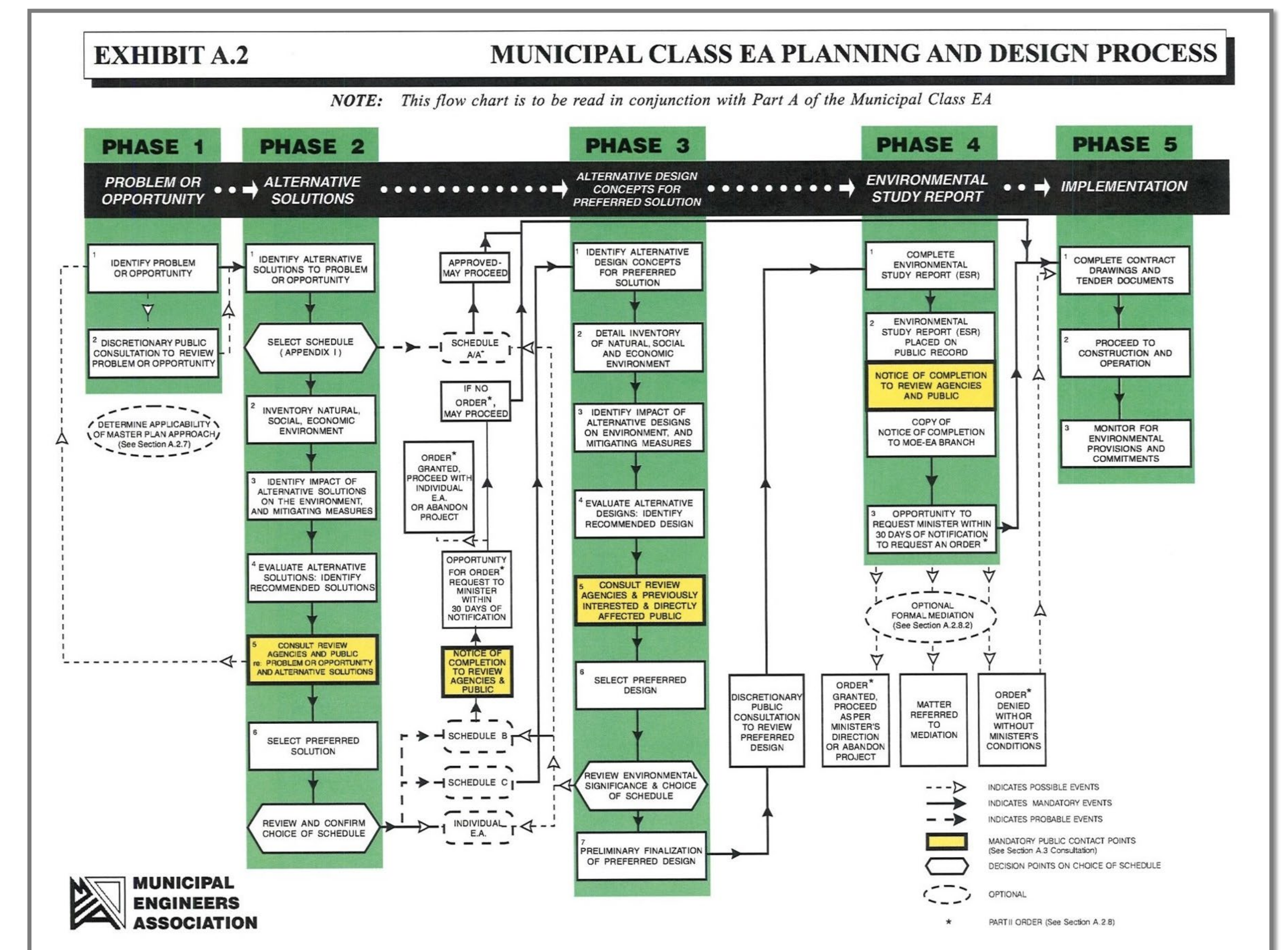
(Find out more about what this EA plans to achieve at: [www.niagararegion.ca/projects/south-niagara-falls-treatment-plant](http://www.niagararegion.ca/projects/south-niagara-falls-treatment-plant))

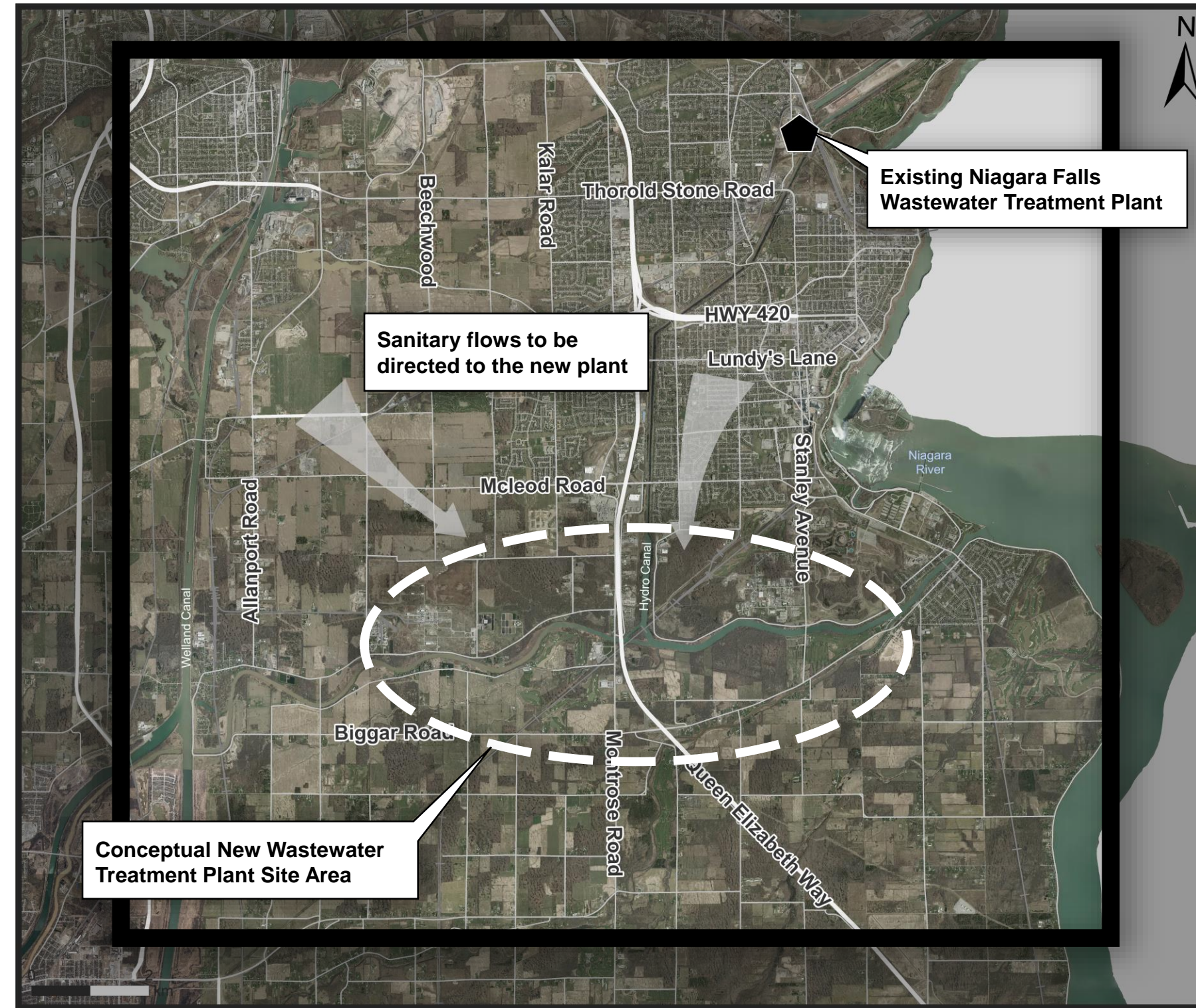


# Environmental Assessment Process and Timeline



**Provincial Process**  
 This project is following the **Class Environmental Assessment** process, which is a decision-making process that all Ontario municipalities follow for building new infrastructure.

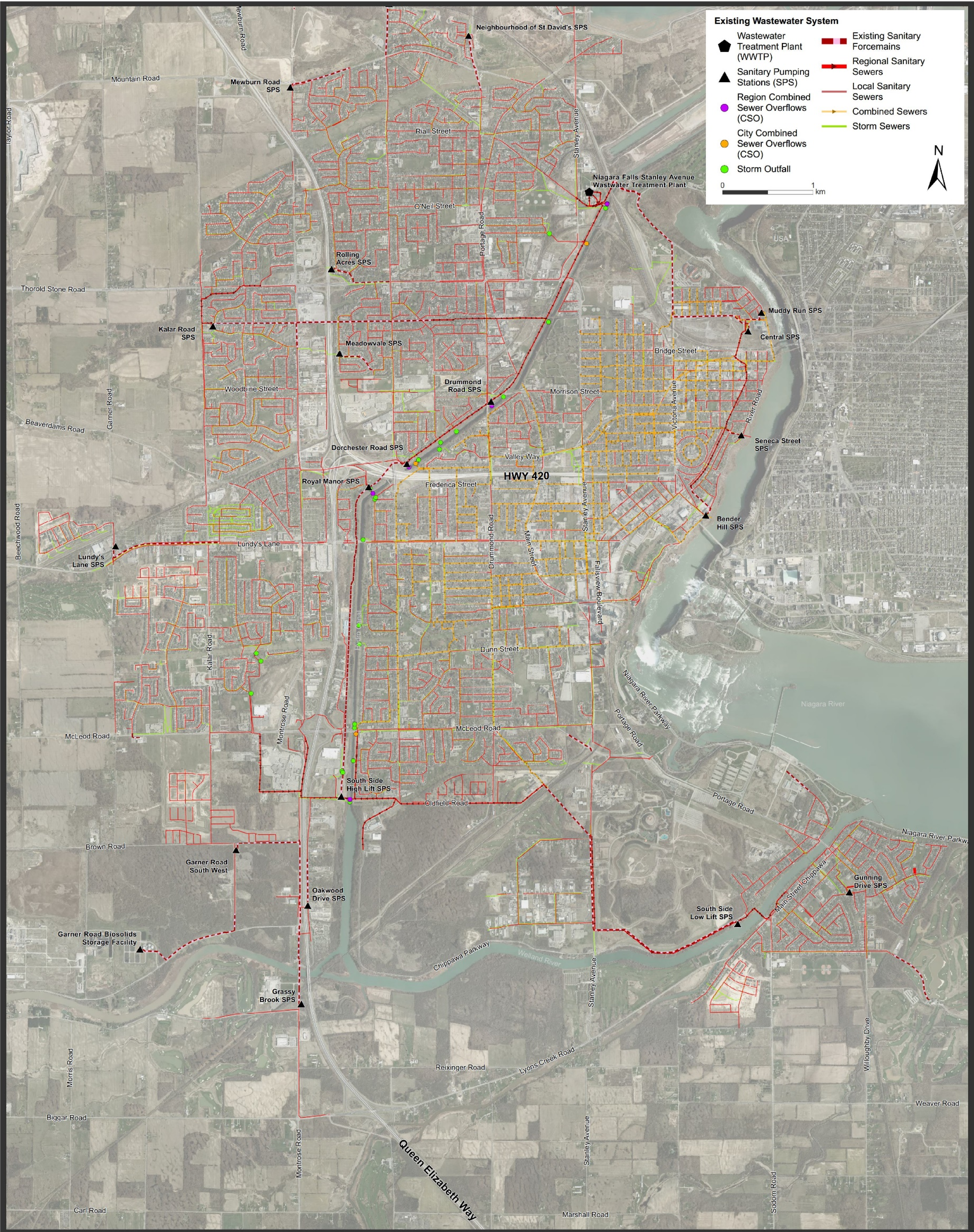




full EA study area

conceptual new plant site area





**Existing Wastewater System**

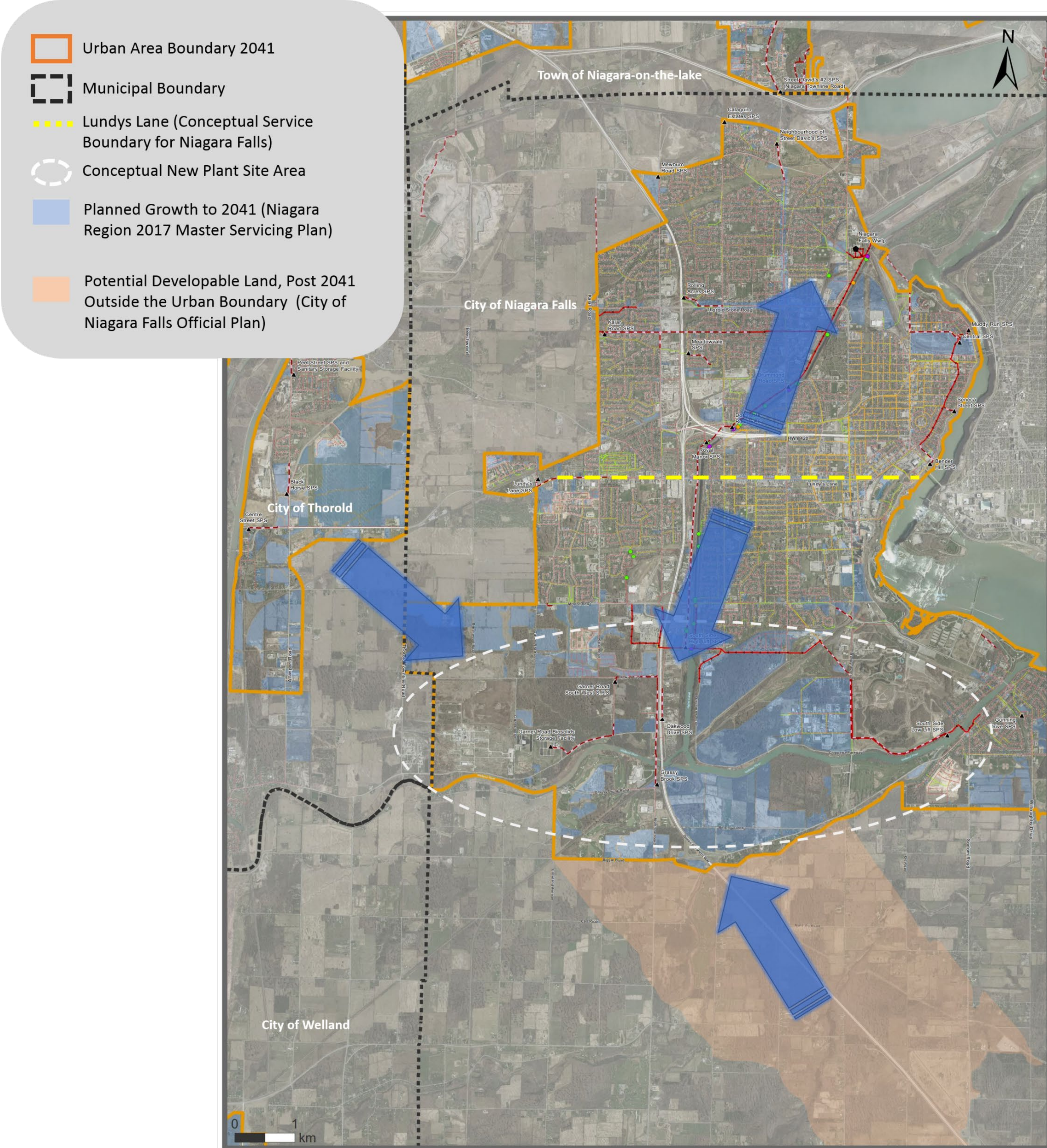
<ul style="list-style-type: none"> <li>  Wastewater Treatment Plant (WWTP)         </li> <li>  Sanitary Pumping Stations (SPS)         </li> <li>  Region Combined Sewer Overflows (CSO)         </li> <li>  City Combined Sewer Overflows (CSO)         </li> <li>  Storm Outfall         </li> </ul>	<ul style="list-style-type: none"> <li>  Existing Sanitary Force mains         </li> <li>  Regional Sanitary Sewers         </li> <li>  Local Sanitary Sewers         </li> <li>  Combined Sewers         </li> <li>  Storm Sewers         </li> </ul>
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# Growth and Flow Projections



	Today	2041
<b>Total City of Niagara Falls People and Jobs</b>	130,837	185,310
<b>People and Jobs to new Wastewater Treatment Plant</b>	53,467	85,292
<b>Approximate Average Daily Flow Projections</b>	11 MLD	21 MLD *
<b>Planned Wastewater Treatment Plant Capacity</b>	30 MLD **	

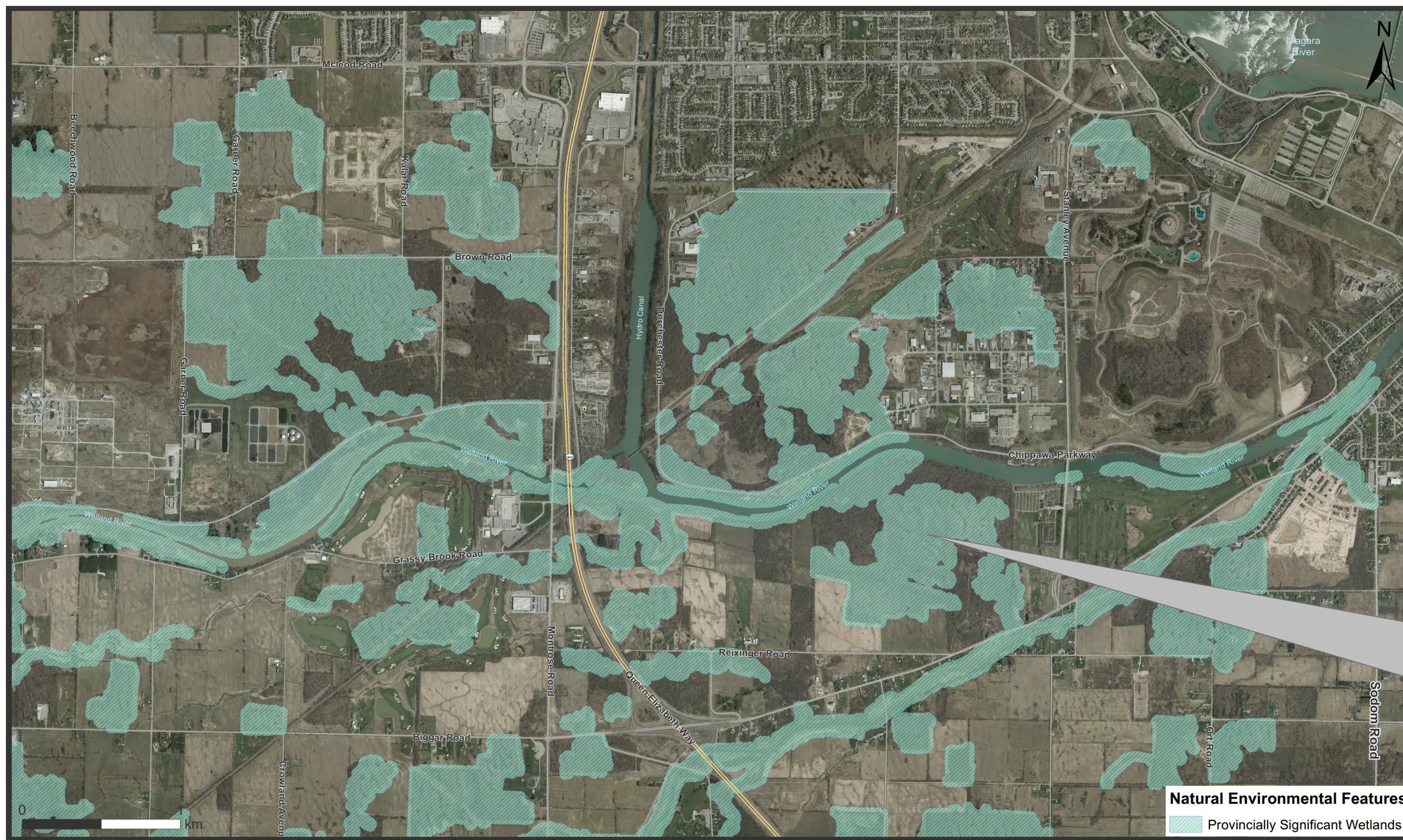
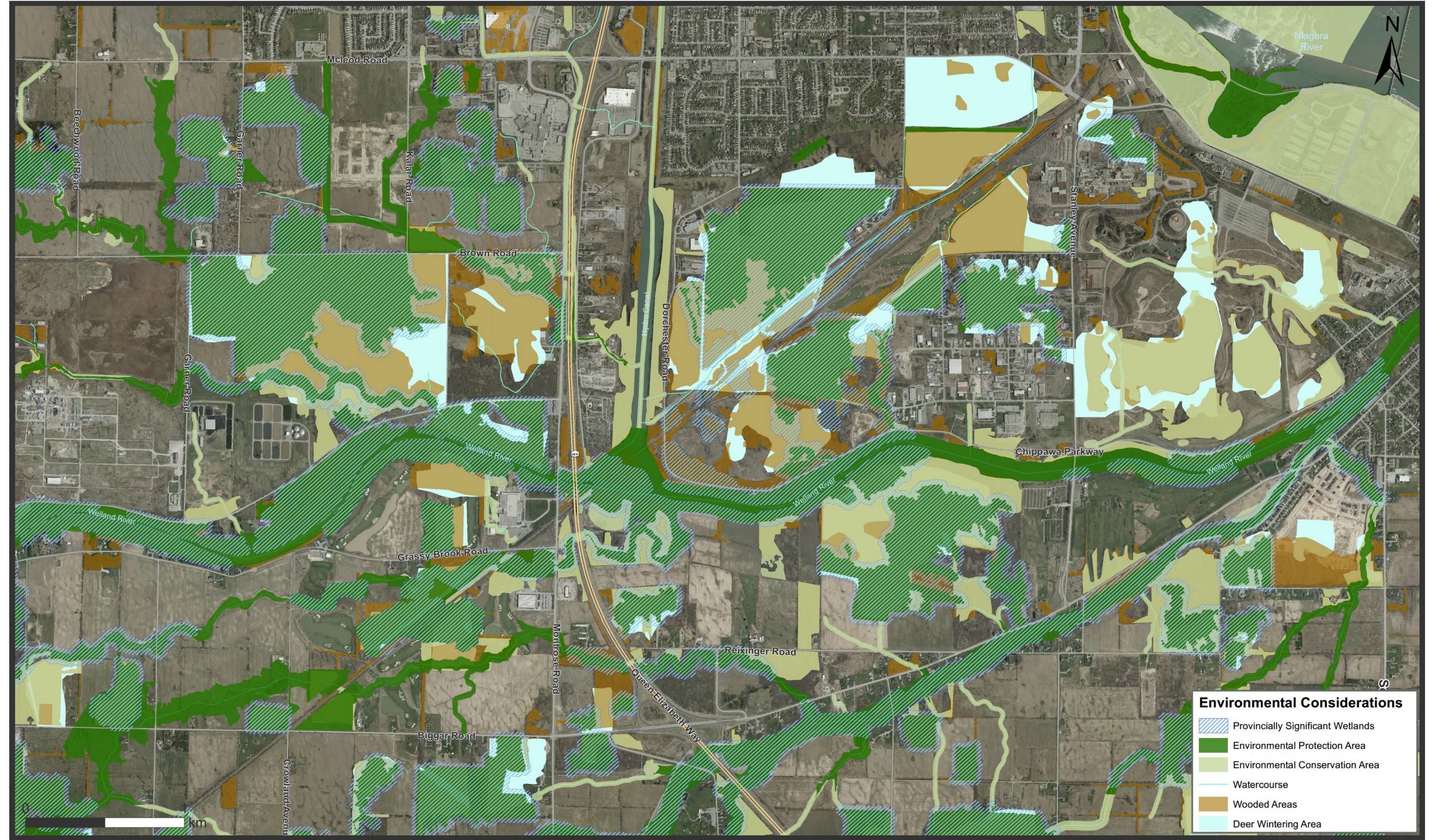
\* Initial planned capacity will address growth needs beyond 20 years as well as firm capacity for all treatment processes  
 \*\* Wastewater Treatment Plant site planning will consider future expansion to 60 MLD for post 2041 growth



## Environment

This study is considering existing conditions and environmental features within the study area, including but not limited to:

- Archaeological
- Cultural heritage
- Hydrogeology
- Geotechnical
- Contamination
- Watercourses and floodplains
- Deer wintering
- Environmental protection areas
- Habitat of endangered and threatened species
- Environmental conservation areas
- Significant wildlife habitat & fish habitat
- Areas of natural and scientific interest
- Environmentally sensitive areas



### Provincially Significant Wetlands

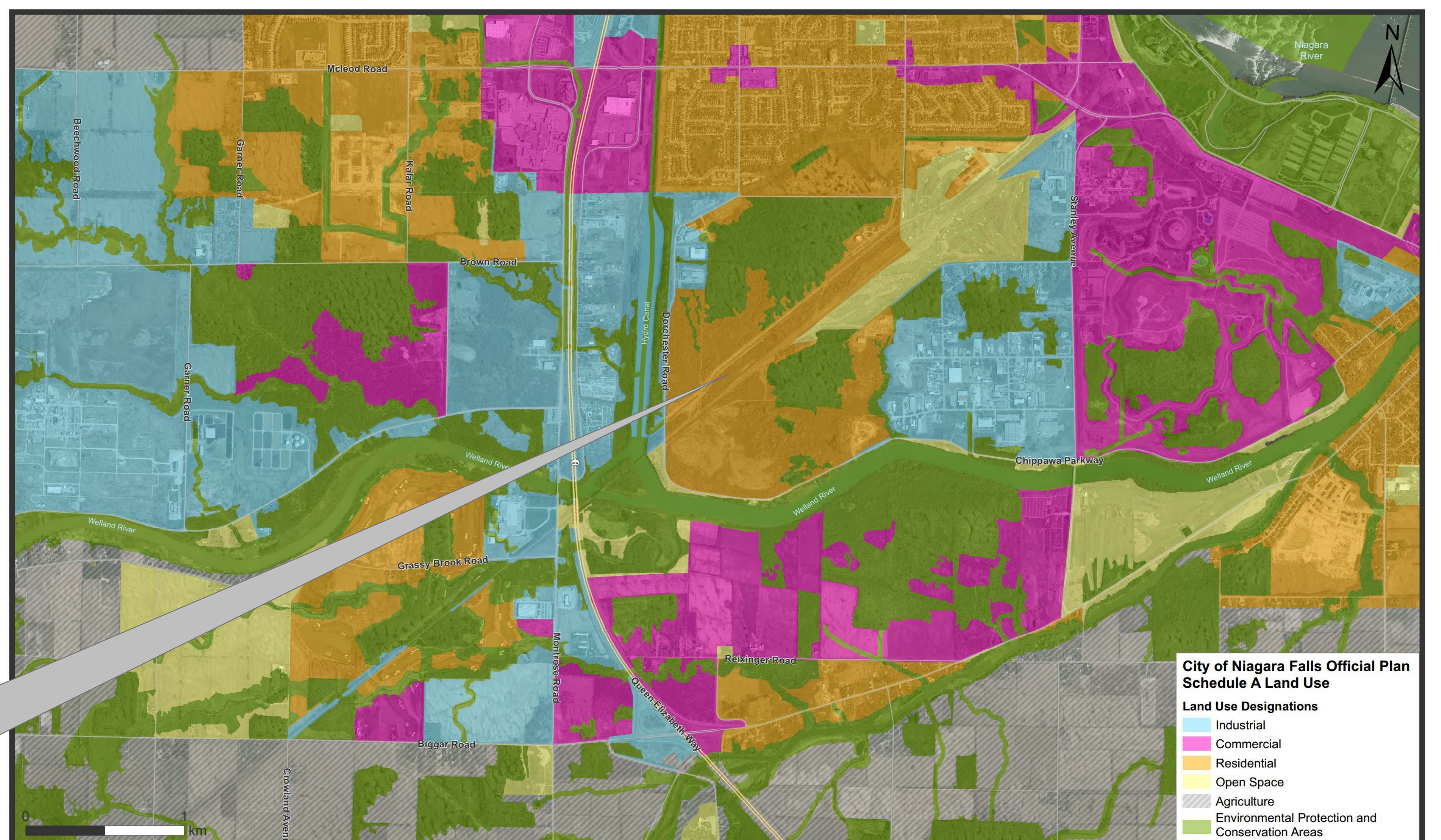
- Provincially significant wetlands (PSW) are wetlands identified by the Province as being the most valuable
- Municipalities and Conservation Authorities are legislatively required through the Planning Act, the Greenbelt Act and Conservation Authorities Act to manage PSWs and restrict land use activities in or near wetlands
- Sites constrained by PSWs were noted

Areas constrained by Provincially Significant Wetlands are not considered supportive for siting a new plant

## Socio-Economic

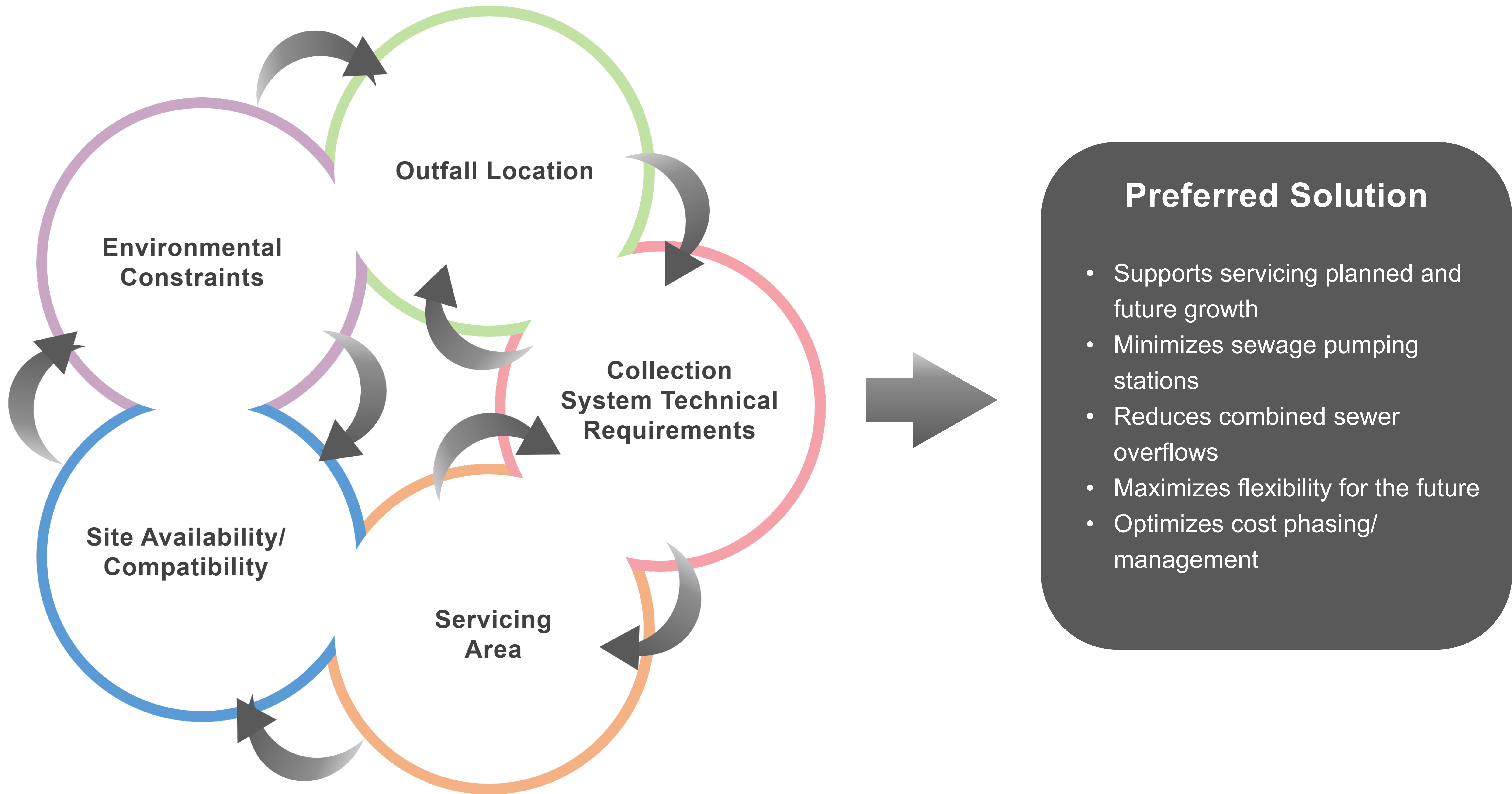
### City of Niagara Falls Official Land Use Designations

- Existing and future zoning will be considered
- The study area includes mixed land use including:
  - Industrial
  - Commercial
  - Residential
  - Open Space
  - Agricultural, and
  - Environmental protection and conservation areas



Proximity to areas of existing or future residential will be considered in plant siting





## What components are required for a comprehensive wastewater solution under this study?

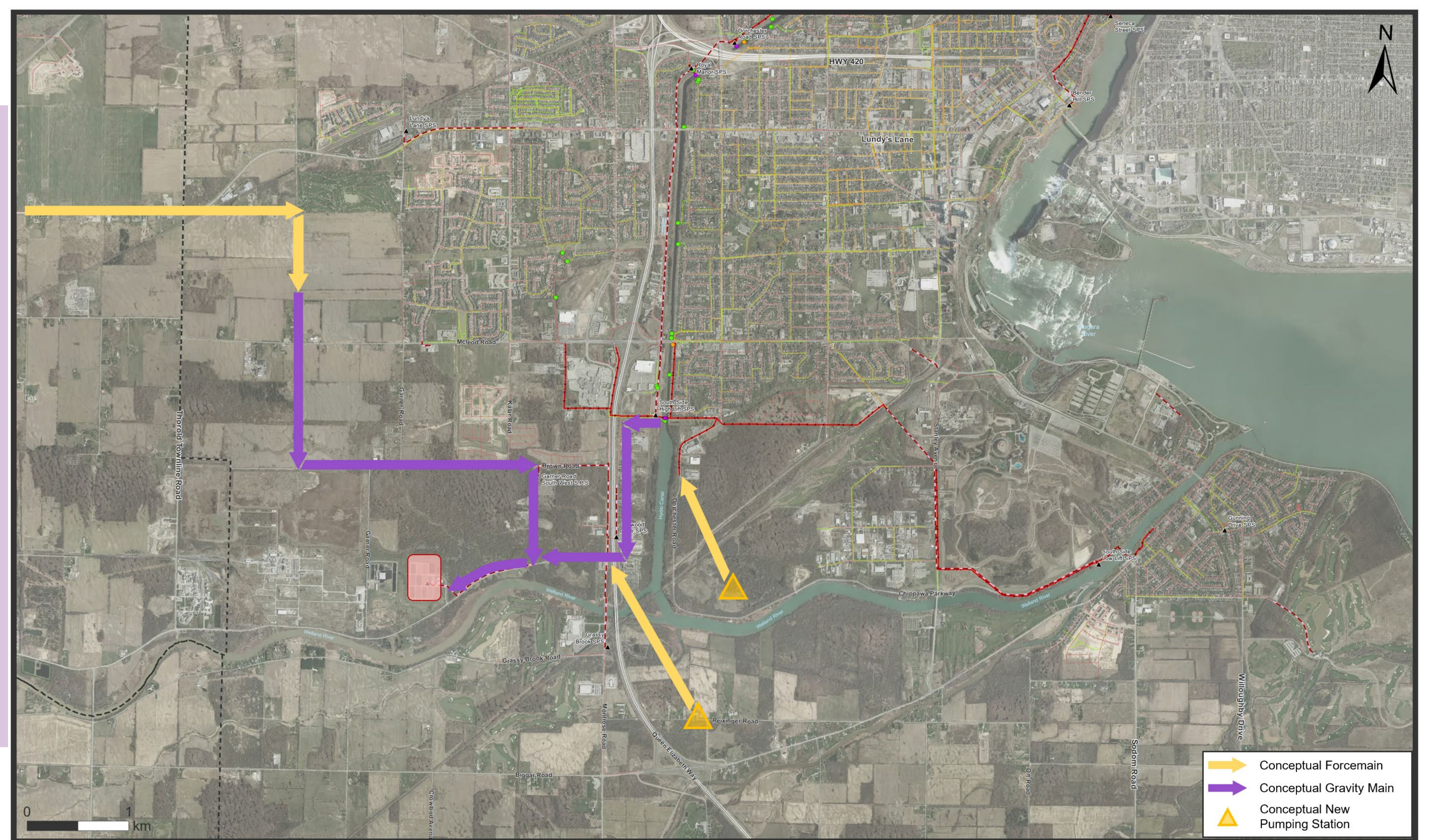
### 1. Plant Site

- The site must have suitable land size for a new plant
  - **For size reference, the example site, shown in red, represents the approximate amount of land required**
- Existing and surrounding land use is an important factor for a new plant site
- Ability to mitigate noise, visual impact, odour, traffic and construction are key considerations



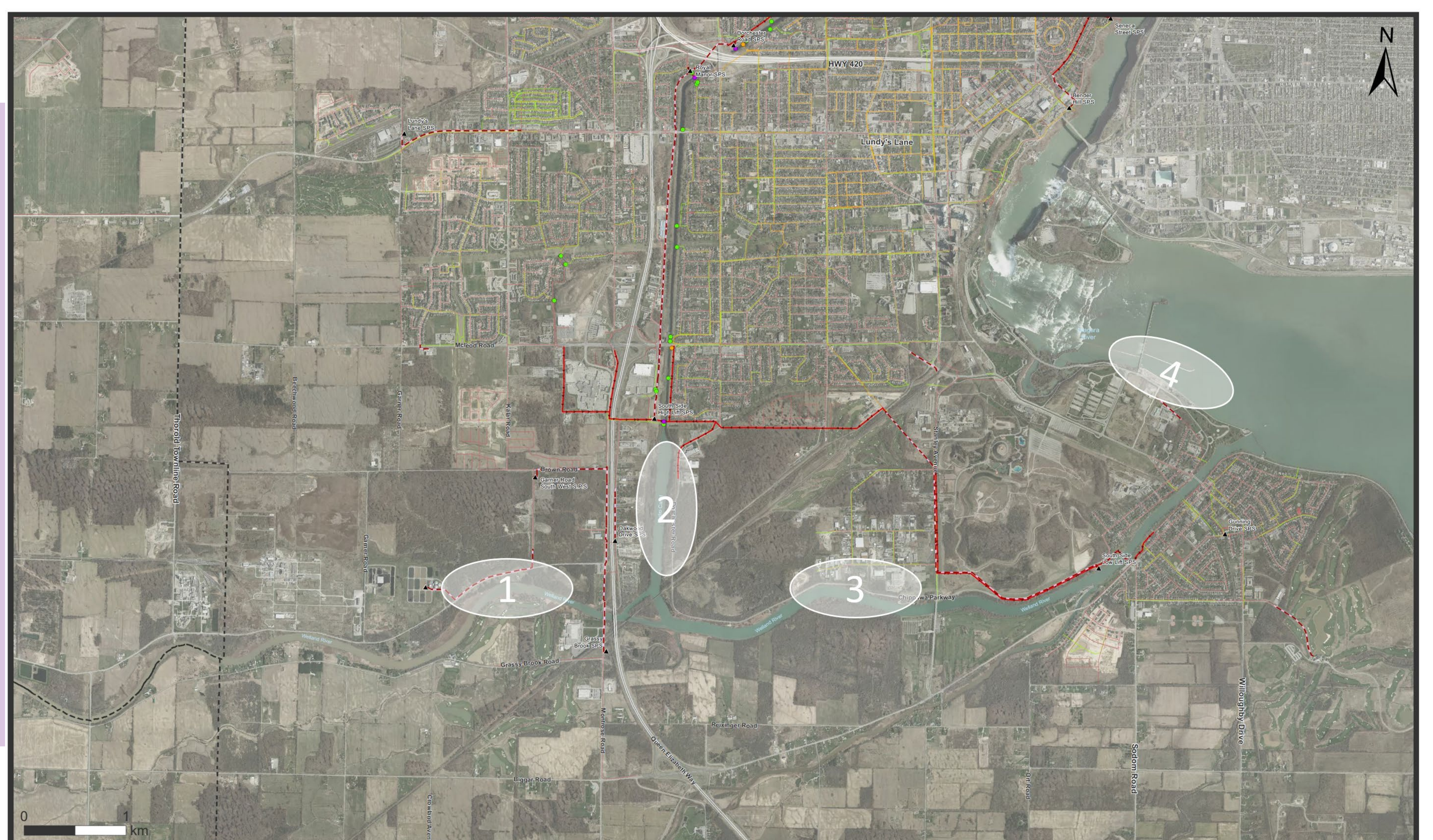
### 2. Collection System

- Each site will have unique collection system requirements
  - **For reference, the example collection system presented is unique to the example site**
- Different collection systems may have longer or deeper sewers and more environmental crossings
- The collection strategy should consider flexibility for future growth areas and intensification



### 3. Outfall Location

- The site must be close to a nearby river or lake where the clean, treated water can be released
- The 4 outfall locations being considered are:
  1. Welland River East
  2. Hydro Electric Power Canal
  3. Chippawa Creek
  4. Niagara River



Site and strategy shown for example purposes only



## Conceptual Outfall Locations

### 1. Welland River East

- Requires enhanced treatment
- Typical low flow conditions
- Existing quality not favourable

### 2. Hydro Electric Power Canal

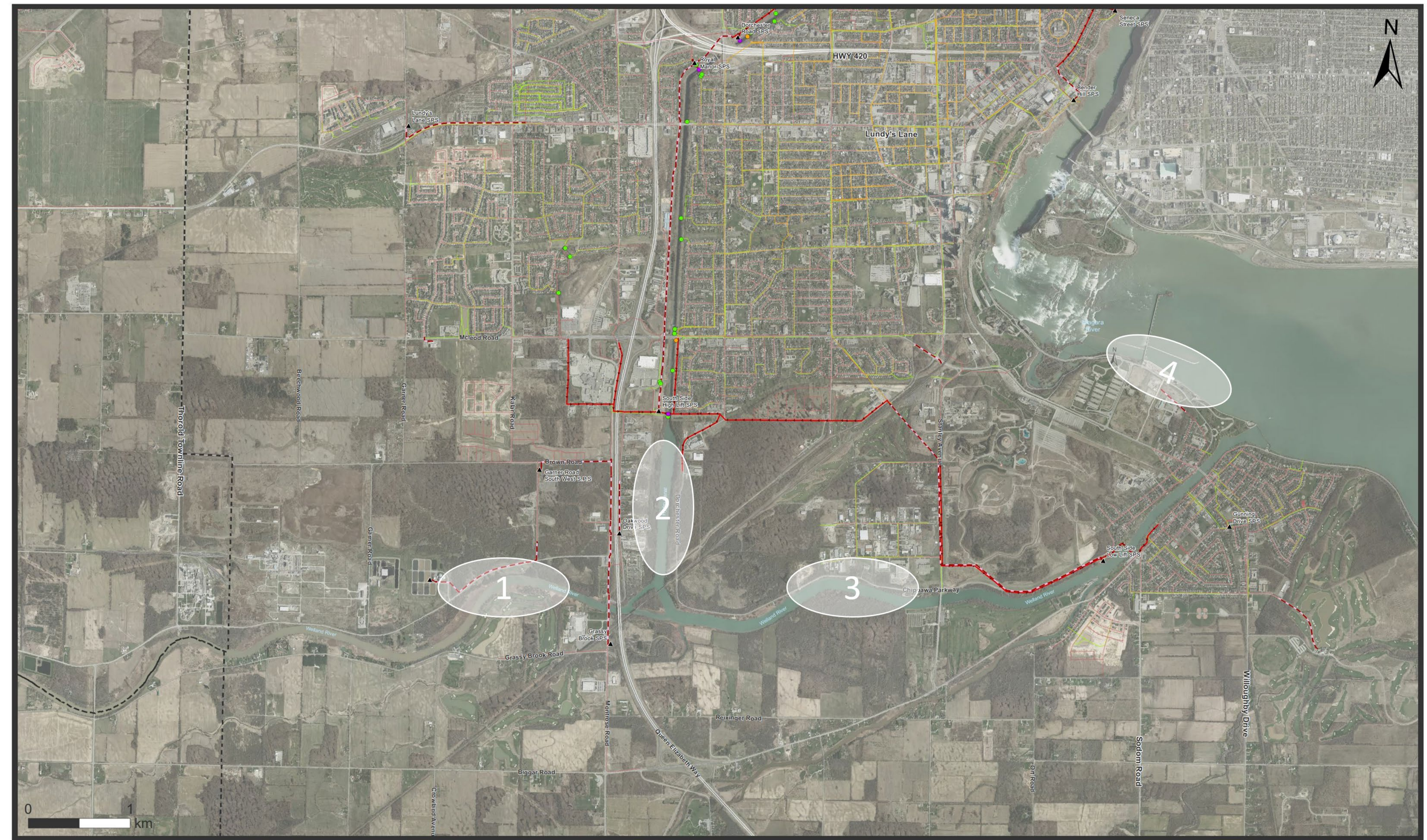
- Controlled flows and existing quality are favourable
- Plant represents only 0.1% of Hydro Canal Flow

### 3. Chippawa Creek

- Existing flow and quality are favourable
- Plant represents only 0.1% of Chippawa Creek Flow

### 4. Niagara River

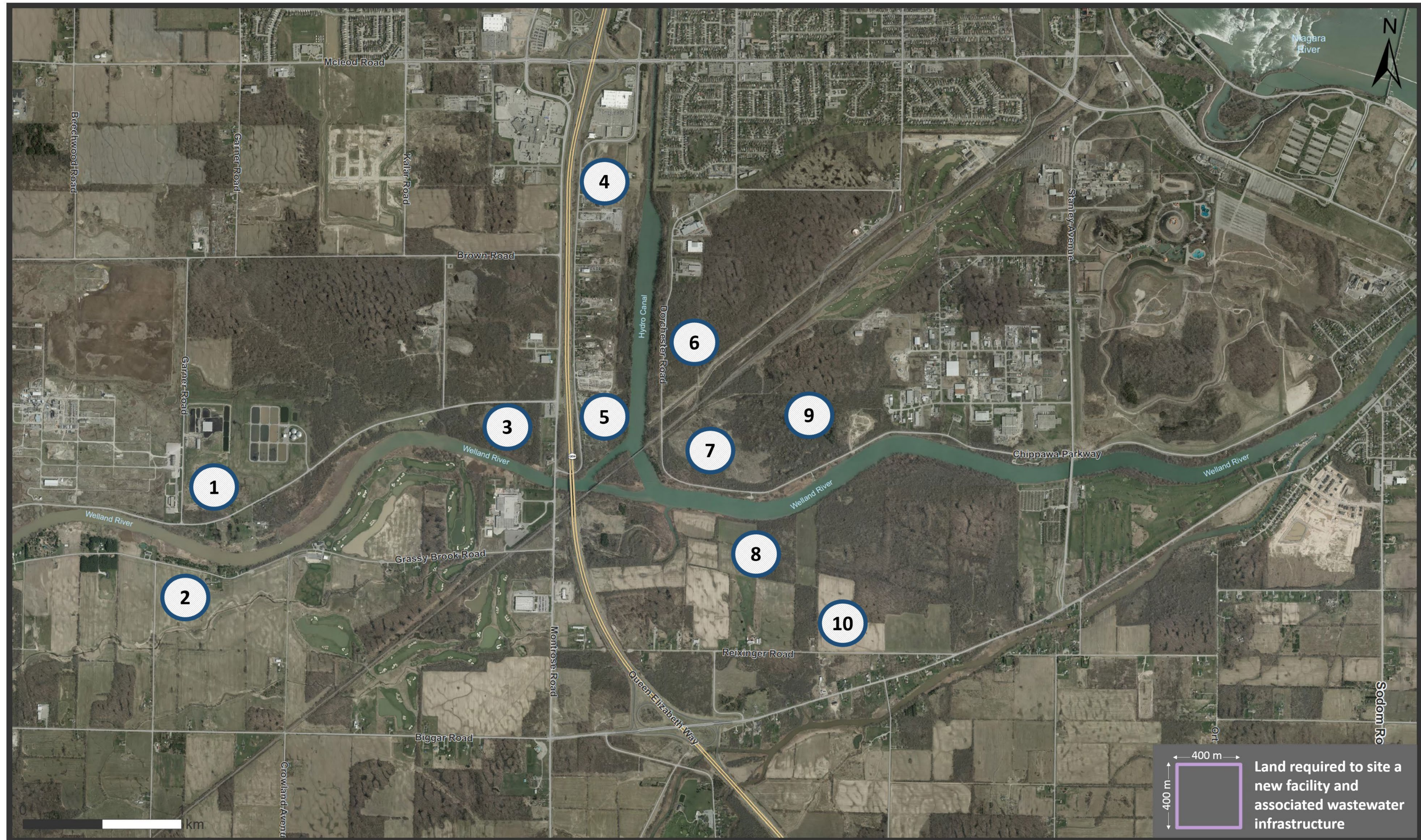
- Typical high flow conditions
- Increased coordination with U.S.
- Plant represents only 0.02% of Niagara River Flow



Note: The exact location of the new outfall will be determined at a later date



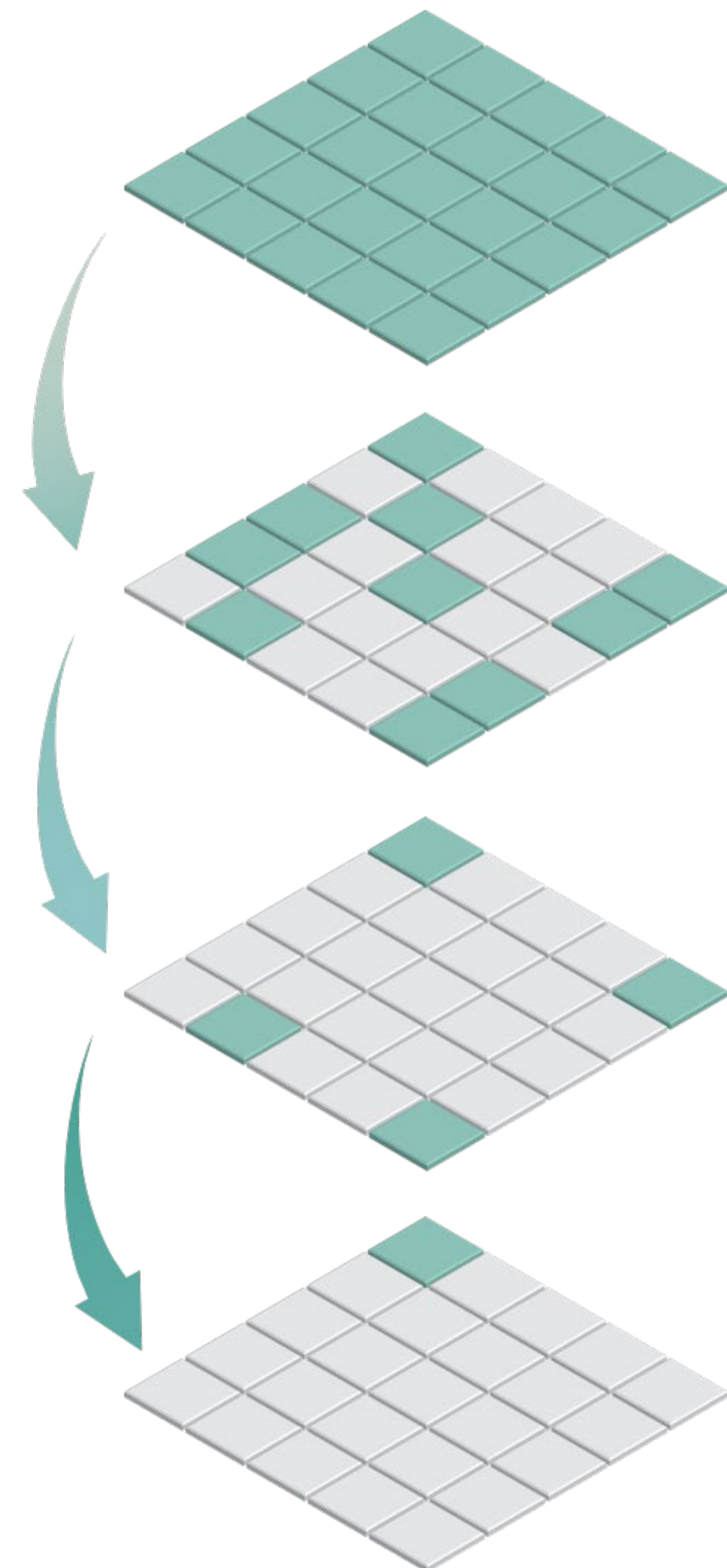
# Long List of Potential Sites for the New Wastewater Treatment Plant



Note: The exact location of the new wastewater facility will be determined at a later date



The preferred site and associated strategies will be determined through the following evaluation process.



## Study Area

- Complete a general review of the study area
- Review sites of proper size that are close to receiving waterbodies, existing and future service areas, and have limited environmental features

## Long List of Alternatives

- Determine long list of reasonable sites (Present at Public Information Centre No. 2)
- Determine most suitable collection system alternative(s) for each site relating to project objectives
- Determine most suitable outfall location(s) for each site based on proximity to waterbody
- Complete desktop review of environmental features, opportunities and constraints
- Complete technical and costing analysis, including system modelling, opportunities and constraints
- Evaluate long list of alternatives using criteria and weightings

## Short List of Alternatives

- Select short list of alternatives including combination of 3 to 5 alternative sites and associated collection systems and outfall locations
- Evaluate short list using criteria and weightings
- Complete detailed review of environmental features, opportunities and constraints
- Complete detailed technical and costing analysis including system modeling, opportunities and constraints

## Preferred site and associated strategy

- Select preliminary preferred plant site, outfall location and collection system based on the detailed evaluation
- Present the recommended preliminary preferred alternatives at Public Information Centre No. 3 (Winter 2020)

\* Public input will be used as appropriate throughout the evaluation process

## Environmental

- Potential effects to water features/resources and receiving body
- Potential impact on sensitive features
- Impact on species at risk
- Impact on system overflows
- Physical environment consideration
- Environmental risk and climate change



## Social and cultural

- Impact on Indigenous Communities
- Community concerns for existing and future residents, local businesses and traffic
- Impact on archaeological/cultural heritage features
- Air quality, noise, dust and odour impacts
- Compatibility with current/planned land use



## Legal and Jurisdictional

- Land use suitability and availability
- Ownership and land acquisition
- Approvals/coordination
- Worker safety and operability



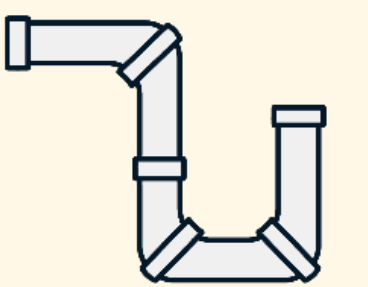
## Evaluating the Options

With input from the public, key stakeholders and review agencies (Ministries), the project team will develop and use criteria to evaluate options for: the new plant site, plant outlet location and connecting body of water, and sewer alignments.



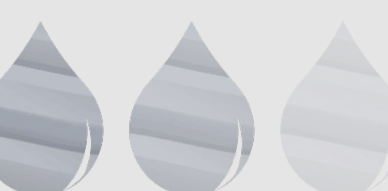
## Technical

- Ability to meet future needs
- System security and level of service
- Ease of integration with existing system
- Ease of construction, operation and traffic management



## Financial

- Capital cost
- Lifecycle cost (operation & maintenance, resourcing and servicing)
- Cash flow/phasing
- Funding and finance opportunities





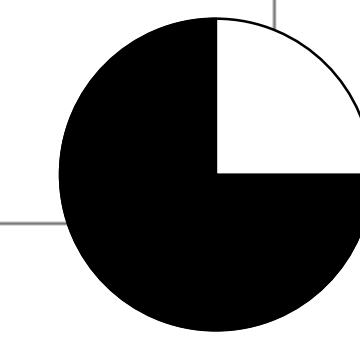
## What do you think?

Based on input to date, South Niagara Falls Wastewater Solutions presents the following proposed evaluated categories and respective weighting. Please give us your feedback.



## Long List Evaluation Table

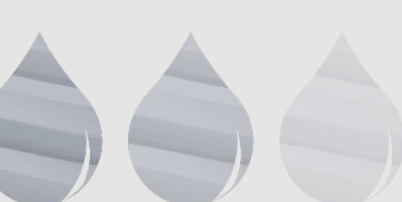
Criteria		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10
Environmental (25%)	Environmental Features	<i>Comment on environmental features, water bodies and habitats that may impact siting the new facility or associated wastewater infrastructure</i>									
	Water Quality										
Socio/Cultural (25%)	Socio-Economic	<i>Comment on the social, cultural, and heritage factors that may impact siting the new facility and construction of the new infrastructure and integration with the local community</i>									
	Cultural Heritage										
	Archaeological										
Legal/Jurisdictional (10%)	Legal	<i>Comment on the existing and future surrounding land uses, property acquisition requirements and approval requirements</i>									
	Property										
	Approvals										
Technical (20%)	Site & Treatment	<i>Comment on the unique wastewater strategy requirements related to each alternative (new plant site, outfall location, collection system and sewer routes) to meet current and future needs and the overall technical goals and objectives</i>									
	Outfall										
	Collection										
Financial (20%)	Capital Costs	<i>Comment on the capital and lifecycle costs related to each holistic wastewater alternative as well as the phasing of the capital program over time</i>									
	Lifecycle Costs										
	Phasing										



Example Evaluation Style

## Short List Evaluation Table

Criteria	Sub-Criteria	Alternative Short List A	Alternative Short List B	Alternative Short List C	Alternative Short List D
Environmental (25%)	Potential Impact on Environmentally Sensitive Features				
	Impact to Species at Risk				
	Potential Effects to Water Features/Resources				
	Receiving Waterbody				
	Impact on System Overflows				
	Physical Environmental Considerations (Geology, Hydrogeology, Soil/Land Contamination)				
	Climate Change				
Socio/Cultural (25%)	Community Concerns for Residents/Local Businesses/Traffic				
	Impact on Indigenous Communities				
	Impacts on Archaeological/Cultural Heritage Features				
	Air Quality and Odour Impact				
	Noise, Vibration and Dust Impact				
	Compatibility with Current/Planned Land Uses				
Legal/Jurisdictional (10%)	Approvals/Coordination				
	Land Use Suitability				
	Land Acquisition				
	Safety and Operations				
Technical (20%)	Meet Treatment, Outfall and Collection System Goals and Objectives				
	Flexibility for Future Servicing Requirements				
	Compatibility/Impacts to Existing and Future infrastructure				
	System Security and Level of Service				
	Traffic Management				
	Operation & Maintenance				
Financial (20%)	Capital Cost				
	Lifecycle Cost (Operation, Resourcing, and Maintenance and Servicing)				
	Cash Flow/Phasing of Costs				
	Funding Opportunities				





**Get Engaged!** What do you believe is the most important criteria of this study? Do you support the evaluation approach? Using the sticky notes provided, please let us know your thoughts. Your feedback will be used to help inform the decision-making process.



## Typical Wastewater Treatment Process



**1.** Wastewater from our sinks, tubs and toilets drains through sewers to a wastewater treatment plant.

**2.** Screens remove materials such as branches, plastics, rags and other untreatable debris.

**3.** The wastewater flows into clarifiers, which allow remaining solids to settle or float to the surface over several hours.

**4.** These solids are pumped to a set of digesters where they are further broken down before being sent to a biosolids storage facility for fertilizer production. Bio-gas is produced during the digestion process and used within the plant.

**5.** Liquid wastewater flows from the clarifiers into aeration tanks where air is added and bacteria “eat” any dissolved solids.

**6.** Ferric chloride is added to remove phosphorous from the wastewater. Too much phosphorous can promote algae growth in our lakes and rivers.

**7.** The wastewater is sent to the final clarifiers where the wastewater and bacteria-mixture separates.

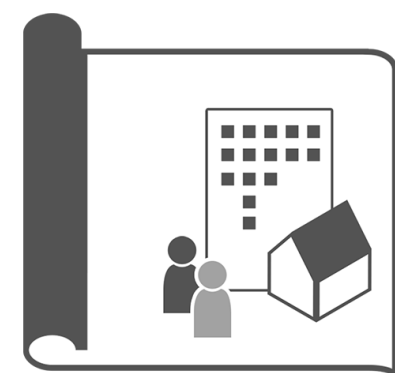
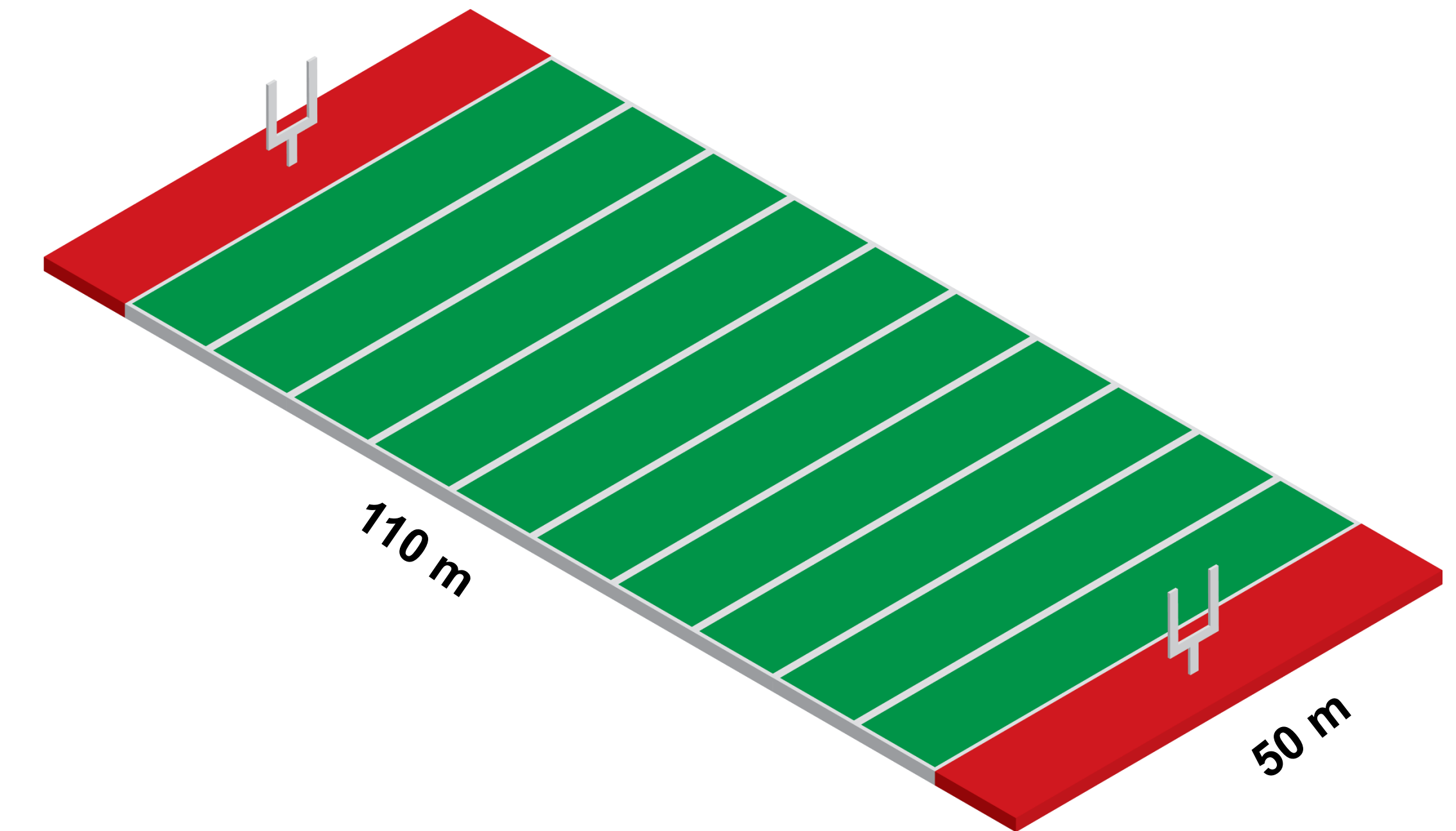
**8.** Chlorine is added to disinfect the wastewater, killing bacteria and viruses. The chlorine is removed before being safely returned to the nearest lake or river.

## What does a Wastewater Treatment Plant Site Need?



### Appropriate Land Size

The site must have suitable land size for a new plant. The potential size is approximately 400m x 400m (16 hectares). Equal to almost 30 Canadian football fields.

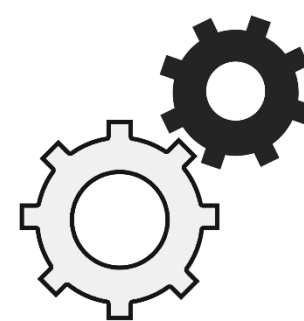


### Positive Integration into Surroundings

The existing and surrounding land use is an important factor for a new plant site.

The team will consider potential impacts to the local environment and community, and how they will be addressed.

These measures include how we deal with noise, visual impact, odour, traffic and construction.



### Proximity to the Region's Wastewater System and Future Growth Areas

The site ideally needs to be close to the existing wastewater system and close to future service areas.



### Proximity to a Natural Water Body

The site must be close to a nearby river or lake where the clean, treated water can be released.

Studies are underway to review environmental features, wildlife habitats, and water quality.

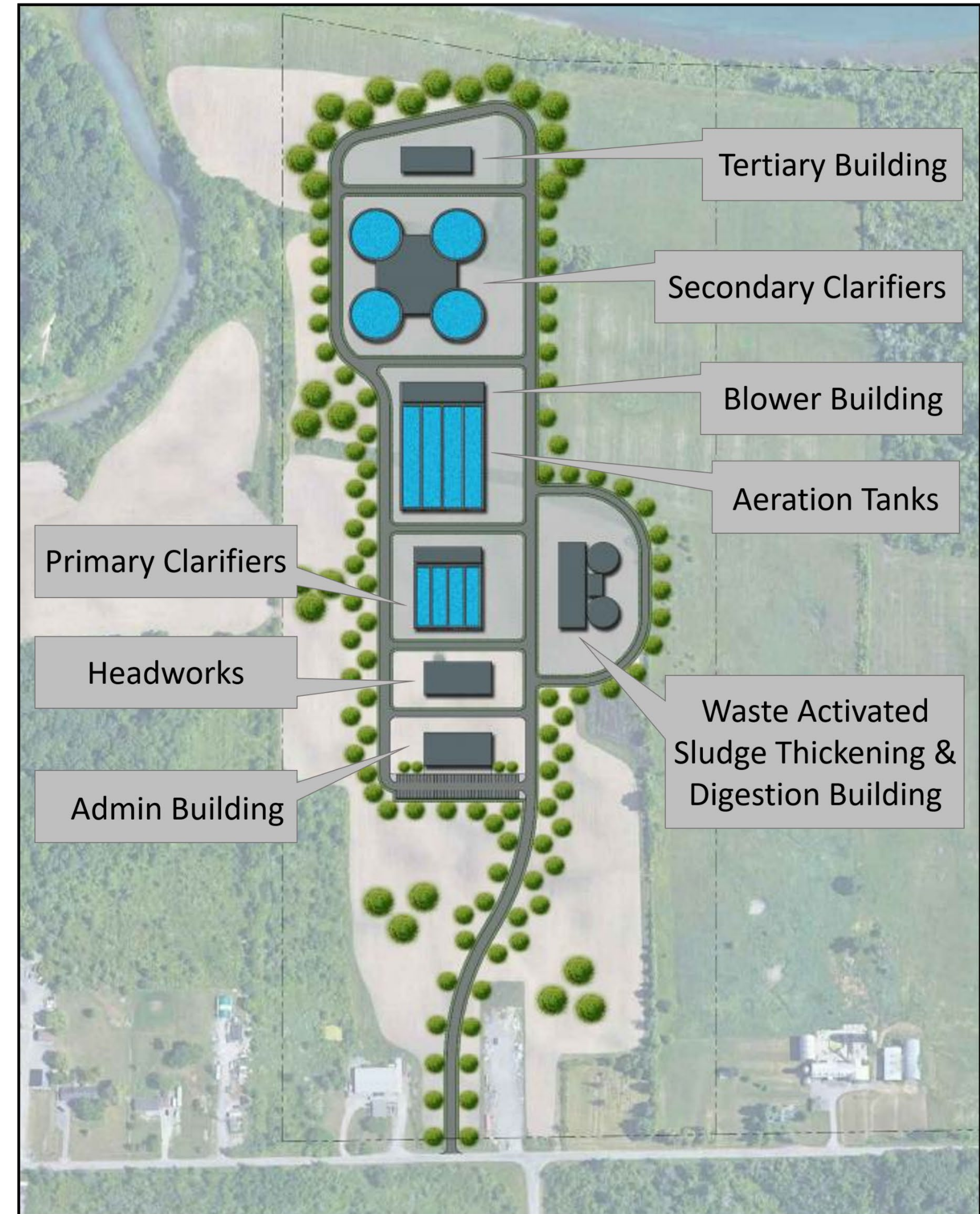
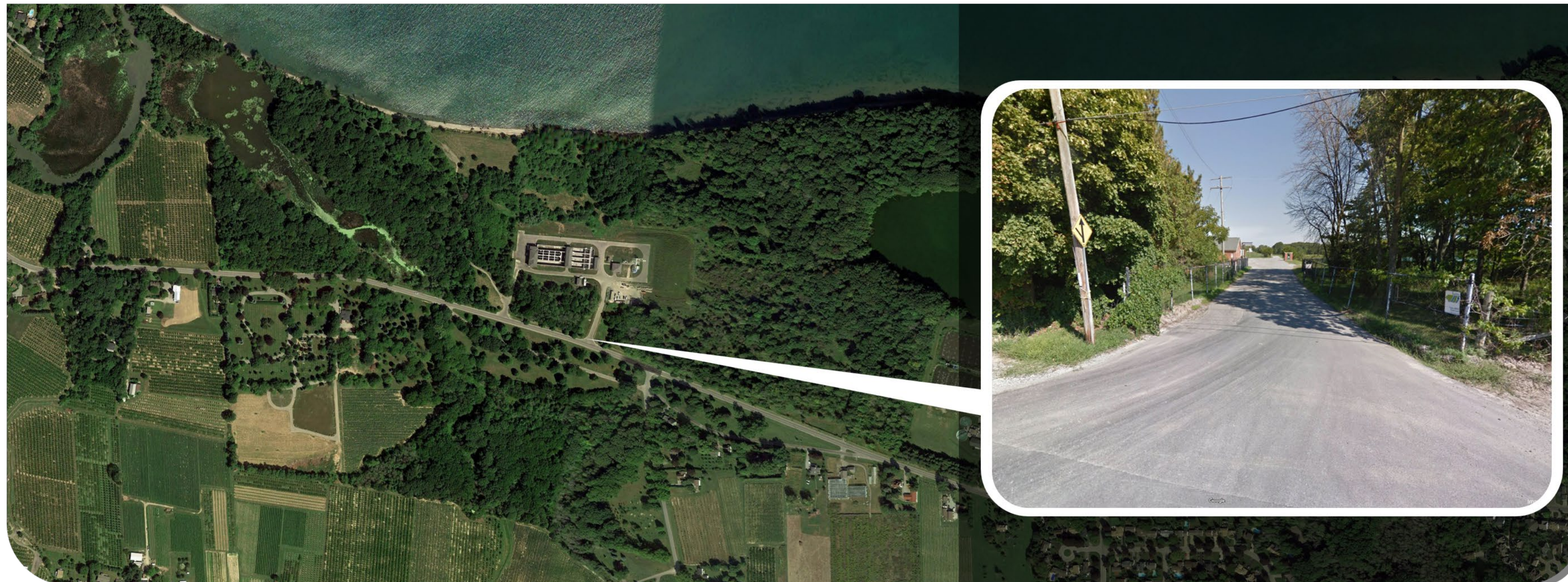


# Example Wastewater Treatment Plant Layouts

### Baker Road Wastewater Treatment Plant



### Niagara-on-the-Lake Wastewater Treatment Plant



Example siting layout of a new Wastewater Treatment Plant



## How to Stay Involved

- Sign up for project updates
- Attend a future Public Information Centre
- Submit an online feedback form or future survey
- Visit our website  
[www.niagararegion.ca/projects/south-niagara-falls-treatment-plant](http://www.niagararegion.ca/projects/south-niagara-falls-treatment-plant)
- Follow us on social media  
[www.facebook.com/niagararegion](http://www.facebook.com/niagararegion) and  
[www.twitter.com/niagararegion](http://www.twitter.com/niagararegion)

## Today

- Fill out the questionnaire and comment sheet
- We want to know if you are interested in active involvement or prefer to participate through project information updates

Do you have any questions, comments, or want to stay up to date? Please contact us anytime:

### **Lisa Vespi, P.Eng., PMP**

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Please note that information related to this study will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments received will become part of the public record and may be included in the study documentation prepared for public review. If you require an alternative format of this material please contact the Niagara Region's Accessibility Coordinator at 905-685-4225 ext. 3252 or [accessibility@niagararegion.ca](mailto:accessibility@niagararegion.ca)



## Next Steps

- Review input provided on evaluation criteria used: Is there additional criteria you believe should be considered? Does the information provided make sense and do you agree with the evaluation criteria weightings and process?
- Complete evaluation process on long list of sites to short list of 3-5 sites then to preliminary preferred solution
- Public Information Centre 3 in **Winter 2020**: Present evaluation and preliminary preferred solution. This PIC will look to engage the public and receive feedback on the preliminary preferred solutions including the new plant site location

## Schedule:

