



Niagara Region

Phase I Class EA and Public Information Centre No. 1
Summary Report

2021 Biosolids Management Master Plan Update

August 2022

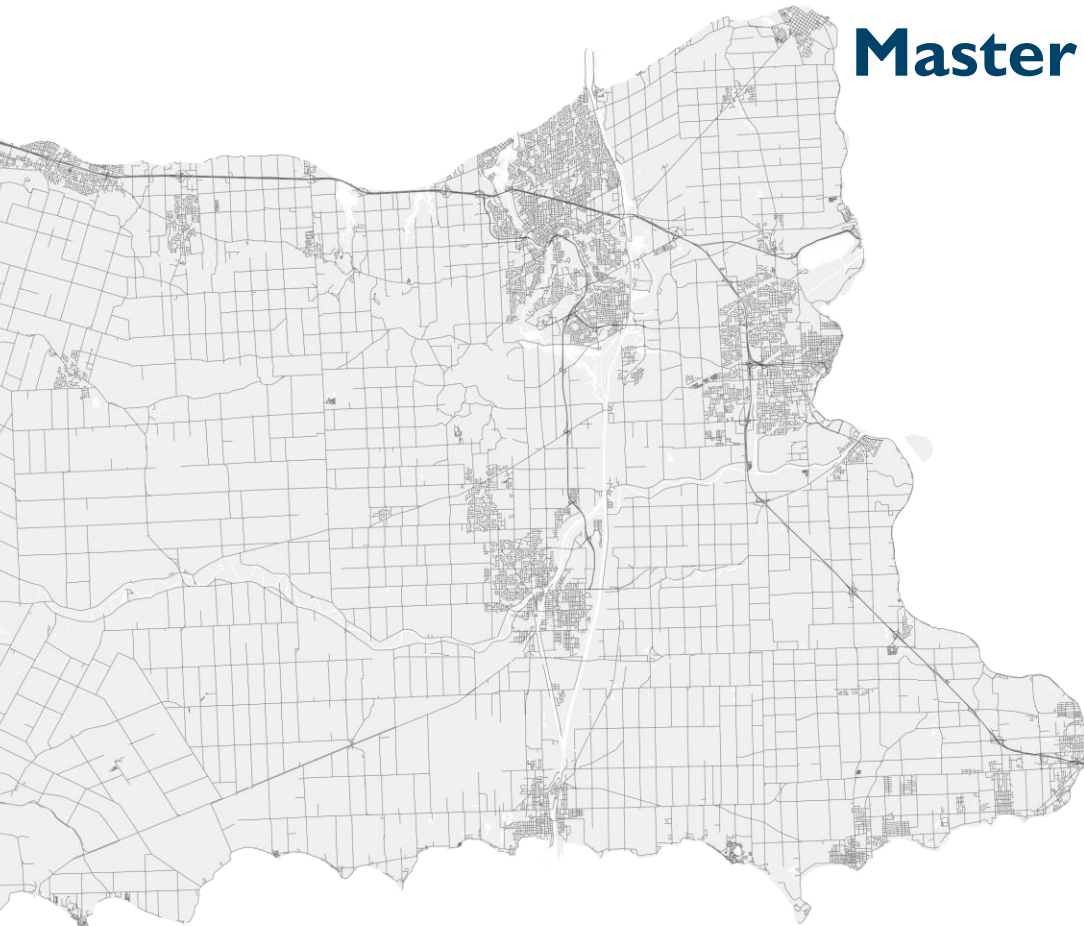


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**621143 – Niagara Biosolids Management Master Plan Update
Phase 1 Class EA & Public Information Centre No. 1 Summary Report**

QA/QC - SIGN OFF SHEET

This report has been reviewed and approved by the undersigned.



Laurie Boyce, B.Sc., M.A.
Project Manager

1.0 Study Introduction

1.1 Background and Purpose

In alignment with Niagara's Growth Management Strategy and under the legislative context of the Province's Place to Grow Plan and the Regional Policy Plan, growth in the Region of Niagara should occur in a sustainable manner addressing economic, social, and environmental considerations. The Region initiated the current Biosolids Management Master Plan (BMMP) Update to review the existing biosolids management strategy in light of these Provincial and Regional growth targets, to identify limitations, develop and evaluate alternative management strategies, and recommend a preferred strategy for implementation. The study will address Phases 1 and 2 of the Municipal Engineers Association Class Environmental Assessment Master Planning Process, while meeting the goals and objectives of the Region.

The BMMP will be developed to:

- Meet future population growth needs to the year 2051,
- Consider future regulations,
- Educate stakeholders regarding the benefits of biosolids reuse,
- Address community expectations,
- Protect the environment,
- Provide greater flexibility, reliability and cost efficiency for biosolids management, and
- Provide a 'Made in Niagara' strategy that incorporate features unique to this area

The study area covers includes all wastewater and water treatment plants in the Region of Niagara which includes Grimsby, West Lincoln, Lincoln, St. Catharines, Thorold, Welland, Pelham, Port Colborne, Niagara-on-the-Lake, Niagara Falls, and Fort Erie. Although Wainfleet does not have wastewater or water treatment, biosolids are utilized on their agricultural lands. **Figure 1** maps the overall study area.

A key part of the public consultation component of the study are Public Information Centres (PICs), which serve as a forum for information exchange between the public, stakeholders, and the project team. This report summarizes the first PIC held virtually from June 8-22, 2022, as well as the Phase 1 consultation activities and documents the following:

- Project Initiation
- Information presented at PIC No. 1
- Summary of engagement
- Summarized table of comments received, and responses provided in order to track correspondence in a transparent and traceable manner.

This report will be appended to the Master Plan Report submitted at the end of the study.



Figure 1: Study Area

1.2 Class EA Content

The Niagara BMMP study follows Phases 1 and 2 of the Municipal Class EA Process which includes the following:

- Phase 1: Development of the Problem and Opportunity Statement
- Phase 2: Assessment of Alternative Solutions and Selection of the Preferred Solution

The PIC No. 1 event concluded Phase 1 of the Class EA Process. The Problem and Opportunity Statement for the Niagara Region BMMP Plan is defined as follows:

“The purpose of the Biosolids Management Master Plan Update is to develop a holistic, long-term strategy for biosolids management in Niagara in a manner that is transparent, sustainable, reliable, environmentally friendly, cost-effective and flexible.”

The PIC No. 1 event also presented the proposed approach for the EA process. This defined the process of identifying alternative solutions for the problem and opportunity statement listed above and provided a long list of alternative strategies for biosolids management in Niagara Region. **Figure 2** displays the Municipal Class EA planning process and design planning process.

Overall, the objectives of PIC 1 were to introduce the study, provide an opportunity for stakeholders to learn about the Region’s existing biosolid management program, and receive initial input on proposed long list of alternatives and evaluation criteria.

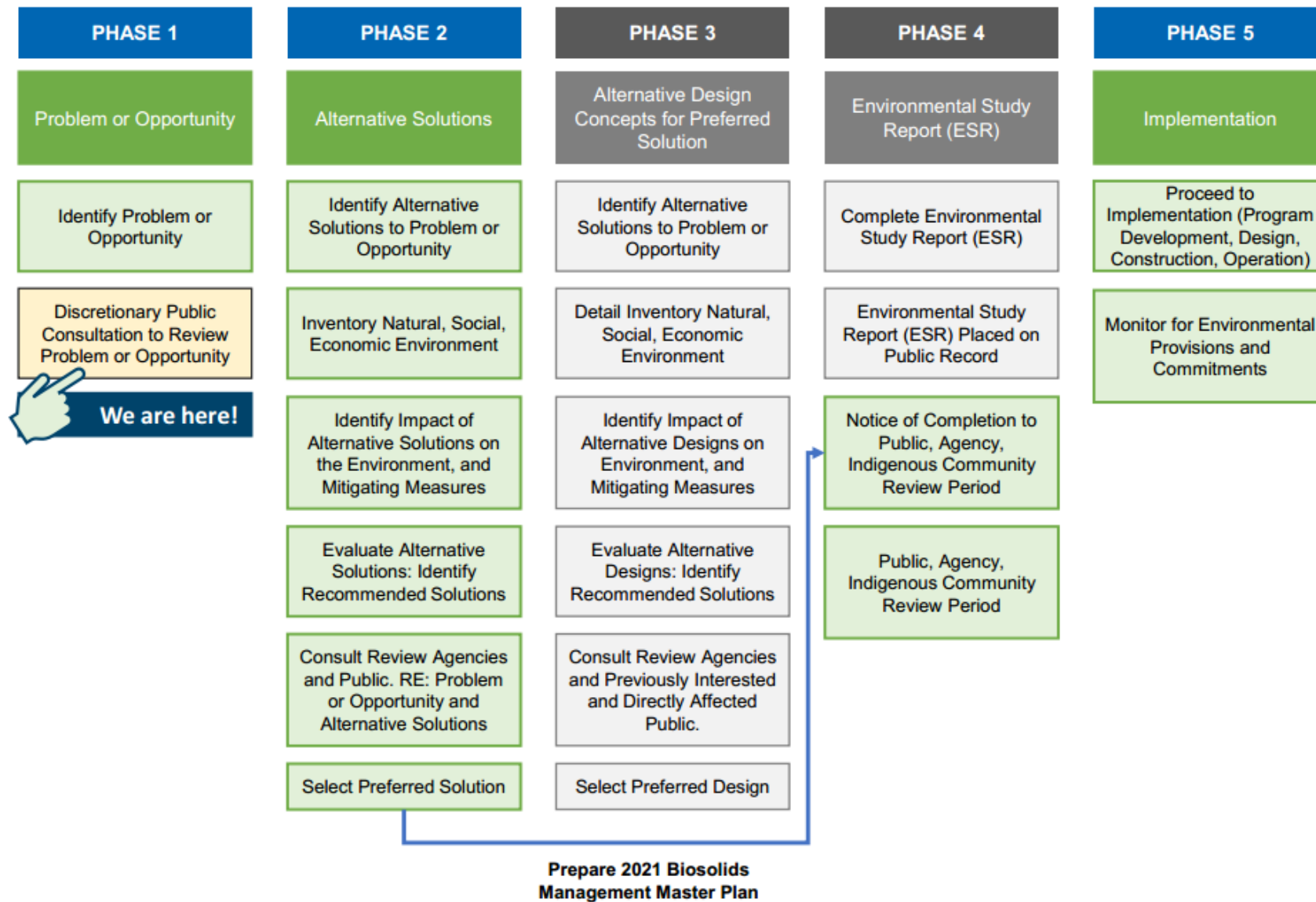


Figure 2: Municipal Class EA Planning and Design Process

2.0 Project Initiation

2.1 Public Consultation and Stakeholder Engagement Plan

The Region's approach to communicate and consult with stakeholders is driven by five key considerations.

- Keeping Niagara Region and area municipality councillors and senior management up to date and aware of study progress and findings.
- Undertaking and maintaining the appropriate level of communication with the public and stakeholders.
- Effectively engaging Indigenous Communities.
- Maintaining Niagara's brand and public reputation.
- Meet or exceed MEA Standards for public and stakeholder consultations.

Considering the above factors, the Region's consultation and engagement program aims to offer the following key opportunities:

- Educating the community about biosolids infrastructure and beneficial use.
- Building public and stakeholder understanding and buy-in to support the EA process and the preferred solutions.
- Raising awareness of Region services.
- Building the foundation for future steps in the project including implementation of subsequent studies and designs.

2.2 Mailing List

Early in the study process a mailing list was established. The mailing list included government review agencies, public interest groups, municipalities, Indigenous Communities, utilities and other stakeholders. The list was based on the mailing list established through the Water and Wastewater Master Plan process, input from the Ministry of Environment, Parks and Conservation (MECP), and input from the Region and area municipalities. The mailing list is continually updated through the study as additional interested parties and individuals are identified.

2.3 Project Website

A dedicated project website for the 2021BMMP Update has been established and is regularly updated. The site includes notices, information bulletins, and Public Information Centre (PIC) information. www.niagararegion.ca/projects/biosolids-master-plan/. In addition, the Region has established dedicated email address for contact throughout the project: niagarabiosolidssmp@niagararegion.ca.

3.0 Public Information Centre No. 1

3.1 Purpose

PIC No. 1 was the first public event for this study. Due to the COVID-19 health situation, PIC No.1 was held virtually from June 8-22, 2022 and presented the following information:

- Introduced the study (including background)
- Described the Class EA process
- Identified the problem and opportunity statement
- Presented biosolids servicing alternatives being considered; and
- Evaluation approach that will be used to select the short list of recommended strategies to be developed.
- Received public input and answer any questions.

The public review material included a presentation with voice-over, interactive mapping (Story Map), and an AODA compliant pdf summary of all presented information to illustrate the problem opportunity statement, study area conditions, detailed Class EA evaluation process, long list of alternatives being considered and overview of the draft detailed evaluation methodology and criteria.

3.2 Notice of Study Commencement and PIC No. 1

Stakeholders and the public were informed by local newspaper advertisements, mail and or email (study contact list), and through the Region of Niagara website.

For a copy of the Notice of Study Commencement/ PIC No. 1, please refer to Appendix A.

3.2.1 Newspaper Advertisements

The Study Commencement and PIC No. 1 Notice was published in local area newspapers which included the following:

- Standard Review Tribune - Saturday May 28, 2022
- The Voice - Wednesday June 1, 2022
- The Niagara On the Lake Local - Wednesday June 1, 2022
- New Now - Thursday June 2, 2022
- The Lake Report – Thursday June 2, 2022

3.2.2 Online Advertisements

This notice was also posted to the Niagara Region website and the Project website. The website includes details for members of the public to sign up in order to stay involved through this study and receive future study notifications.

3.2.3 Contact List Mailout

The Notice of Commencement/PIC No. 1 was mailed and/or emailed to local government, review agencies, Indigenous Communities, and other stakeholders on May 25, 2022.

Notification was sent to the following groups:

Provincial

- Ministry of the Environment, Conservation and Parks
- Ministry of Northern Development, Mines, Natural Resources and Forestry
- Infrastructure Ontario
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Economic Development, Employment and Infrastructure
- Ministry of Infrastructure
- Ministry of Municipal Affairs and Housing
- Ministry of Heritage, Sport, Tourism and Culture
- Ministry of Transportation
- Niagara Parks Commission
- Ontario Provincial Police
- Peace Bridge Authority
- Ministry of the Attorney General, Aboriginal Justice Division
- Ministry of Indigenous Affairs

Conservation Authorities

- Niagara Peninsula Conservation Authority

Federal

- Canadian Section, International Niagara Board of Control
- Canadian Environmental Assessment Agency
- Department of Fisheries and Oceans Canada
- Department of Environment and Climate Change Canada
- Department of Indigenous and Northern Affairs Canada
- Federal Economic Development Agency for Southern Ontario
- Health Canada
- Transport Canada
- Canadian Food Inspection Agency

Indigenous Communities

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council
- Assembly of First Nations
- Association of Iroquois and Allied Indians
- Metis Nation of Ontario
- Niagara Region Metis Council
- Fort Erie Native Friendship Centre
- Niagara Regional Native Centre

Rail and Transit

- CN Rail
- CP Rail
- GO Transit/Metrolinx
- TransCanada Pipelines

School Boards and Interest Groups

- Conseil Scolaire Viamode
- Conseil Scolaire Catholique MonAvenir
- District School Board of Niagara
- Canadian Section, International Niagara Board of Control
- Friends of the Greenbelt
- Greater Niagara Chamber of Commerce
- Lundy's Lane BIA
- Niagara Catholic District School Board
- Niagara College
- Niagara Emergency Medical Services
- Niagara Health
- Niagara Home Builders Association
- Niagara Regional Police
- Ontario Realty Corporation
- Ontario Wine Country

Third Party Biosolids Contractors and End Users

- Walker Industries
- Thomas Nutrient Solutions
- Ontario Federation of Agriculture

Utilities

- Bell Canada
- Canadian Niagara Power Inc.
- Canadian Automobile Association – South Central Ontario
- Cogeco Cable Hamilton/Niagara
- Cogeco Cable Niagara
- Enbridge Gas Inc.
- Enbridge Pipelines Inc.
- Grimsby Power Incorporated
- Hydro One Networks
- Niagara-on-the-Lake Hydro
- Niagara Peninsula Energy Inc.
- Niagara Region Broadband Networks
- Ontario Power Generation
- Telus
- Welland Hydro Electric System Corporation

3.3 PIC No. 1 Meeting Details

The virtual PIC No. 1 was held from June 8 – 22, 2022. The PIC No. 1 materials were available for public comment via the study website.

3.4 PIC No. 1 Display Material

The information presented on the PIC No. 1 video presentation slides and interactive mapping (ESRI Story Maps) included:

- Project Introduction
- Project Approach
- PIC Objectives
- Study Area
- Existing Biosolids Management System
- Evaluation Approach
- Project Schedule
- How to Get Involved

A copy of the PIC No. 1 presentation material is provided in Appendix B.

3.5 Online Survey

Recipients of the PIC No. 1 notice were encouraged to complete an online survey regarding the proposed evaluation approach for the biosolid management alternatives.

The survey included the following questions/comments:

- Do you have any comments regarding the Problem/Opportunity Statement?
- Do you have any comments on or addition to the long list of alternatives treatment technologies and end-use markets?
- Do you have any comments on the screening criteria and detailed evaluation criteria?
- Ranking of most important criteria including minimizing impact to natural environment, limiting disruptions to the public, ease of approvals and permits, minimizing costs, ensuring a sustainable solution that performs well.
- Provide additional criteria that you consider important if not listed above
- Opportunity to provide additional questions or comments
- Opportunity to be added to the stakeholder list

A copy of the survey is provided in Appendix C.

3.6 PIC No. 1 Attendance

During the two (2)-week engagement period, the video presentation received 45 views.

3.7 PIC No. 1 Comments Received and Region’s Responses

Attendees were encouraged to provide comments related to Class EA in writing through the project website during the two-week comment period. Comments were accepted through the project website, by phone, email and/or mailed letters. These comments were then reviewed and considered by the Project Team to inform the decision-making process.

A summary of the comments received is provided in the table below. A one-page event summary was posted to the project website to demonstrate engagement as provided in Appendix D.

No.	PIC No. 1 Comments/Questions Received	Project Team Response
1	Multiple public stakeholders signed-up to be on the mailing list and receive future project notices	All individuals interested in the study have been added to the mailing list to receive study information.
2	Requested consideration for reduced truck traffic related to biosolids hauling through the community of Cooks Mills	The Region staff followed-up with Thomas Nutrient Solutions to continue to implement measures to mitigate the impacts of trucks transferring biosolids to agricultural fields. Thomas Nutrient Solutions are the third party contractor responsible for coordinating beneficial land application of biosolids. In addition, as part of this 2021 Biosolids Management Master Plan Update the Region is exploring opportunities to optimize biosolids management in the Region, including a review of biosolids hauling operations.
3	Enbridge provided approximate locations of pipeline infrastructure within the Study Area	Information provided by Enbridge will be considered in the assessment of alternatives, and the development of the preferred strategy. The Region will work with continue to work with Enbridge to mitigate and control potential impacts associated with Regional infrastructure works on pipelines.
4	Received notification from Niagara Escarpment Commission (NEC) that the Queenston WWTP and Decew Falls WTP fall within the Niagara Escarpment Plan Area and Area of Development Control and the NEC would like to be involved in the study.	NEC is a major stakeholder and will continue to be involved throughout the study process.

4.0 Next Steps

Following the first round of public consultation, the project team will:

- Consider comments and input received into the Class EA process,
- Continue to work with review agencies and interested stakeholders,
- Prepare and advertise for Public Information Centre No. 2, and
- Continue to collect comments and input for consideration in the Class EA process.

**APPENDIX A:
Notice of Study Commencement and PIC No. 1**



Notice of Study Commencement and Public Information Centre No. 1

Biosolids Management Master Plan Update

Niagara Region completed a Biosolids Management Master Plan in 2010 to ensure a long-term, environmentally sustainable, reliable and cost effective biosolids management program for Niagara Region and its citizens. This update to the plan will identify and develop a strategy for meeting Niagara’s biosolids treatment needs to the year 2051, in a manner that is transparent, sustainable, reliable, environmentally friendly, cost effective and flexible.

The Biosolids Management Master Plan will be developed to:

- Meet the unique needs of Niagara Region and its customers, including treatment requirements, land uses and users, and environmental features
- Meet future needs associated with population growth, new regulations, climate resiliency, and energy efficiency
- Provide greater flexibility and reliability for biosolids management, both in the short term (i.e., 5 years) and long term (to the year 2051)
- Improve biosolids marketability; and
- Address community expectations regarding level of service, odour, air/noise, water quality, protection of the environment and aesthetics



The Process

The Study follows the master planning process as established by the Municipal Engineer’s Association Class Environmental Assessment process for Master Plans, which is an approved Ontario Environmental Assessment process. The Biosolids Management Master Plan Update will satisfy Phases 1 and 2 of the Class Environmental Assessment process. Public and stakeholder input will be sought throughout the process, and a Biosolids Management Master Plan Update Report will be prepared and filed for public review.



Get Involved

Public feedback is an important part of the process. Information about the project will be available on Niagara Region's website as part of Public Information Centre No. 1. You can learn about the project, strategies being considered and how you can have your voice heard.

Public Information Centre No. 1 Details

Information about the Biosolids Management Master Plan will be made available on the project website beginning **Wednesday, June 8, 2022**. This will be followed with a two-week period to submit Public Information Centre No. 1 related comments to the Project Team.



You can access the project website using the link below or by scanning the QR code with your smart phone.

niagararegion.ca/projects/biosolids-master-plan

If you have questions, comments or wish to be added to the study mailing list, please contact:

Albert Succi, Senior Project Manager
Water & Wastewater Engineering
Niagara Region
3501 Schmon Pkwy., PO Box 1042
Thorold, ON L2V 4T7
905-980-6000 ext. 3308
Toll-free: 1-800-263-7215
Fax: 905-685-5205
niagarabiosolidsmp@niagararegion.ca

Personal information collected or submitted in writing at public meetings will be collected, used and disclosed by members of Regional Council and Regional staff in accordance with the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA). The written submissions including names, contact information and reports of the public meeting will be made available. Questions should be referred to the Privacy Office at 905-980-6000, ext. 3779 or FOI@niagararegion.ca.

If you require any accommodations in order to participate, please let us know in advance so that arrangements can be made in a timely manner. Special accessibility accommodations and materials in alternate formats can be arranged by contacting the Niagara Region's Accessibility Advisory Coordinator at 905-980-6000 ext. 3252 or **accessibility@niagararegion.ca**.

**APPENDIX B:
PIC No. 1 Material**

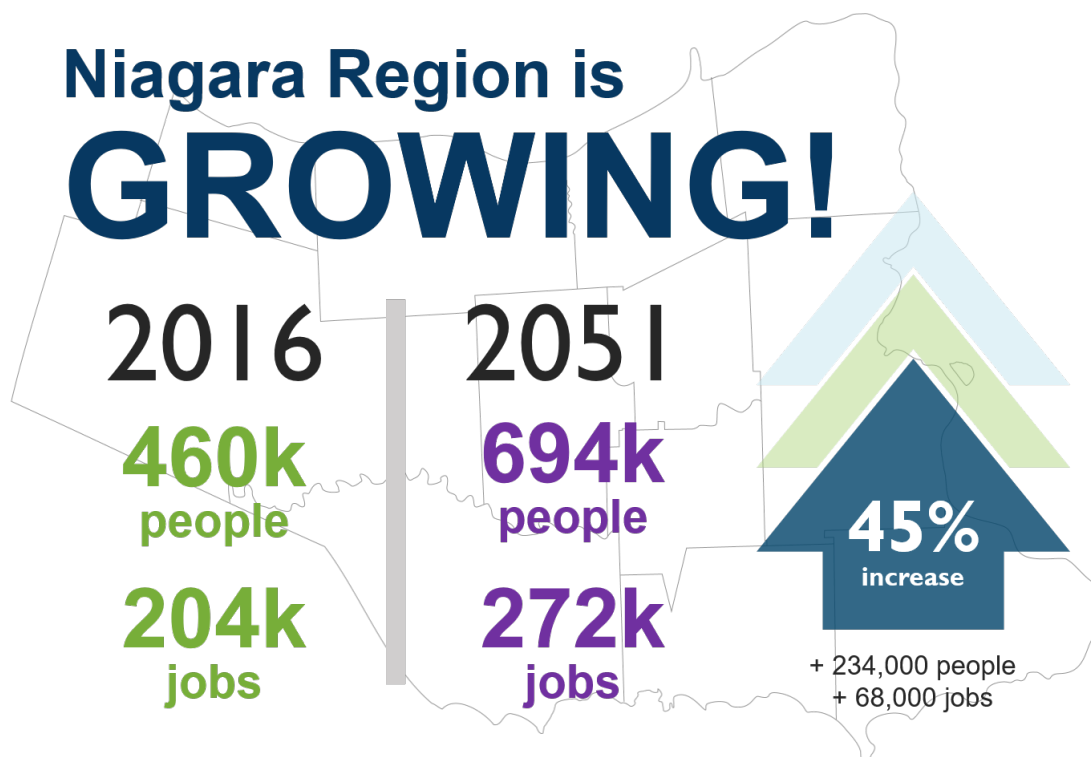
This document is provided as an alternative format that is originally hosted using ESRI StoryMaps. It is provided for those who may not have the compatible browser to view the original virtual public information materials online.

Project Introduction

The Niagara Region is undertaking a region-wide Biosolid Management Master Plan (BMMP) Update for the future management of biosolids from each of the Region’s water and wastewater treatment plants.

As Niagara Region continues to grow, we need to make sure that we plan our infrastructure and services in order to meet increasing demands. More people means more wastewater, which also means more biosolids and a higher demand for treatment and management of these materials. This project will also build upon the recommendations in the 2010 BMMP, by considering regulatory and environmental changes since its implementation.

The 2021 Biosolids Management Master Plan (BMMP) Update will follow the Municipal Engineers Association (MEA) Class Environmental Assessment (EA) process for Master Plans and will satisfy Phases 1 and 2 of the Class EA process.



What are Biosolids?

Biosolids are the organic materials resulting from the physical, chemical and biological treatment of sewage sludge generated at wastewater treatment plants.

Biosolids have many potential beneficial uses such as land application on agricultural lands, landscaping needs, and golf courses. The Region's biosolids are currently land applied throughout Niagara Region.

The Region's biosolids also incorporate residuals from water treatment.

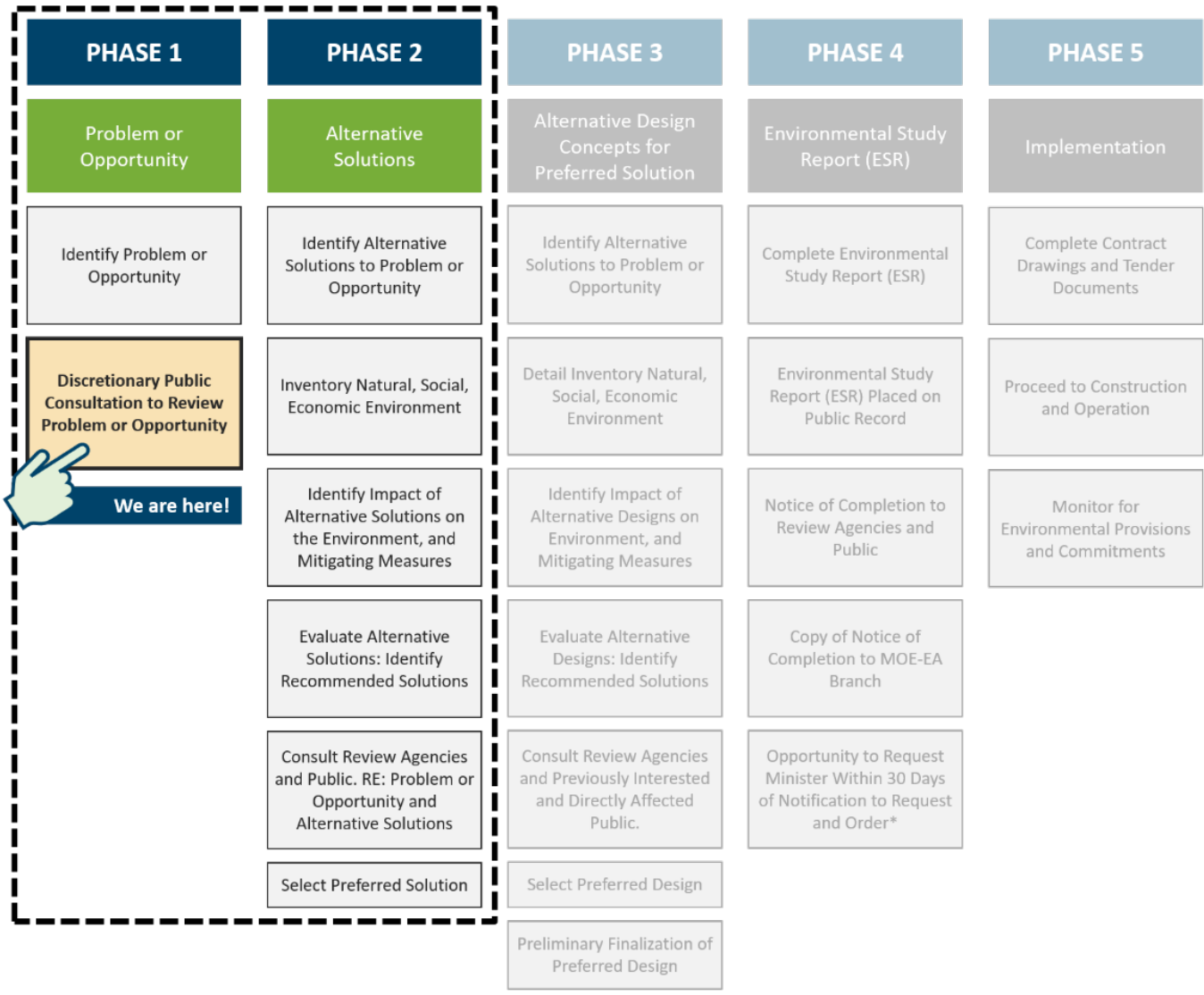


Project Approach

Problem and Opportunity Statement

This project is following the Class Environmental Assessment (EA) process for Master Plan Projects, which is a decision-making process that all Ontario municipalities follow for rehabilitating and building new infrastructure. The 2021 BMMP follows the Municipal Engineers Association (MEA) Class Environmental Assessment (EA) process for Master Plans and will satisfy Phases 1 and 2 of the Class EA process.

The purpose of the Biosolids Management Master Plan Update is to develop a holistic, long-term strategy for biosolids management in Niagara in a manner that is transparent, sustainable, reliable, environmentally friendly, cost-effective and flexible.



The objectives of this study are to:

- Document the status of the existing biosolids management program at each wastewater treatment plant (WWTP), in terms of process capacity, availability and reliability.
- Document the status of the existing program at Garner Road Biosolids Facility, in terms of process capacity, availability and reliability.
- Identify the limitations in the existing programs with consideration for the opportunities and constraints related to the future management of biosolids.
- Complete a comprehensive review of a broad range of biosolids management options available locally and globally and identify those feasible for each facility.
- Evaluate and select preferred options for each facility and the Region's operations as a whole.
- Identify, evaluate and recommend preferred biosolids management methods.

Public Information Centre (PIC) Objectives

Timeline

June 8, 2022:
Project information, project overview video, and transcript posted

June 8 to June 28, 2022:
Submit questions or comments related to the PIC No.1 materials to Niagara Region
niagarabiosolidsm@niagararegion.ca

July 6, 2022
Responses to questions and comments posted



Present the Public and Stakeholders with an opportunity to learn about Niagara Region's biosolids management approach and provide insight to future needs.



Outline the Biosolids Management Master Plan Update project schedule and what steps are being taken to support the decision-making process.



Answer any questions you may have about the Project process or potential outcomes.



Obtain your feedback on the purpose of the Biosolids Management Master Plan, the long list of alternatives and which evaluation criteria are most important to you

1. Present the public and stakeholders with an opportunity to learn about Niagara Region's biosolids management approach and provide insight to future needs.
2. Outline the Biosolids Management Master Plan Update project schedule and what steps are being taken to support the decision-making process.
3. Answer any questions you may have about the project process or potential outcomes.
4. Obtain your feedback on the purpose of the Biosolids Management Master Plan, the long list of alternatives and which evaluation criteria are most important to you.

Questions and comments can be submitted to niagarabmmp@niagararegion.ca until June 28, 2022.

Submit Questions or
Comments

Study Area

The 2021 Biosolids Management Master Plan Update is applicable to all wastewater treatment plants and water treatment plants in Grimsby, West Lincoln, Lincoln, St. Catharines, Thorold, Welland, Pelham, Port Colborne, Niagara-on-the-Lake, Niagara Falls, and Fort Erie.

*Although Wainfleet does not have wastewater or water treatment (uses septic tanks and wells), biosolids are utilized on agricultural lands in Wainfleet as well as other area municipalities.

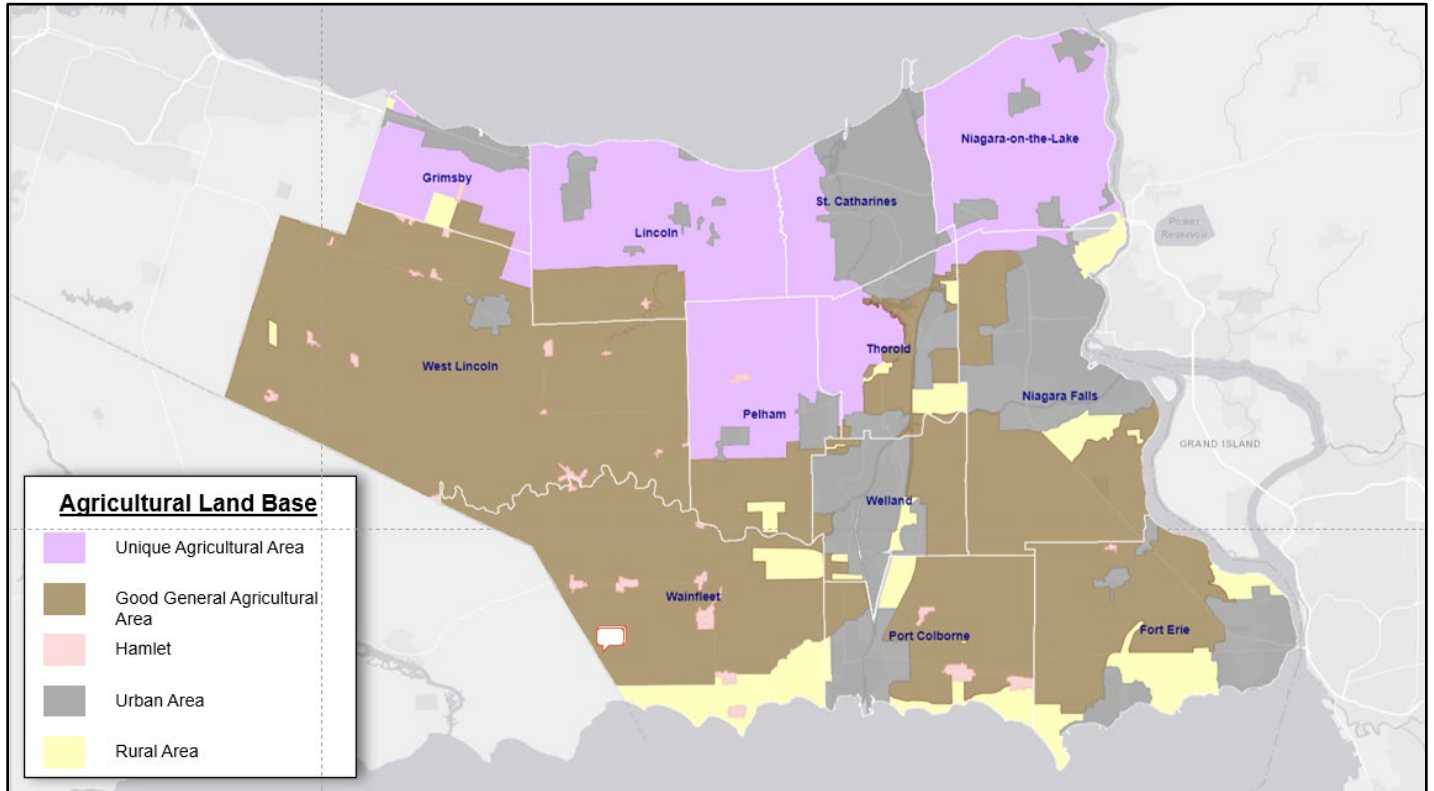


Niagara Region Official Plan Agricultural Land Base

The Region consists of roughly 74% agricultural land use.

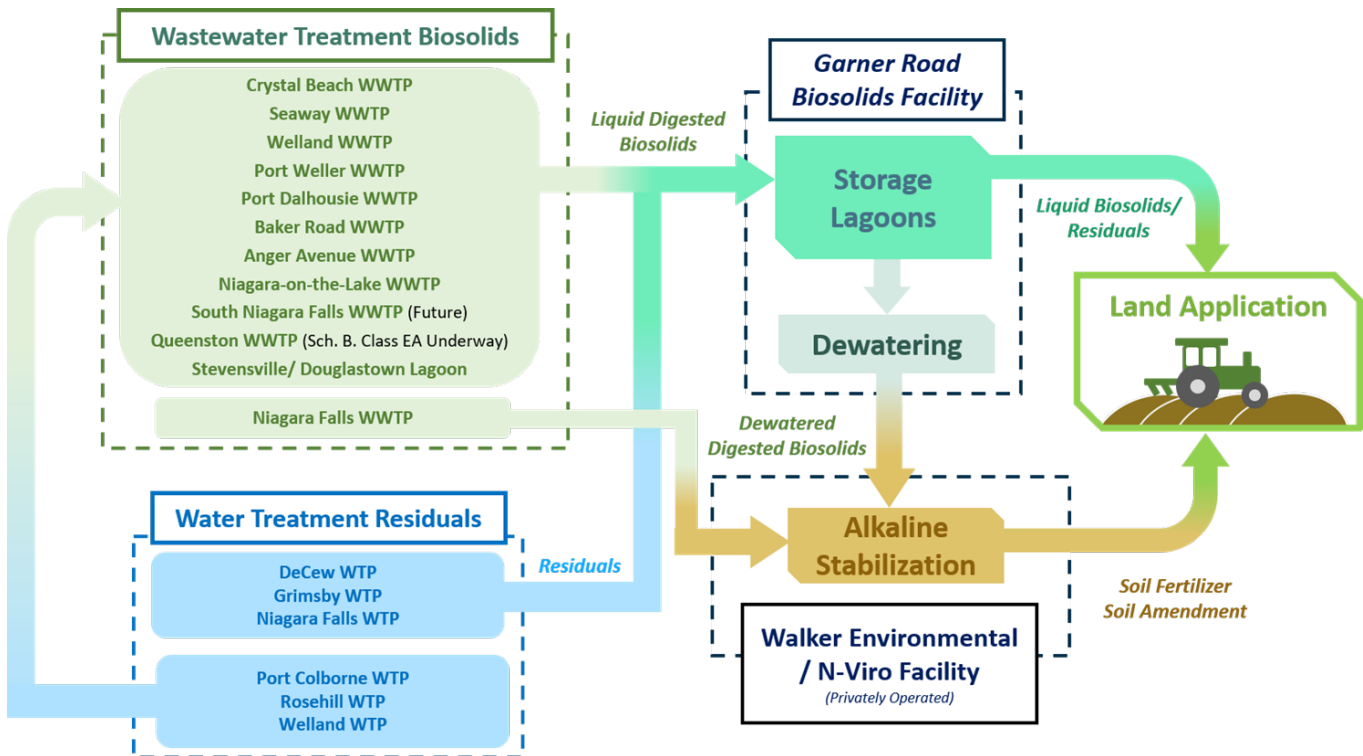
- ~51% or 96,452 hectares is categorized as Good General Agricultural Area
- ~23% or 43,542 hectares falls under Unique Agricultural Area

The agricultural industry presents the greatest potential end use market for biosolid management byproducts.



Existing Biosolids Management System

Overall, water treatment residuals and wastewater treatment biosolids are processed at the Garner Road Biosolids Facility, Walker Environmental N-Viro Facility, or both, before being converted into a product appropriate for land application in the form of fertilizer or liquid biosolids.



Wastewater Treatment Biosolids

Liquid biosolids from the Region's wastewater treatment plants (WWTPs) are transferred to the Garner Road Biosolids Facility storage lagoons. The biosolids may then be used directly for land applications as liquid biosolids or dewatered to create a biosolids cake product. Dewatered biosolids from the Garner Road Biosolids Facility and Niagara Falls WWTP are hauled to the Walker Environmental Facility that uses the N-Viro alkaline stabilization process to create soil amendment that is sold as a fertilizer.

Water Treatment Residuals

Residuals from the Decew Water Treatment Plant (WTP), Grimsby WTP, and Niagara Falls WTP are hauled to the Garner Road Biosolid Facility where they are mixed with liquid biosolids from the Region's WWTPs. Water residuals from Port Colborne WTP, Rosehill WTP, and Welland WTP are discharged to the sanitary sewer system for treatment through the Region's WWTPs.

Exiting Beneficial Use Program

Liquid Biosolids Management



Liquid biosolids and residuals (~50% of biosolids produced in Niagara Region) are:

1. Hauled to the Garner Road Biosolids Facility by Third Party Contractor (Thomas Nutrient Solutions),
2. Stored and thickened in lagoons at the Garner Road Biosolids Facility,
3. Hauled away and applied as a liquid fertilizer to agricultural land by Third Party Contractor (Thomas Nutrient Solution)

Dewatered Biosolids Management



Dewatered biosolids from the Garner Road Biosolids Facility and Niagara Falls WWTP (~50% of biosolids produced in Niagara Region) are:

1. Hauled to the Walker Environmental Facility in Niagara Falls,
2. Treated using alkaline stabilization (N-Viro process) to produce a high solids, nutrient rich product,
3. Hauled away and applied as a solid cake fertilizer to agricultural land by Third Party Contractor.

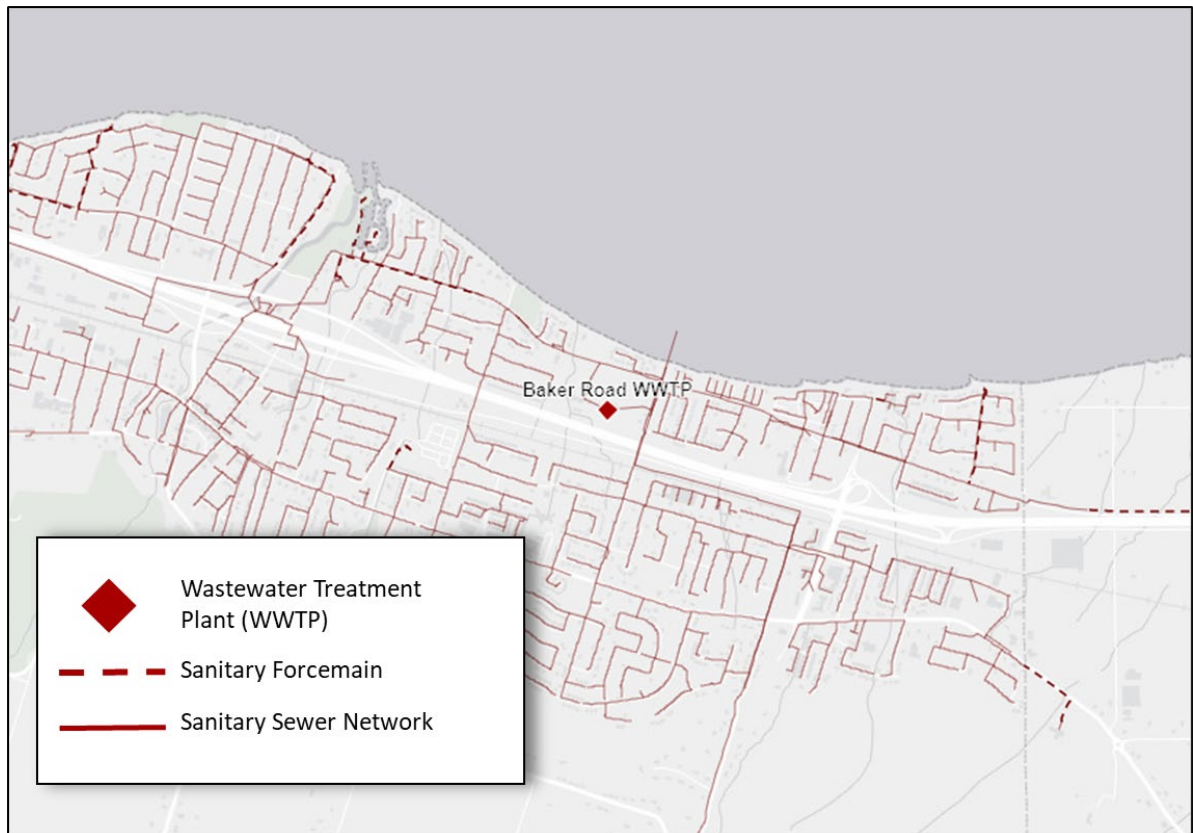
Wastewater System Existing Conditions and Future Needs

Region Wide



Grimsby

Baker Road Wastewater Treatment Plant



- **Address:** 160 Lake St, Grimsby, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 19.4
- **Current Facility Capacity (MLD):** 31.3
- **Estimated Future Flow to 2051 (MLD):** 35.82
- **Existing Solids Management Process:** Anaerobic digestion and storage
- **Planned and Required Biosolids Upgrades by 2051:** Digester capacity upgrades



St. Catharines

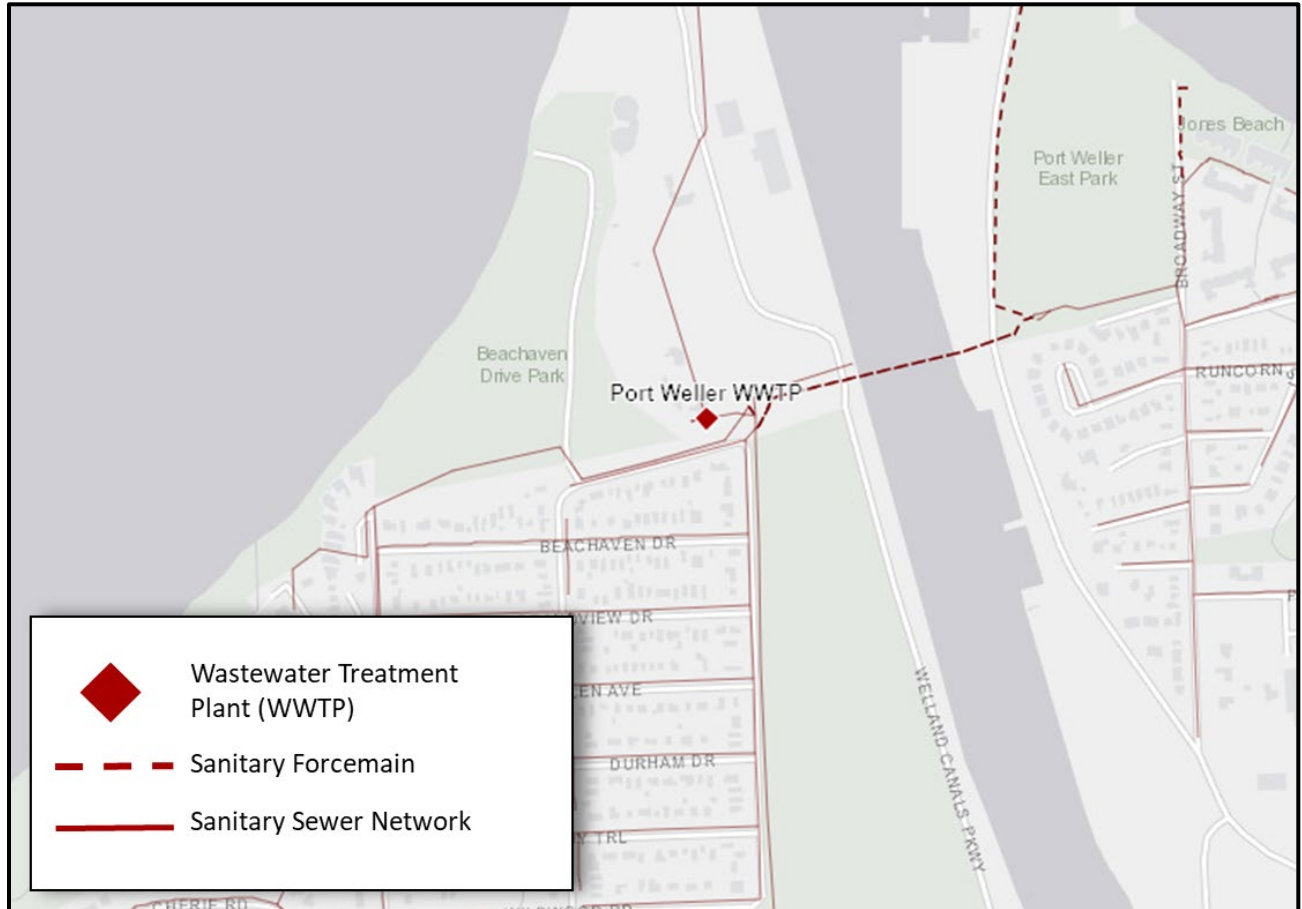
Port Dalhousie Wastewater Treatment Plant



- **Address:** 40 Lighthouse Rd, St. Catharines, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 34.5
- **Current Facility Capacity (MLD):** 61.4
- **Estimated Future Flow to 2051 (MLD):** 45.49
- **Existing Solids Management Process:** Anaerobic digestion and storage
- **Planned and Required Biosolids Upgrades by 2051:** Upgrade primary digestion capacity



Port Weller Wastewater Treatment Plant

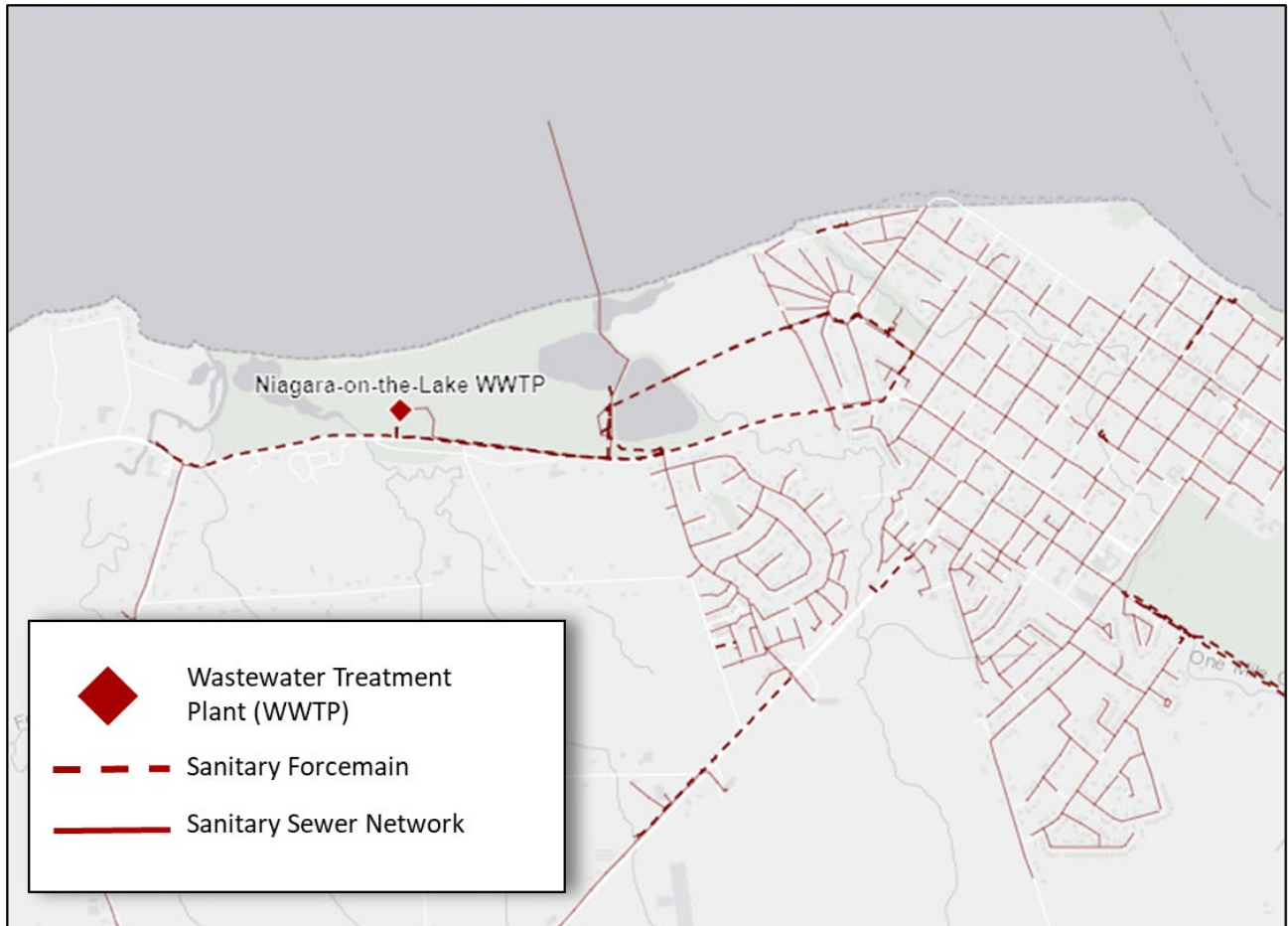


- **Address:** 27 Lombardy Ave, St. Catharines, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 35.6
- **Current Facility Capacity (MLD):** 56.2
- **Estimated Future Flow to 2051 (MLD):** 39.09
- **Existing Solids Management Process:** Anaerobic digestion
- **Planned and Required Biosolids Upgrades by 2051:** Upgrade primary digestion capacity



Niagara-on-the-Lake

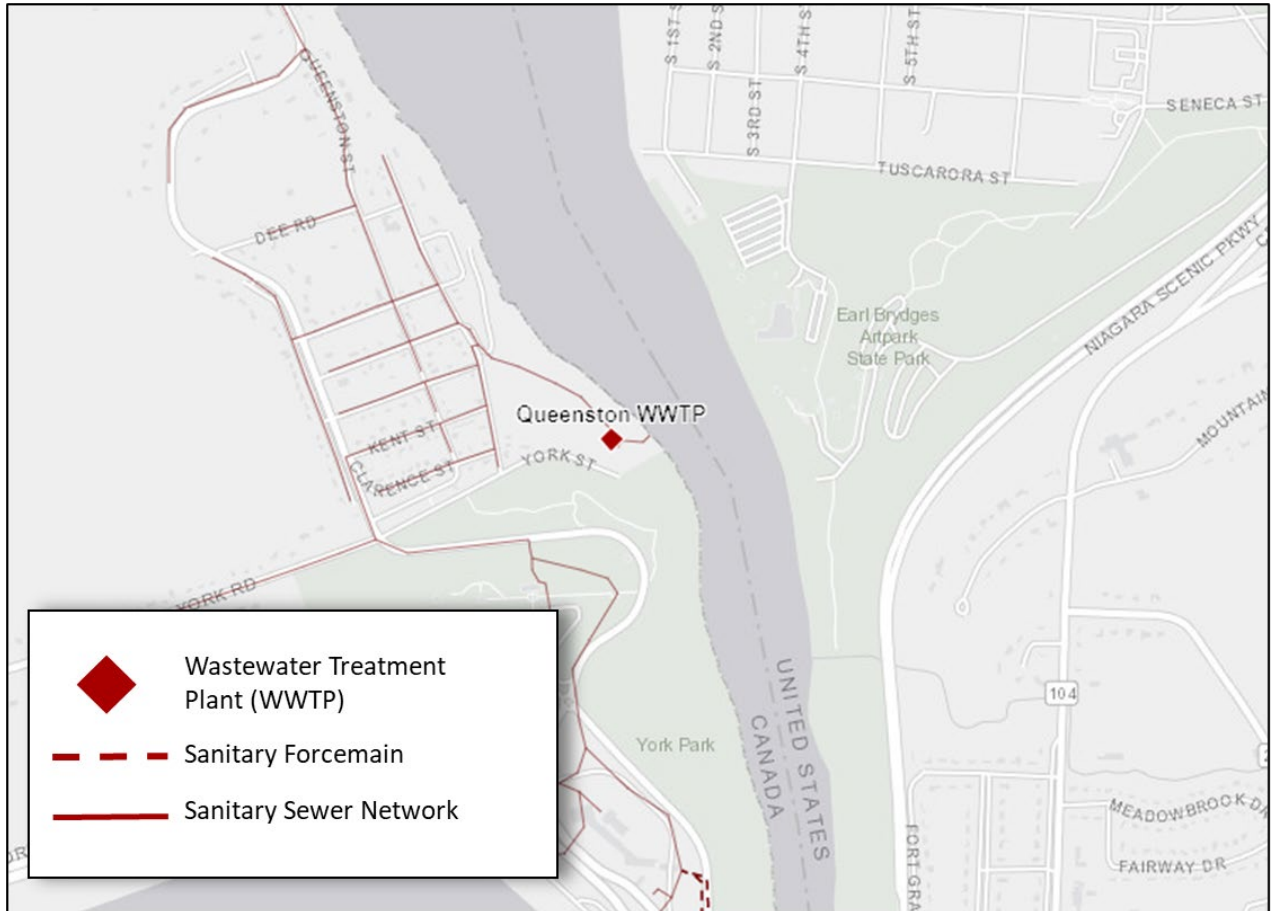
Niagara-on-the-Lake Wastewater Treatment Plant



- **Address:** 1550 Lakeshore Road, Niagara on-the-Lake, Ontario
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 4.6
- **Current Facility Capacity (MLD):** 8.0
- **Estimated Future Flow to 2051 (MLD):** 5.37
- **Existing Solids Management Process:** Thickening and Anaerobic Digestion
- **Planned and Required Biosolids Upgrades by 2051:** Increase sludge equalization storage capacity and thickening capacity



Queenston Wastewater Treatment Plant

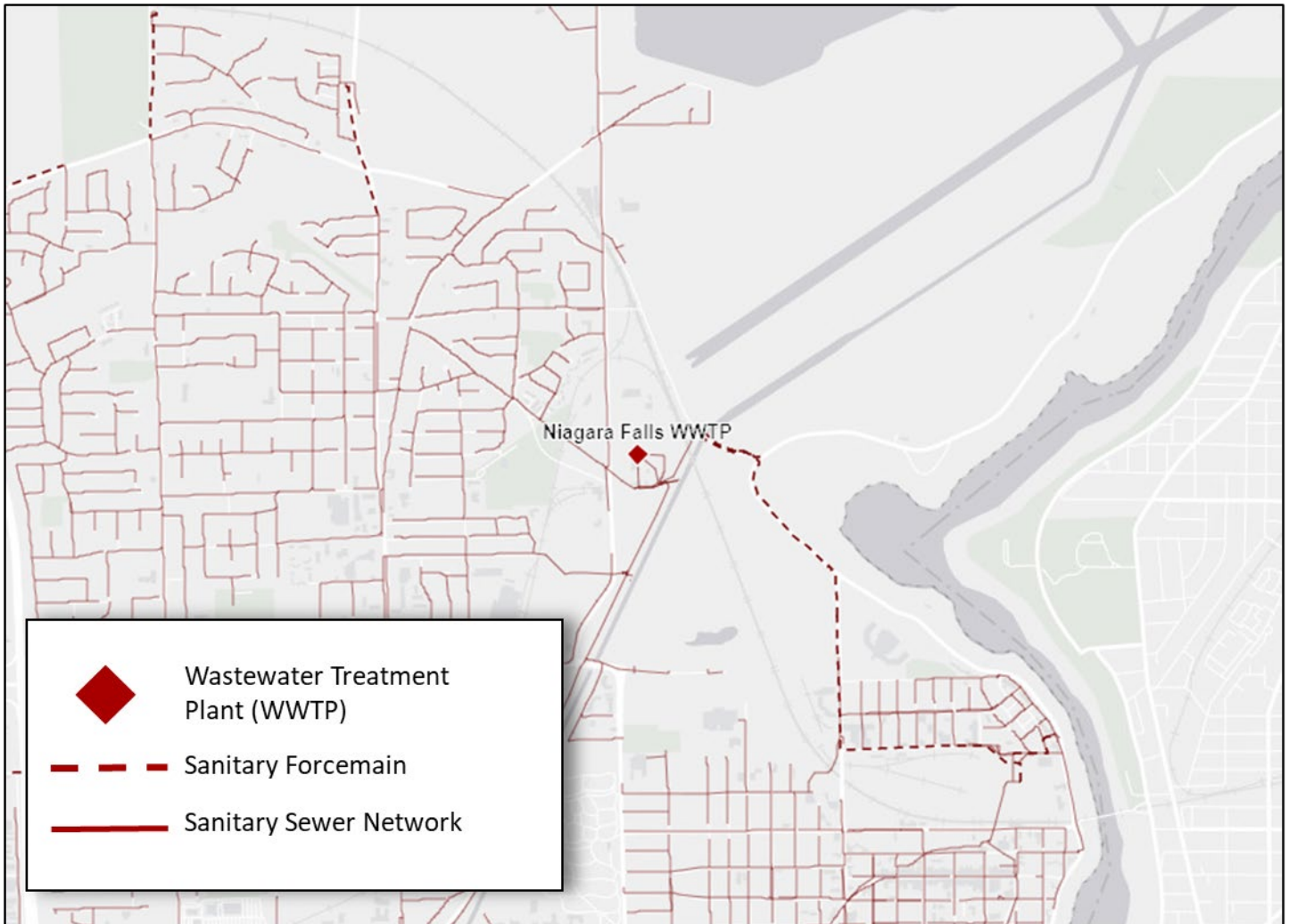


- **Address:** 5 River Frontage Road, Queenston, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 0.17
- **Current Facility Capacity (MLD):** 0.5
- **Estimated Future Flow to 2051 (MLD):** 0.23
- **Existing Solids Management Process:** Storage of waste activated sludge
- **Planned and Required Biosolids Upgrades by 2051:** Currently under Schedule B Class Environmental Assessment review.



Niagara Falls

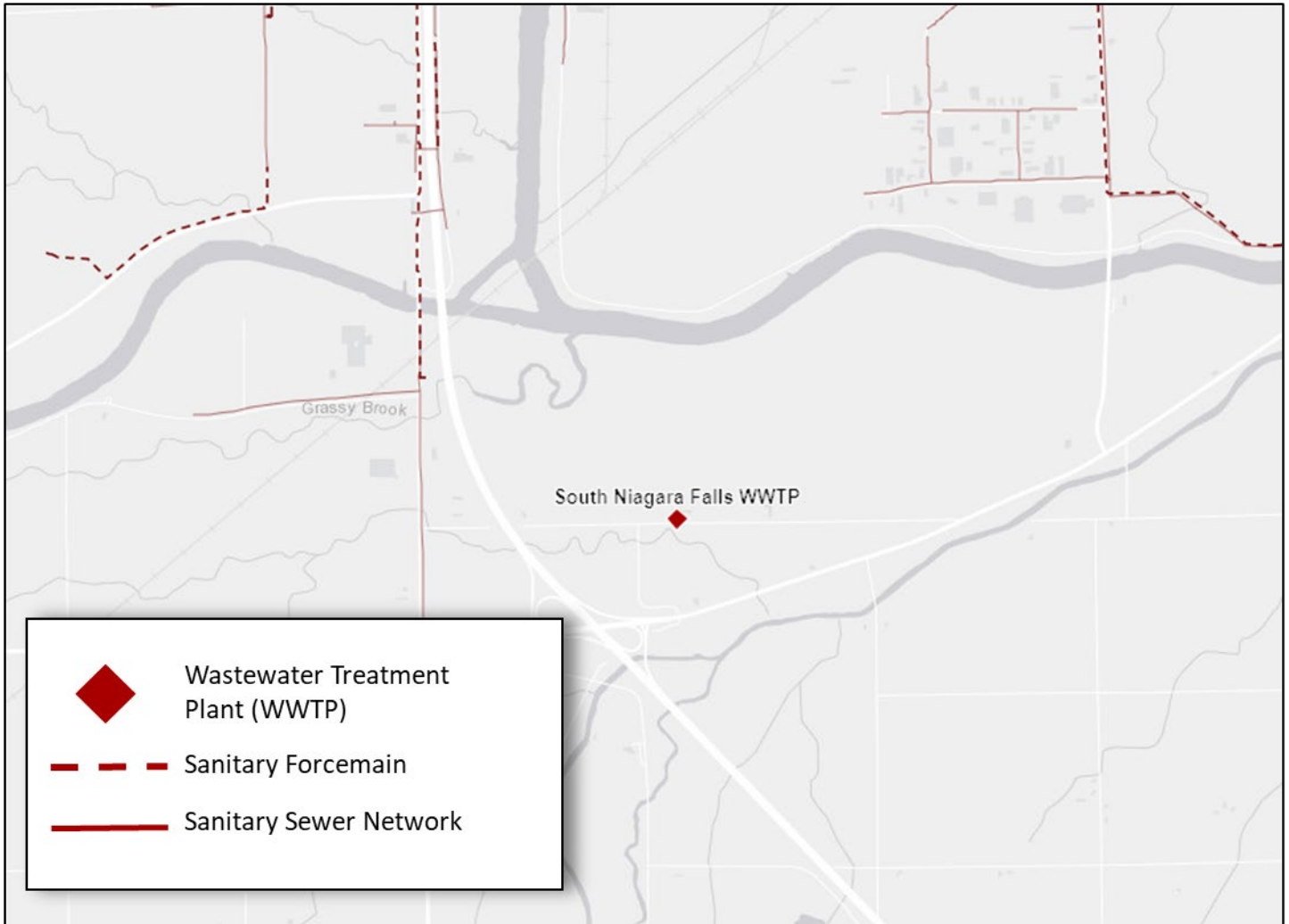
Niagara Falls Wastewater Treatment Plant



- **Address:** 3450 Stanley Avenue, Niagara Falls, Ontario
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 39.6
- **Current Facility Capacity (MLD):** 68.3
- **Estimated Future Flow to 2051 (MLD):** 37.75
- **Existing Solids Management Process:** Anaerobic Digestion, Storage and Dewatering
- **Planned and Required Biosolids Upgrades by 2051:**



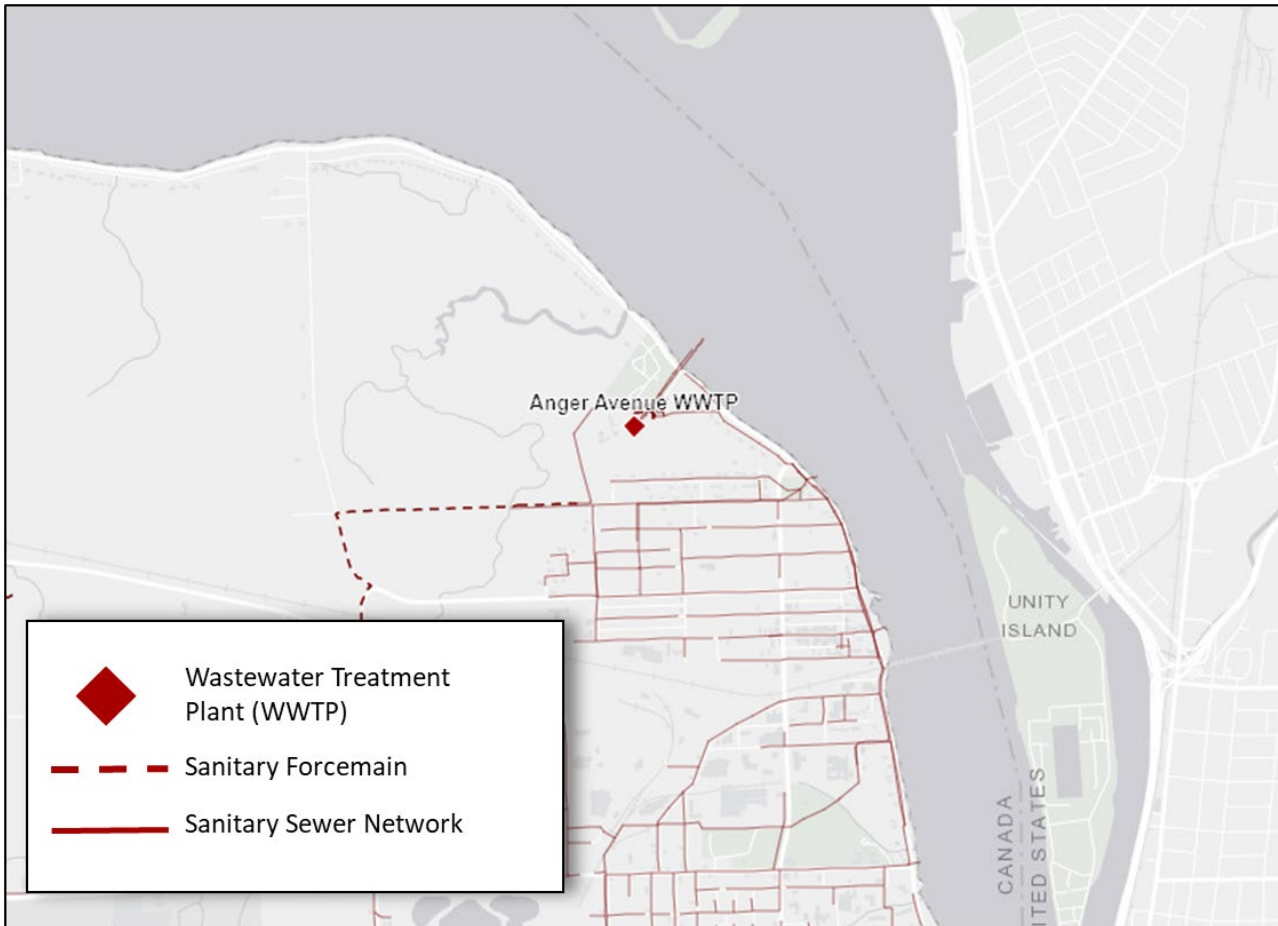
South Niagara Falls Wastewater Treatment Plant



- **Address:** To be determined.
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** Not applicable.
- **Current Facility Capacity (MLD):** 60.0
- **Estimated Future Flow to 2051 (MLD):** 31.34
- **Existing Solids Management Process:** Anaerobic Digestion
- **Planned and Required Biosolids Upgrades by 2051:** None - future plant not yet constructed.

Fort Erie

Anger Avenue Wastewater Treatment Plant



- **Address:** 1 Anger Avenue, Fort Erie, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 14.2
- **Current Facility Capacity (MLD):** 24.5
- **Estimated Future Flow to 2051 (MLD):** 18.07
- **Existing Solids Management Process:** Thickening, Anaerobic Digestion and Storage
- **Planned and Required Biosolids Upgrades by 2051:** (1) Add redundancy for thickening equipment and (2) Upgrade digester capacity.



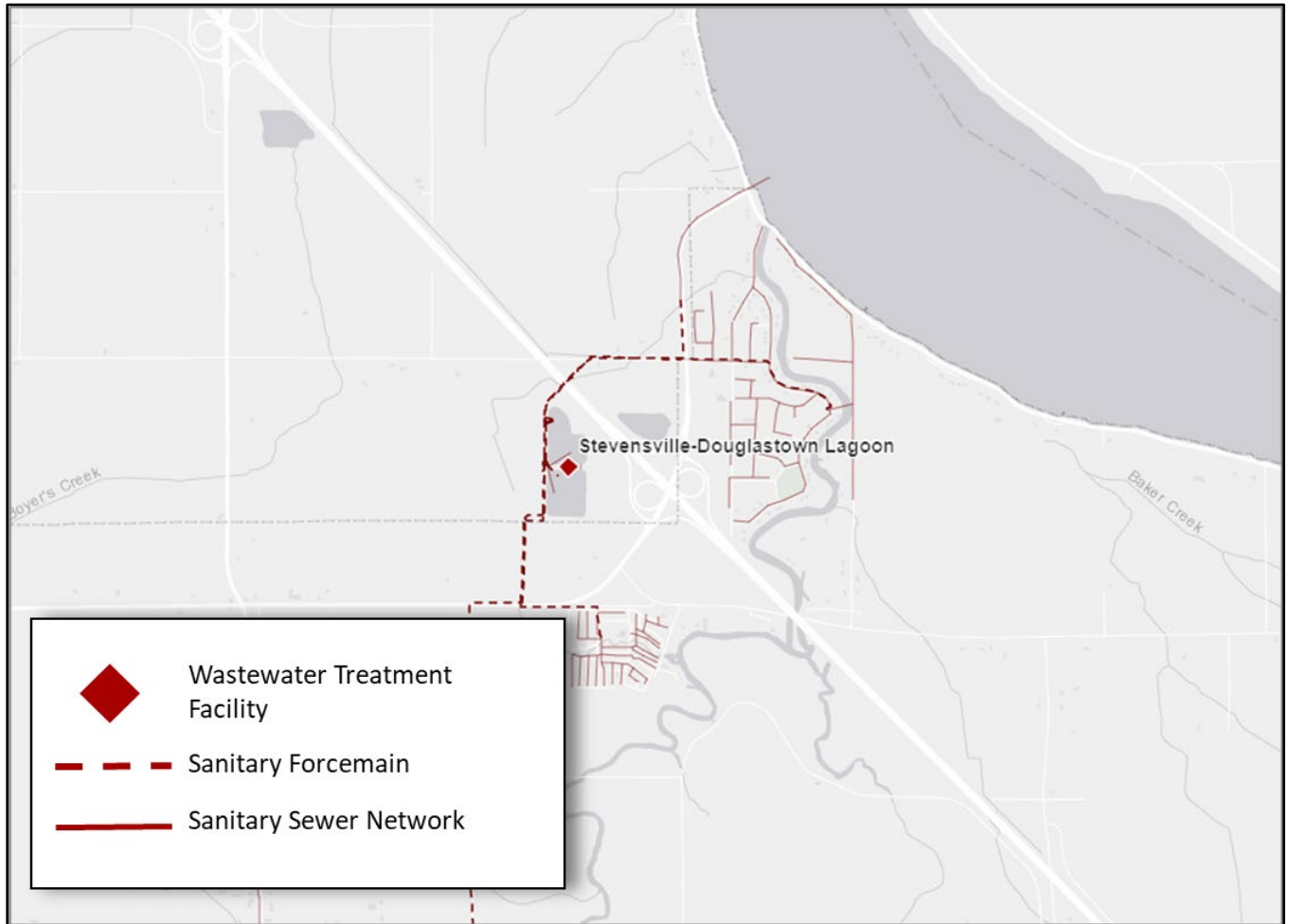
Crystal Beach Wastewater Treatment Plant



- **Address:** 500 Ridgeway Road, Fort Erie, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 5.7
- **Current Facility Capacity (MLD):** 9.1
- **Estimated Future Flow to 2051 (MLD):** 6.56
- **Existing Solids Management Process:** Thickening, Aerobic Digestion and Storage
- **Planned and Required Biosolids Upgrades by 2051:** (1) Add thickening capacity; (2) Improved sludge storage



Stevensville-Douglastown Lagoons

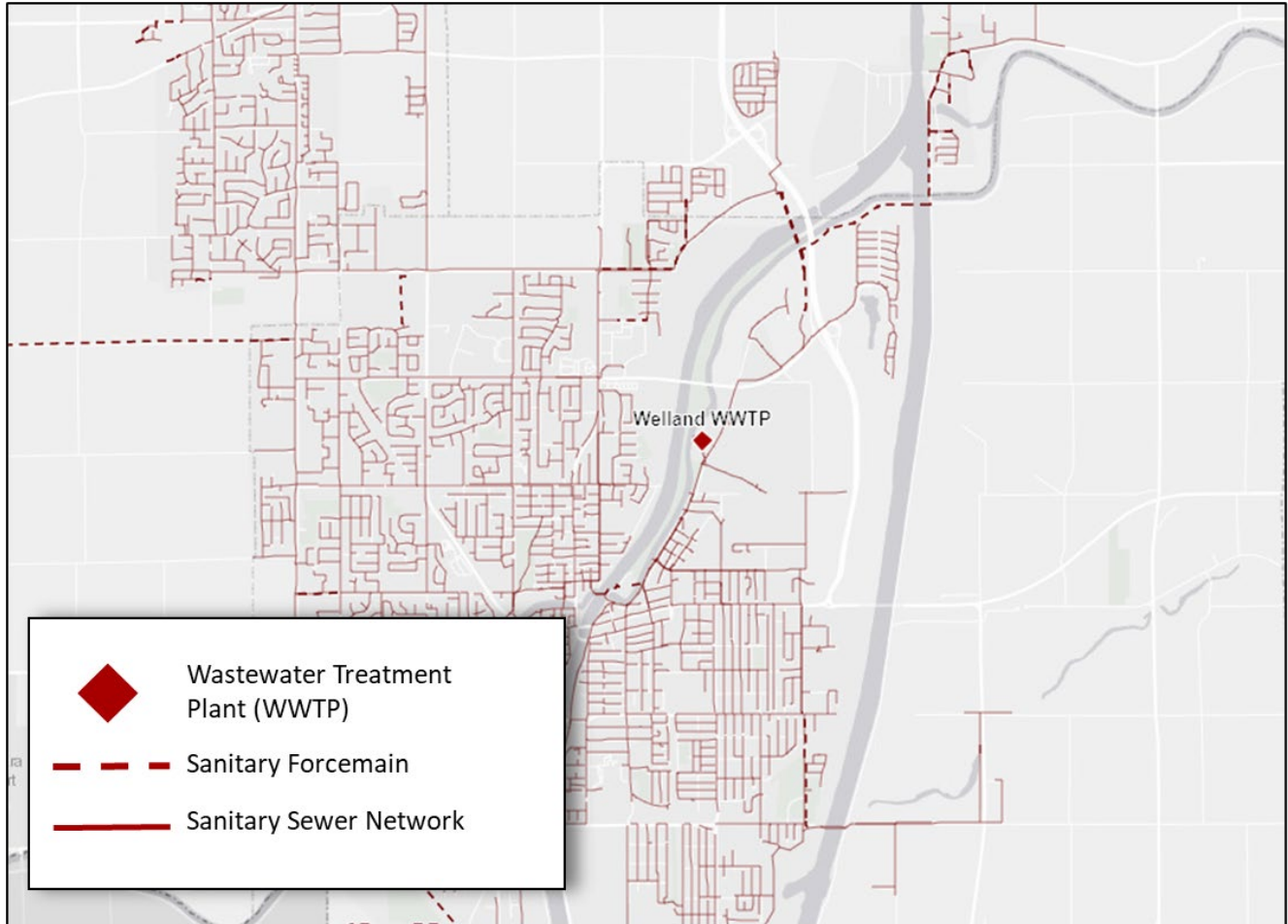


- **Address:** 3274 Netherby Road, Fort Erie, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 1.6
- **Current Facility Capacity (MLD):** 2.7
- **Estimated Future Flow to 2051 (MLD):** 2.45
- **Existing Solids Management Process:** Facultative lagoon system, with biosolids settling to the bottom of the secondary lagoon.
- **Planned and Required Upgrades by 2051:** No biosolids upgrades.



Welland

Welland Wastewater Treatment Plant

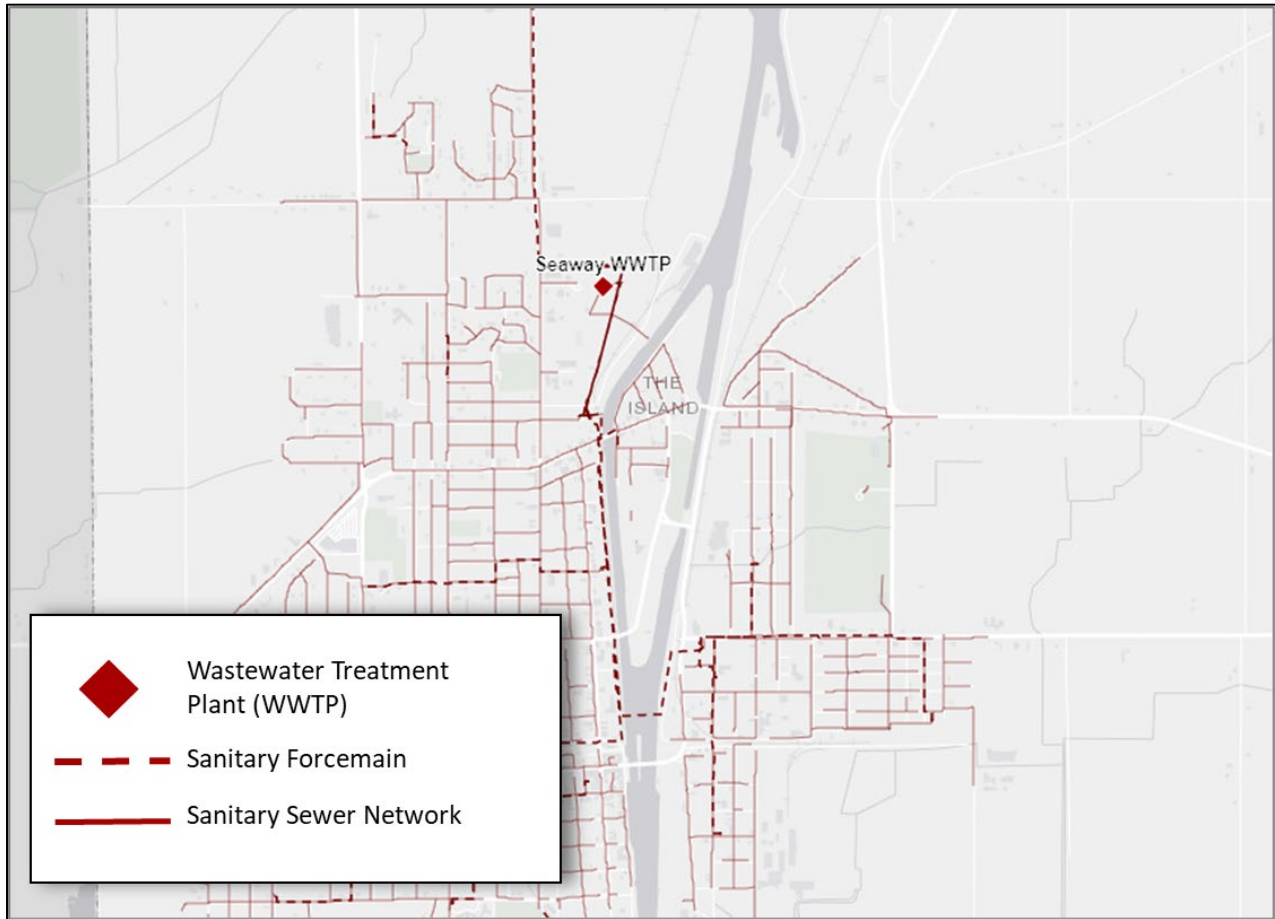


- **Address:** 505 River Road, RR#1, Welland, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 35.1
- **Current Facility Capacity (MLD):** 54.6
- **Estimated Future Flow to 2051 (MLD):** 48.87
- **Existing Solids Management Process:** Anaerobic digestion and storage
- **Planned and Required Biosolids Upgrades by 2051:** Digester upgrades



Port Colborne

Seaway Wastewater Treatment Plant



- **Address:** 30 Prosperity Avenue, Port Colborne, ON
- **Historical Flow, 2017-2021 (megalitres per day, MLD):** 12.0
- **Current Facility Capacity (MLD):** 19.6
- **Estimated Future Flow to 2051 (MLD):** 13.44
- **Existing Solids Management Process:** Anaerobic digester and storage
- **Planned and Required Biosolids Upgrades by 2051:** No biosolids capacity upgrades are planned or expected to be required. Opportunities to increase the operational flexibility of the storage facility may be considered.



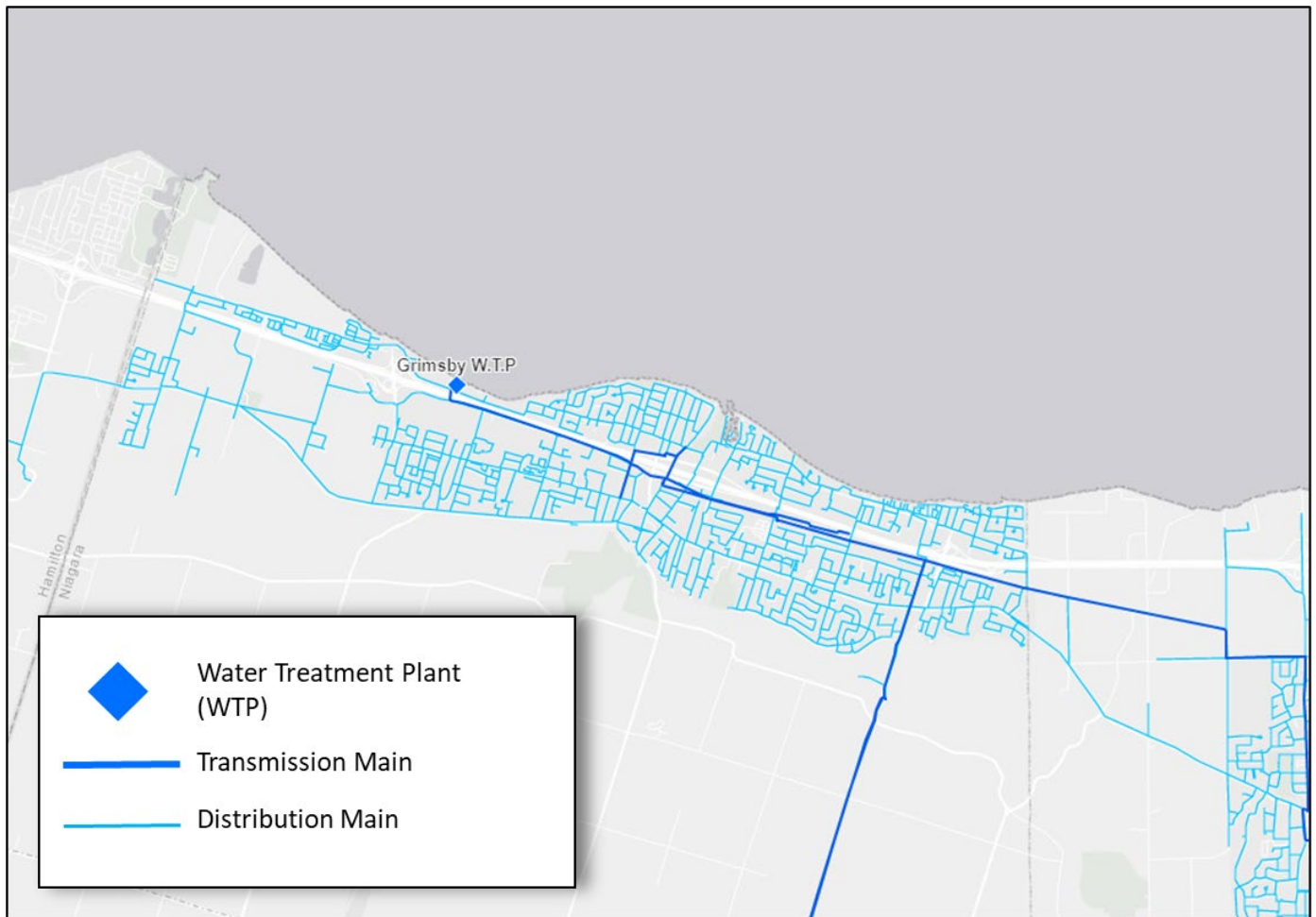
Existing Water Treatment Plants

Region Wide



Grimsby

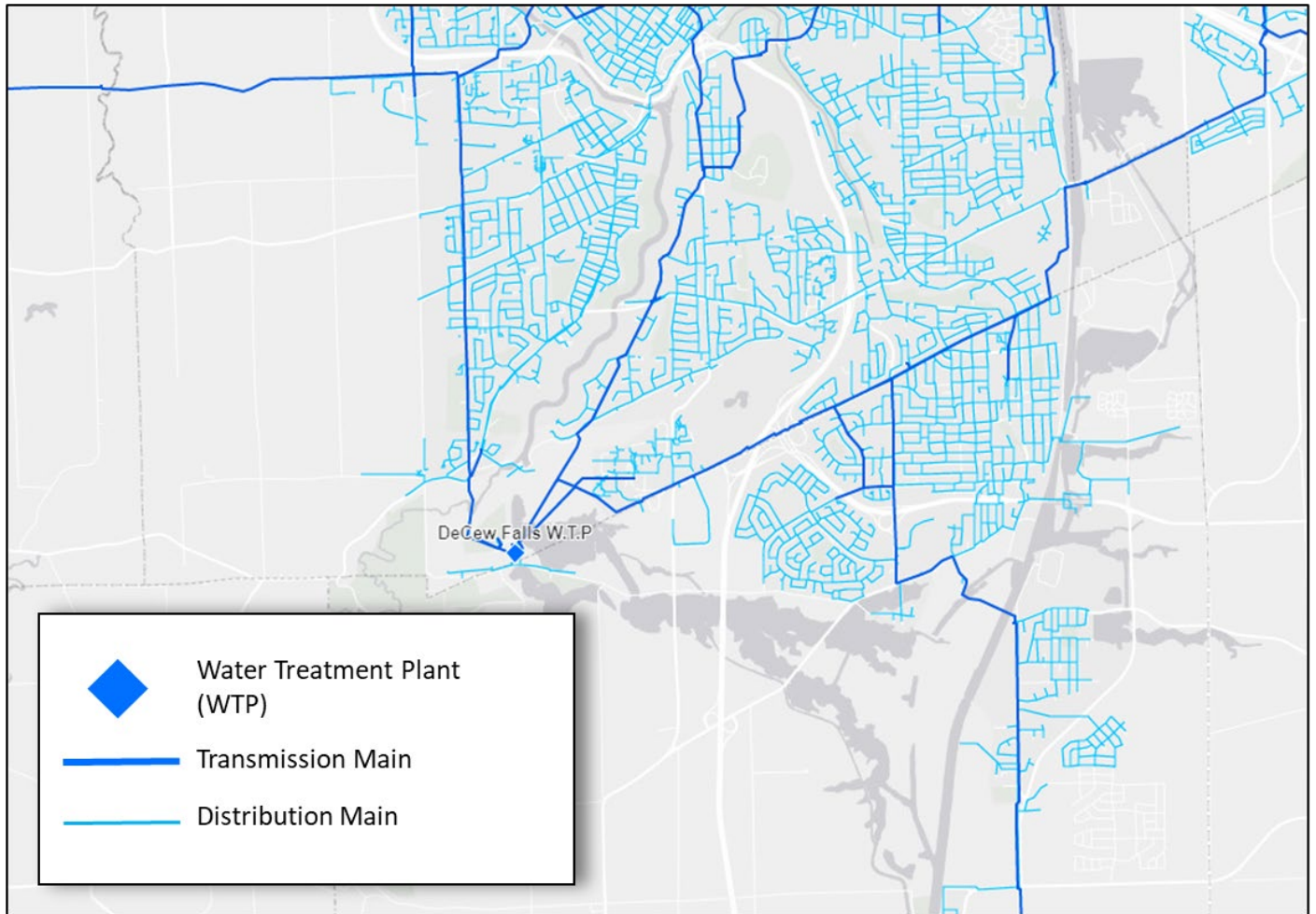
Grimsby Water Treatment Plant



- **Address:** 400 N Service Rd West, Grimsby, ON
- **Current Facility Capacity (megalitres per day, MLD):** 44.0
- **Estimated Future Flow to 2051 (MLD):** 25.0
- **Existing Residuals Management Process:** Thickened and transferred to Garner Road Biosolids Facility
- **Planned and Required Residuals Upgrades by 2051:** Increase sludge holding tank capacity.

St. Catharines

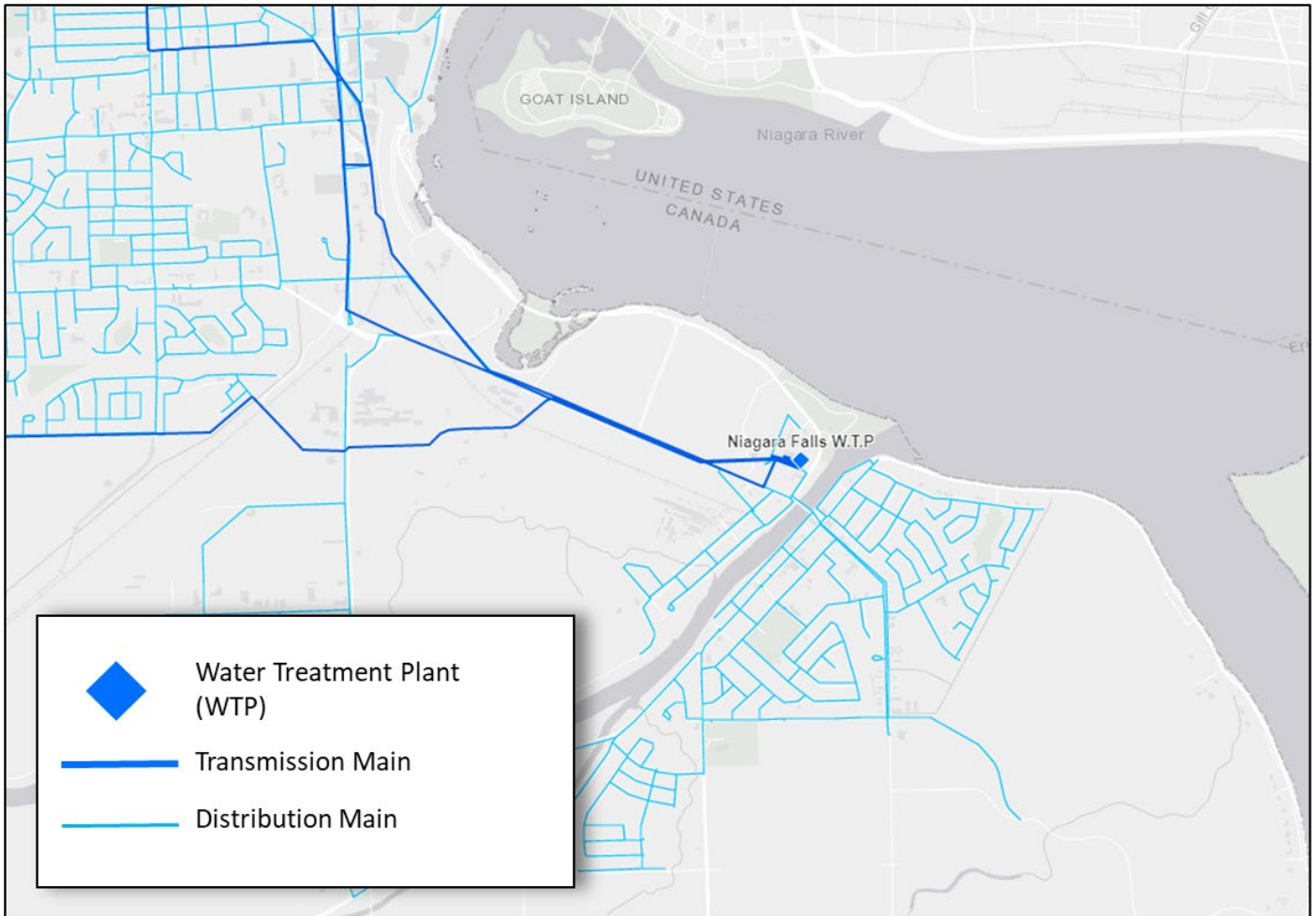
Decew Falls Water Treatment Plant



- **Address:** 2700 DeCew Rd, St. Catharines, ON
- **Current Facility Capacity (megalitres per day, MLD):** 227.0
- **Estimated Future Flow to 2051 (MLD):** 68.0
- **Existing Residuals Management Process:** Thickened and transferred to Garner Road Biosolids Facility
- **Planned and Required Residuals Upgrades by 2051:** Increase sludge holding tank capacity.

Niagara Falls

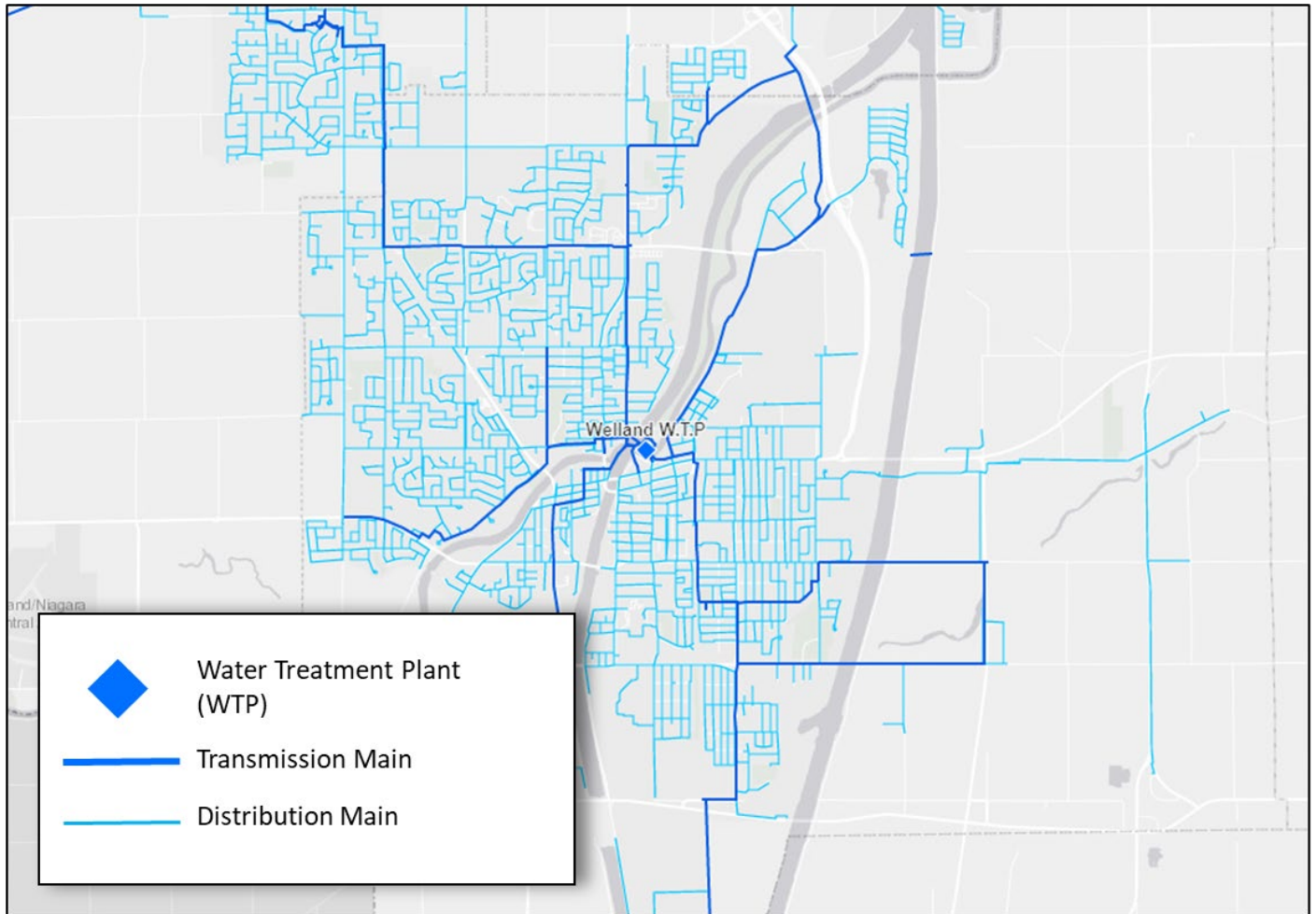
Niagara Falls Water Treatment Plant



- **Address:** 3599 Macklem St, Niagara Falls, ON
- **Current Facility Capacity (megalitres per day, MLD):** 145.0
- **Estimated Future Flow to 2051 (MLD):** 55.0
- **Existing Residuals Management Process:** Thickened and transferred to Garner Road Biosolids Facility
- **Planned and Required Residuals Upgrades by 2051:** No expansion needed.

Welland

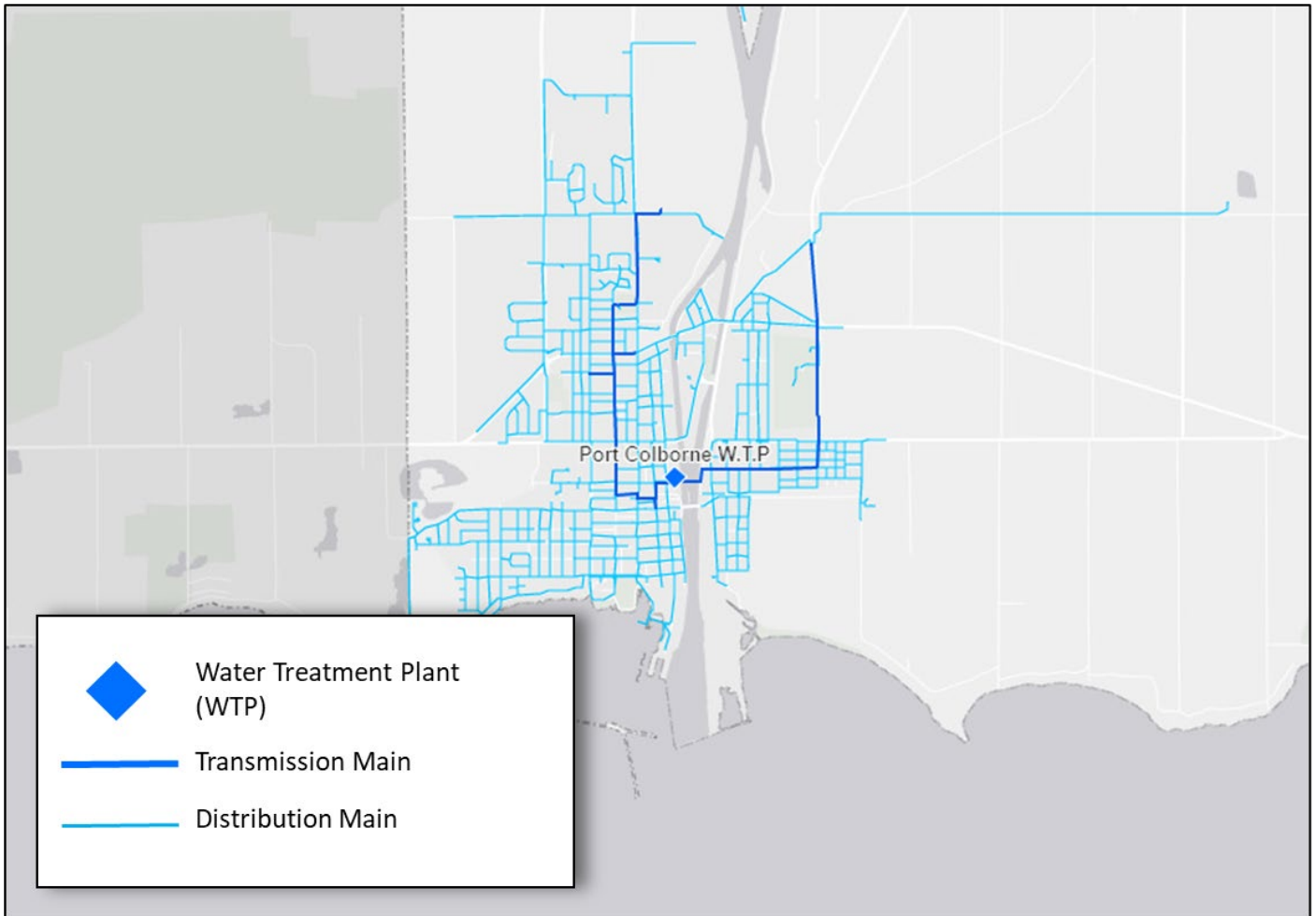
Welland Water Treatment Plant



- **Address:** 4 Cross St, Welland, Ontario
- **Current Facility Capacity (megalitres per day, MLD):** 65.0
- **Estimated Future Flow to 2051 (MLD):** 34.0
- **Existing Residuals Management Process:** Discharged to sanitary sewer
- **Planned and Required Residuals Upgrades by 2051:** No expansion needed

Port Colborne

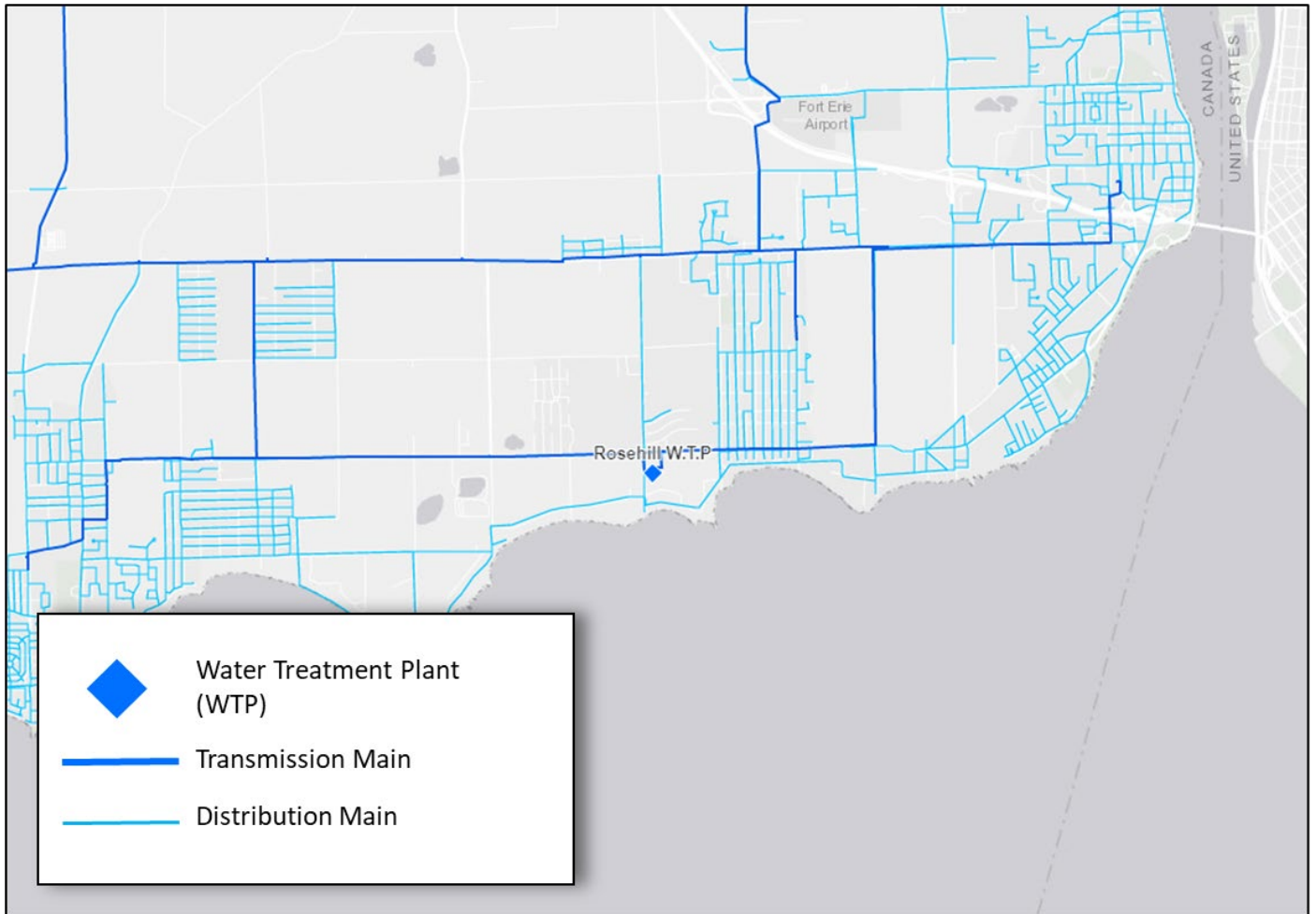
Port Colborne Water Treatment Plant



- **Address:** 323 King St, Port Colborne, ON
- **Current Facility Capacity (megalitres per day, MLD):** 50.0
- **Estimated Future Flow to 2051 (MLD):** 15.0
- **Existing Residuals Management Process:** Discharged to the sanitary sewer.
- **Planned and Required Residuals Upgrades by 2051:** No expansion needed.

Fort Erie

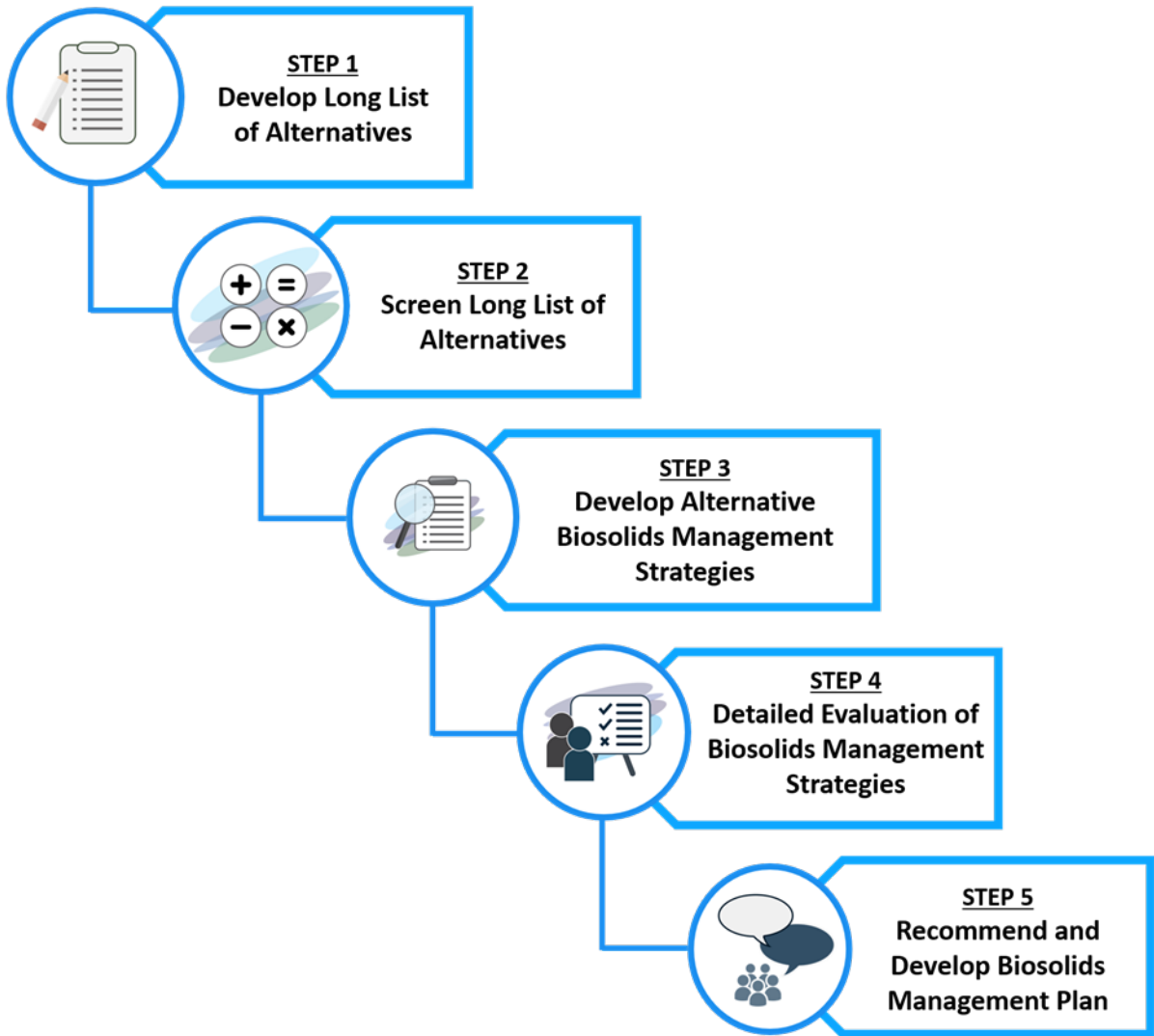
Rosehill Water Treatment Plant



- **Address:** 300 Rosehill Road, Fort Erie, Ontario
- **Current Facility Capacity (megalitres per day, MLD):** 50.0
- **Estimated Future Flow to 2051 (MLD):** 15.0
- **Existing Residuals Management Process:** Discharged to sanitary sewer.
- **Planned and Required Residuals Upgrades by 2051:** No expansion needed.

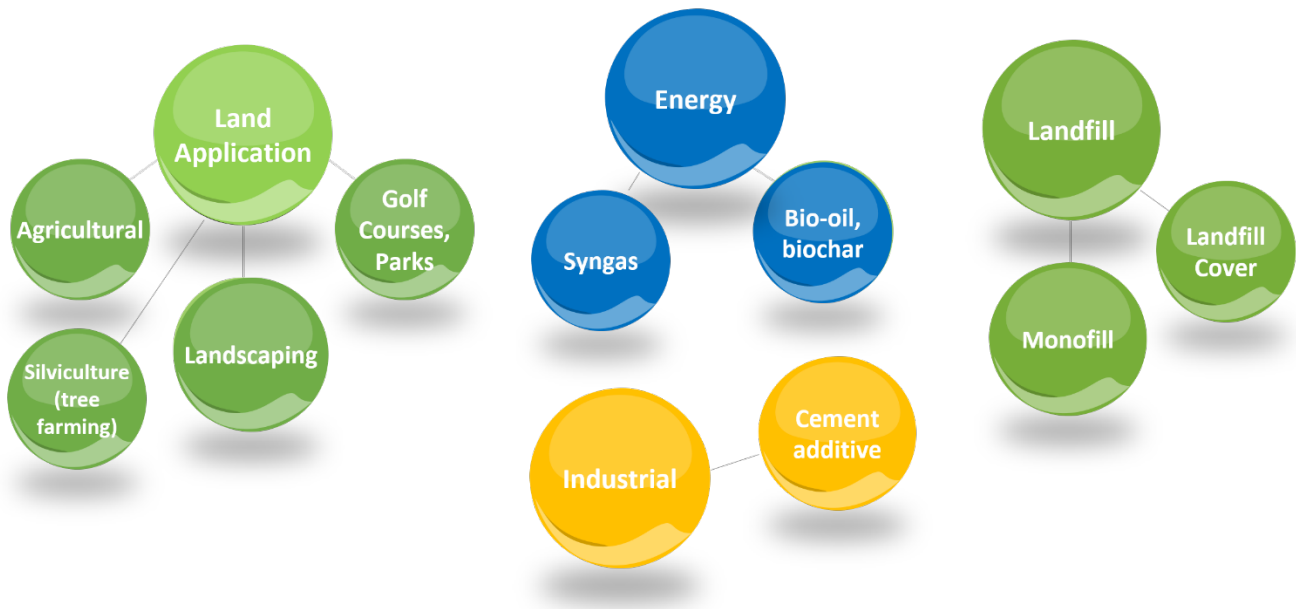
Evaluation Approach

Long List of Biosolids End Use Markets



1. Develop Long List of (a) Alternative Treatment Technologies and (b) Alternative End-Use Markets.
2. Screen each Long List of Alternatives based on "Must-Have" criteria.
3. Develop Alternative Biosolids Management Strategies that combine screened list of technologies, and end use markets.
4. Complete Detailed Evaluation of the Biosolid Management Strategies.
5. Recommend and Develop the Biosolid Management Plan to include potential Sewer-Use By-Law changes, infrastructure and/or operational requirements at each wastewater treatment plant, water treatment plant and the Garner Road Biosolids Facility, service delivery options, implementation program and schedule, and contingency planning.

Long List of Biosolids End Use Markets



Four potential end use markets of biosolids are:

1. **Land Application:** agriculture, silviculture (tree farming), recreational (golf courses, parks), landscaping
2. **Energy:** syngas, bio-oil, biochar
3. **Industrial:** cement additive
4. **Landfill:** monofil, landfill cover

Long List of Biosolids Treatment Technologies

Different technologies can be used to stabilize the biosolids, depending on whether biosolids are in the form of liquid or cake.

Liquid biosolids can be further processed through aerobic digestion, anaerobic digestion or chemical treatment.

- Aerobic digestion technologies include conventional aerobic digestion or Autothermal Thermophilic Aerobic Digestion (ATAD).
- Anaerobic digestion technologies considered include hydrolysis, pre-treatment, acid-gas, mesophilic, and temperature-phased anaerobic digestion (TPAD).
- Chemical treatment using disinfection technologies, such as Clean B® or BRC Solids Solutions' Neutralizer®.

Biosolid Cake, produced from dewatering of liquid biosolids, can be treated through composting, thermal treatment/drying or alkaline treatment.

- Composting of biosolid cake through windrow composting, aerated static pile, agitated bin or tunnel composting.
- Thermal treatment and thermal drying can be conducted in rotary drums, on a belt, using paddles or solar technology, incineration, gasification, pyrolysis, or wet oxidation.
- Alkaline stabilization on sludge using lime (e.g. N-Viro® process).



Screening Criteria for Long List of Alternatives

The long list of alternative treatment technologies, products and end use markets were evaluated against "must-have" screening criteria:

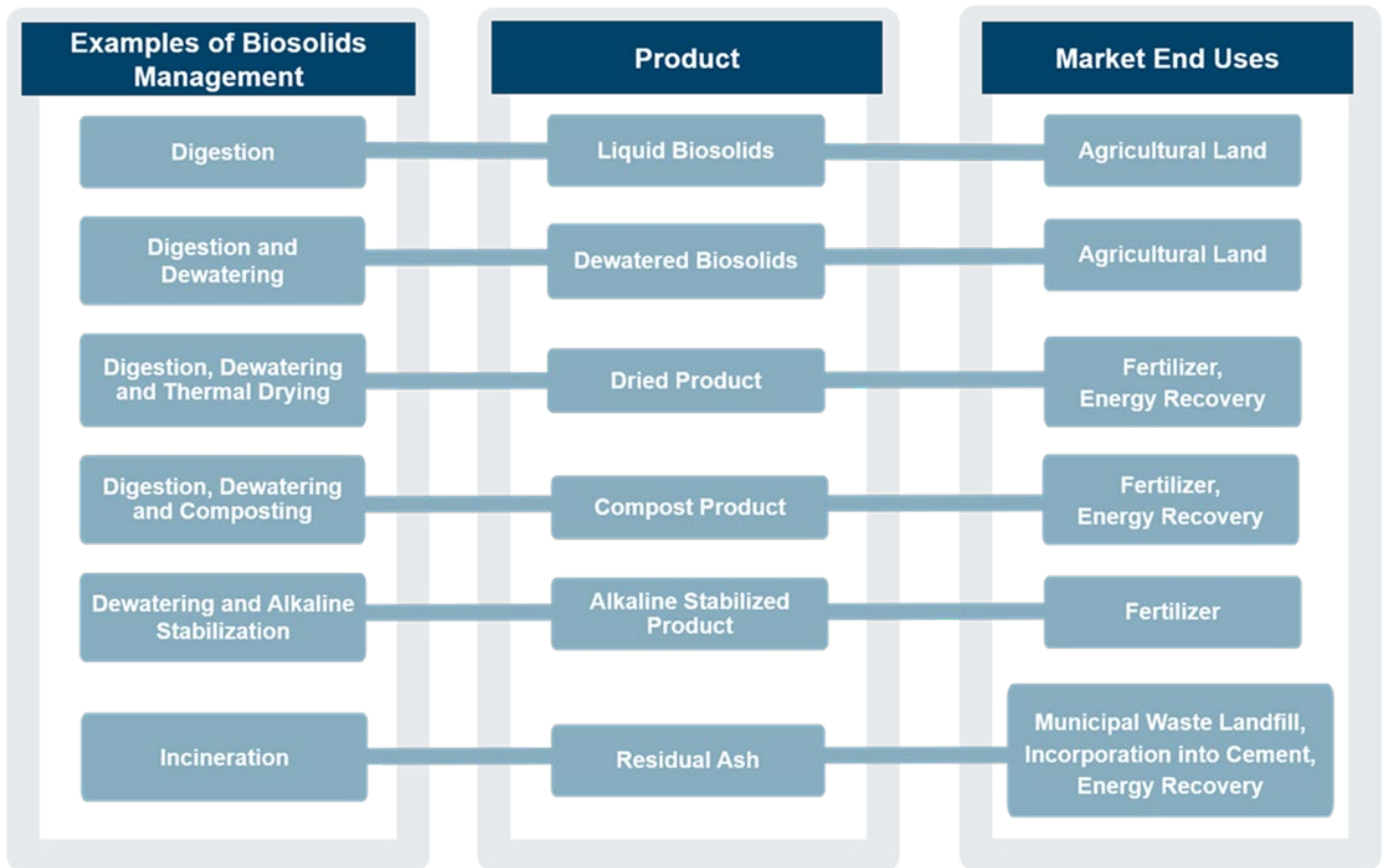
- Maturity of the Technology and Market Availability
- Compatibility with Existing Water and Wastewater Treatment Process and Biosolids Management Programs and Contracts
- Long-term Reliability and Sustainability
- Implementable

Based on the results of screening the long list of technologies and end use markets, biosolids management strategies will be developed.



Examples of biosolids management strategies:

- **Digestion** producing liquid biosolids suitable for agricultural land use;
- **Digestion and Dewatering** producing biosolids cake for agricultural land use;
- **Digestion, Dewatering and Thermal Drying** producing a dried product that may be used as fertilizer or for energy recovery
- **Digestion, Dewatering and Composting** producing a compost product that may be used as fertilizer or for energy recovery
- **Dewatering and Alkaline Stabilization** creates an alkaline stabilized product to be used for fertilizer
- **Incineration** results in residual ash that can be incorporated into cement, used for energy recovery, or deposited into a municipal waste landfill



Draft Detailed Evaluation Criteria

A draft list of detailed evaluation criteria for assessing each biosolids management strategy has been developed to reflect each component of the environment.

1. **Natural Environment**
2. **Socio-Cultural Environment**
3. **Technical Considerations**
4. **Economic Considerations**



Natural Environment

- Terrestrial Systems
- Aquatic Systems
- Surface and Groundwater Quality and Source Water Protection
- Air Quality /Greenhouse Gas Emissions



Socio-Cultural Environment

- Odour
- Noise/Vibrations
- Visual/Aesthetics
- Truck Traffic
- Agricultural Use and Users
- Human health and well being
- Existing and Future Land Use Compatibility
- Archaeology / Cultural Heritage

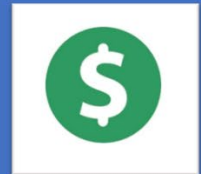


Technical Considerations

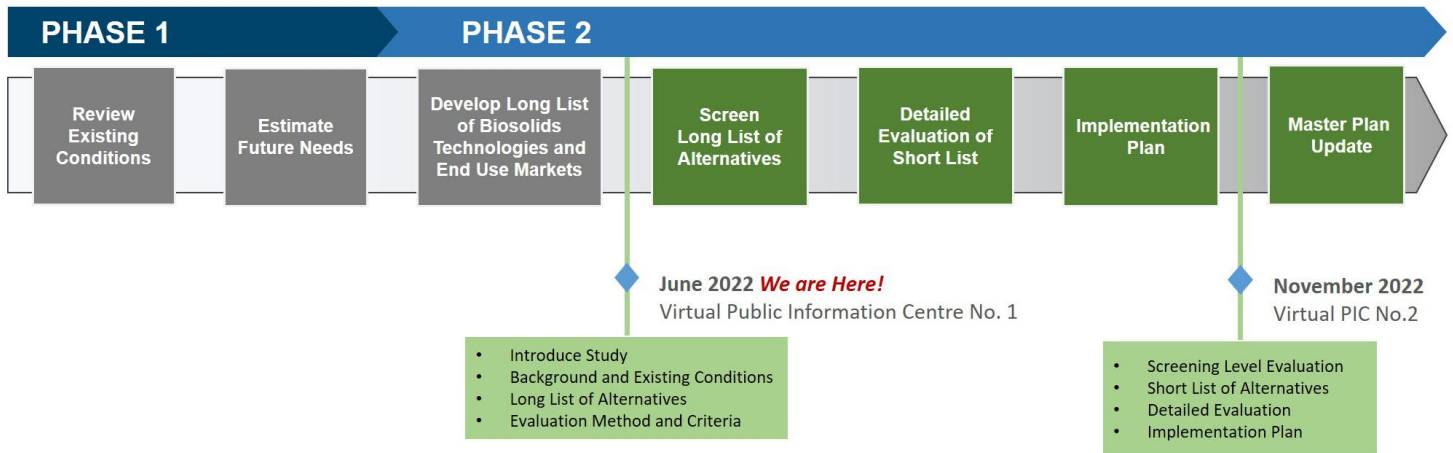
- Performance
- Sustainability / resiliency
- Ease of Operation
- Compatibility with existing infrastructure
- Energy use and recovery
- Climate change adaptability
- Permits and Approvals

Economic Considerations

- Capital Cost
- Operating and Maintenance Cost
- Life Cycle Costs



Project Schedule



Key Dates

- **June 8 to June 28, 2022:** Submit questions and comments to Niagara Region
- **July 6, 2022:** Responses to questions and comments posted on the Niagara Region website.
- **November 2022:** Virtual PIC No. 2 assessment of alternatives and recommended biosolids management strategy.
- **Early 2023:** Biosolids Management Master Plan Update filed for 30-Day public review.

Get Involved

Public feedback is important. Sign-up to be added to the study contact list and submit any questions or comments to the Project Team. You may also submit comments at the link below, including feedback on the long list of alternatives and the evaluation criteria most important to you.

[Sign-Up for Project Updates](#)

Provide Feedback

We encourage you to get provide feedback by filling out [this survey](#) by June 28, 2022 to provide any feedback on the study and/or if you would like to receive project information updates. Responses to all comments received will be posted on July 6, 2022. Please click "Project Survey Form" button to access.

[Project Survey Form](#)

Contact Us

niagarabiosolidsmp@niagararegion.ca

1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7

- **Albert Succi**, Project Manager, Niagara Region
 - **Laurie Boyce**, Strategic Planning and Project Advisor, GM BluePlan Engineering Limited
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Privacy and Accessibility

The Niagara Region is committed to ensuring that persons of all abilities are able to access our programs and services without encountering barriers. If you require additional or other formats for communicating, [contact Niagara Region](#) to make arrangements.

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 related will become part of the public record and may be included in the study documentation prepared for public review.

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**APPENDIX C:
PIC No. 1 Online Survey**

PIC No.1 Biosolids Master Plan Update

Public Information Centre No. 1 comments and feedback will be accepted between June 8 - June 22, 2022.

The Niagara Region is committed to ensure that all Regional services, programs and facilities are inclusive and accessible. Please contact the Project Manager, Albert Succi (niagarabiosolidssmp@niagararegion.ca) if you require accommodations to provide feedback for this study.

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 related will become part of the public record and may be included in the study documentation prepared for public review.



* Required

1. First and Last Name (Optional)

2. Organization (Optional)

3. Do you have any comments regarding the Problem/Opportunity Statement? *

4. Do you have comments on or addition to the long list of alternative treatment technologies and end-use markets? *

Enter your answer

5. Do you have any comments on the screening criteria and detailed evaluation criteria? *

Enter your answer

6. Which of the criteria below do you consider most important? Please rank from 1 to 5, with 5 being the most important: *

	1	2	3	4	5
Minimizing impact to natural environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limiting disruptions to the public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of approvals and permits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minimizing costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensuring a sustainable solution that performs well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please provide additional criteria that you consider important if not listed above. *

Enter your answer

8. Do you have any other comments or questions about this Master Plan? *

Enter your answer

9. If you wish to be notified for continued involvement in the study progress, please enter your email below. *

Enter your answer

**APPENDIX D:
Comments Received Summary**

2021 Biosolids Management Master Plan Update Public Information Center No. 1 – Comments Received

Virtual Public Information Centre (PIC) No. 1 was held from June 8 to June 15, 2022. This included an introductory video presentation, project materials for review, and opportunity for interested individuals to provide comments via an online submission form or through the project email.

PIC No. 1 materials for review included project introduction, the problem and opportunity statement, project approach, review of the existing biosolids and residuals management program and future needs, long list of alternatives, evaluation approach, screening criteria and preliminary project schedule. These materials will remain posted on the Biosolid Management Master Plan Update project website:

- Video Presentation: https://youtu.be/L6qxU8Bm_eM
- Project Information: <https://www.niagararegion.ca/projects/biosolids-master-plan/pdf/pic1.pdf>

During the 2-week engagement period, the video presentation received 45 views. Numerous stakeholders signed-up to be on the mailing list and receive future project notices. Comments were also provided from interested stakeholders including:

- Requested consideration for reduced truck traffic related to biosolids hauling through the community of Cooks Mills
- Received approximate locations of pipeline infrastructure within the Study Area from Enbridge
- Received notification from Niagara Escarpment Commission (NEC) that the Queenston WWTP and Decew Falls WTP fall within the Niagara Escarpment Plan Area and Area of Development Control and the NEC would like to be involved in the study

The feedback above will be considered in the development and evaluation of biosolids management alternatives. The Master Plan Update will satisfy Phases 1 & 2 of the Municipal Class Environmental Assessment process. The Region will host one (1) additional Public Information Centre to present the preliminary preferred biosolids management strategies.