

## V4.3 – Pre-Class EA Consultation

# V4.3.1

REGIONAL MUNICIPALITY OF NIAGARA  
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

## **Pre-Class EA Consultation**

Ontario Power Generation

## Meeting Agenda: OPG Stakeholder Meeting – SNF Wastewater Solutions Class EA

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**Date/Time:** Monday, February 11, 2019 10:00 a.m. - 12:00 p.m.  
**Location:** OPG Conference Room, 2600 Stanley Avenue, Niagara Falls

**Meeting Called by:** SNF Wastewater Solutions Class EA Team

**Objectives:**

1. Introduce the Study and Provide Background Information
2. Share our Approach for the Class EA and Technical Analysis
3. Collect Feedback and Accommodate Additional Inputs/Ideas
4. Establish Agreement on Key Study Elements
5. Identify Additional/Available Information
6. Confirm Study Involvement and Next Steps

### Participants

**Chair:** Lisa Vespi

**Invitees:** Chris Hamel (GMBP), David Watt (GMBP), Danielle MacKinnon (GMBP), Troy Briggs (CIMA), Gerard van Arkel (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Tony Cimino (RMON), Shahab Shafai (RMON), Jason Oatley (RMON), Joe Tonellato (RMON), Dawn Macarthur (RMON), Bob Fleeton (Advisor), Tony Palma (OPG), Peter Kowalski (OPG), Jessica Polak (OPG), Alison Bradley (OPG), Cassandra Patterson (OPG)

Matters for Discussion & Timeframes	Lead
Agenda Outline	
1. Project Introductions	GM BluePlan
2. Wastewater System Overview	
3. Key Study Considerations	
4. Wastewater Treatment & Servicing Strategy – Net Benefit Analysis	
5. Pre-EA Opportunities and Mitigation Measures	GM BluePlan with Golder/CIMA
6. Data and Modelling	
7. Effluent and Outfall Considerations	
8. Study Involvement & Next Steps	GM BluePlan

Additional items to be communicated to Chair prior to meeting.

## Meeting Minutes: South Niagara Falls Wastewater Solutions Class Environmental Assessment Ontario Power Generation Meeting

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**Meeting Date/Time:** 2019/02/11  
**Location:** 2600 Stanley Avenue, Niagara Falls, Ontario  
**Minutes Prepared by:** Danielle MacKinnon (GM BluePlan)  
**Date of Minutes:** 2019/02/24

### Attendance

**Chair:** Chris Hamel (GM BluePlan)  
**Attendees:** Chris Hamel (GM BluePlan), David Watt (GM BluePlan), Danielle MacKinnon (GM BluePlan), Troy Briggs (CIMA), Gerard van Arkel (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Tony Cimino (RMON), Shahab Shafai (RMON), Jason Oatley (RMON), Joe Tonellato (RMON), Kent Shachowskoj (CNF), Dawn MacArthur (RMON), Bob Fleeton (Advisor), Tony Palma (OPG), Peter Kowalski (OPG), Alison Bradley (OPG), Cassandra Patterson (OPG)  
**Regrets:** None

### Items Discussed For Information

1. The South Niagara Falls (SNF) Wastewater Solutions Study is being undertaken as a Schedule C Class Environmental Assessment (EA).
2. The SNF Study is currently in the Pre-Class EA phase, where the internal team (including GM BluePlan, Niagara Region, Golder Associates, and CIMA) are meeting with Agencies for initial consultation. The Agencies being consulted include Ontario Power Generation (OPG), Niagara Peninsula Conservation Authority (NPCA), and the Ministry of the Environment, Conservation and Parks (MECP).
3. The intent of this Agency meeting is to recap project scope and receive input on data inventory, and study approach.
4. The current schedule includes a Notice of Study Commencement planned for March 2019. The first Introductory Public Information Centre (PIC) in May 2019, Phase 2 PIC in Fall 2019 and Phase 3 PIC in Spring 2020. The Environmental Study Report (ESR) is anticipated to be filed in Fall 2020.
5. The new SNF WWTP is holistic Regional solution intended to address capacity limitations, balance treatment capacity, eliminate pumping flows to the north, and supporting servicing for greenfield and intensification growth.
6. Key net benefits of the wastewater strategy include treatment capacity management, servicing optimization, asset management and wet weather management.
7. Combined Sewer Overflows (CSOs) and wet weather management was brought forward as a key consideration. Solutions including reducing extraneous flows in the collection system will be important for this EA. OPG would support a reduction of CSO to the HEPC.
8. GM BluePlan and Team are looking at the holistic approach to reduce inflow and infiltration (I/I) and reduce impact to Hydro Canal, Welland River, and Niagara River. This will also look to improve any capacity constraints and overflows at existing SPS's and the Stanley Avenue WWTP.
9. The City of Niagara Falls is currently working on targeted I/I reduction strategies through CCTV (and similar) for the south Niagara Falls area on a macro scale. The City and Region are committed to tightening the collection system.

10. GM BluePlan and Team have identified four (4) preliminary outfall locations and fifteen (15) potential WWTP sites. All siting locations are currently on the table as alternatives and will be evaluated through the EA process.
11. There was good discussion on the feasibility of these sites. The Team has been made aware of local recreational constraints, naturalized section of the Hydro Canal, and limitations of existing OPG and Regional infrastructure.
12. The four water bodies were discussed. For Welland River East (section west of the power canal) and the Chippawa River (section of the Welland River east of the power canal), awareness of recreational use and environmental features was raised.
13. OPG highlighted concerns with the Niagara River option and the potential impact to the tunnel operations, the international control dam (ICD), and ice formation in the area.
14. OPG highlighted considerations relative to future major shutdown of the canal. It was noted that the temporary coffer dam to support “dry” canal work would be located south of the canal transition.
15. Timing for the canal work was identified – 2021 preparation, 2022 to 2023 dewatering for maintenance.
16. OPG highlighted that the Class EA should demonstrate that impact to OPG operations resulting from construction of infrastructure can be mitigated. Benefits of water quality resulting from the new WWTP should also be demonstrated.

Action Items	Action By Date Required
17. Over the next couple weeks, Alison Bradley (OPG) will be sharing the proposed siting locations with OPG staff to gather feedback and possible concerns. Cassandra will share this information with the SNF team.	Alison/Cassandra (OPG)
18. Golder is requesting OPG flow data. OPG has operational impact information along with flow data available but will need to know timing (i.e. number of years) along with a specific request. Lisa will follow up with data request.	Lisa Vespi (RMON)
19. All OPG contacts (Peter, Tony, Alison, and Cassandra) request to be kept in contact as the study progresses. Initial contact to OPG for information and follow-ups will be through Cassandra Patterson.	GM BluePlan/Cassandra (OPG)
20. Alison Bradley requests for coordination ahead of public events. She can circulate information to internal OPG staff (operations, environment, and management) prior to meetings.	GM BluePlan/Alison (OPG)

Items in Agreement
21. It was agreed that all four (4) general outfall locations, including the HEPC, be carried through the EA process to clearly demonstrate and document the evaluation, screening and selection process.
22. If the HEPC were to be considered for the preferred outfall location, the naturalized section would be more appropriate.
23. OPG would like to be aware of all study Notices and opportunity for meetings.
24. OPG would be willing to participate in a stakeholder steering committee (approached to be reviewed).

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**Next Meeting:** TBD

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Notice of any errors or omissions in this document should be communicated by attendees to minute taker within two (2) days of issue of these minutes.

- c. Attendees (by email)

# South Niagara Falls Wastewater Solutions Class Environmental Assessment

## Ontario Power Generation (OPG) Meeting

Monday, February 11, 2019

10 a.m. - 12 p.m.

2600 Stanley Avenue, Niagara Falls

February 11, 2019

Slide 1

### Meeting Agenda

### Agenda

1. Project Introduction
2. Wastewater System Overview
3. Key Study Considerations
4. Wastewater Treatment and Servicing Strategy – Net Benefit Analysis
5. Pre-EA Opportunities and Mitigation Measures
6. Data and Modelling
7. Effluent and Outfall Considerations
8. Study Involvement & Next Steps

February 11, 2019

Slide 2

## What is Important to You?

- How will this project benefit the HEPC?
- What Regional and Local Municipal infrastructure is associated with the HEPC and this project?
- Will there be new infrastructure in the HEPC and what could it look like?
- Does OPG have any information that can help the study?
- How will OPG stay engaged through the project?
- Are there any further concerns?

February 11, 2019

Slide 3

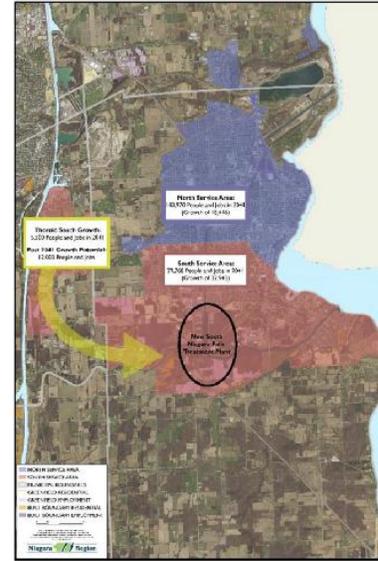
## Meeting Objectives

- **Introduce** the Study and Provide Background Information
- **Share** our approach for the Class EA and technical analysis with Regulatory Agencies/Stakeholders; identify points of contact for information exchange and technical review
- **Collect** feedback and adjust our approach, if necessary, to accommodate additional inputs/ideas
- **Establish** agreement on a study approach that satisfies Regulatory Agencies/Stakeholders
- **Identify** whether additional data is available that may be of value to this study
- **Confirm** Study Involvement and Next Steps

February 11, 2019

Slide 4

- Council adopted the 2016 Master Servicing Plan which determined the wastewater strategy and identified the new South Niagara Falls Wastewater Treatment Plant (SNF WWTP)
- A new plant provides opportunity to optimize servicing south of Lundy's Lane and maximizes operational flexibility both now and in the future.
- Niagara Falls will see growth of over 51,585 people and jobs to 2041
- Over 60% of the growth is south of Lundy's Lane
- Over 20% of the growth is south of Welland River
- SNF WWTP supports the Region's vision to address:
  - Growth;
  - System performance;
  - Level of Service;
  - System-wide lifecycle costs;
  - F-5-5 and F-5-1



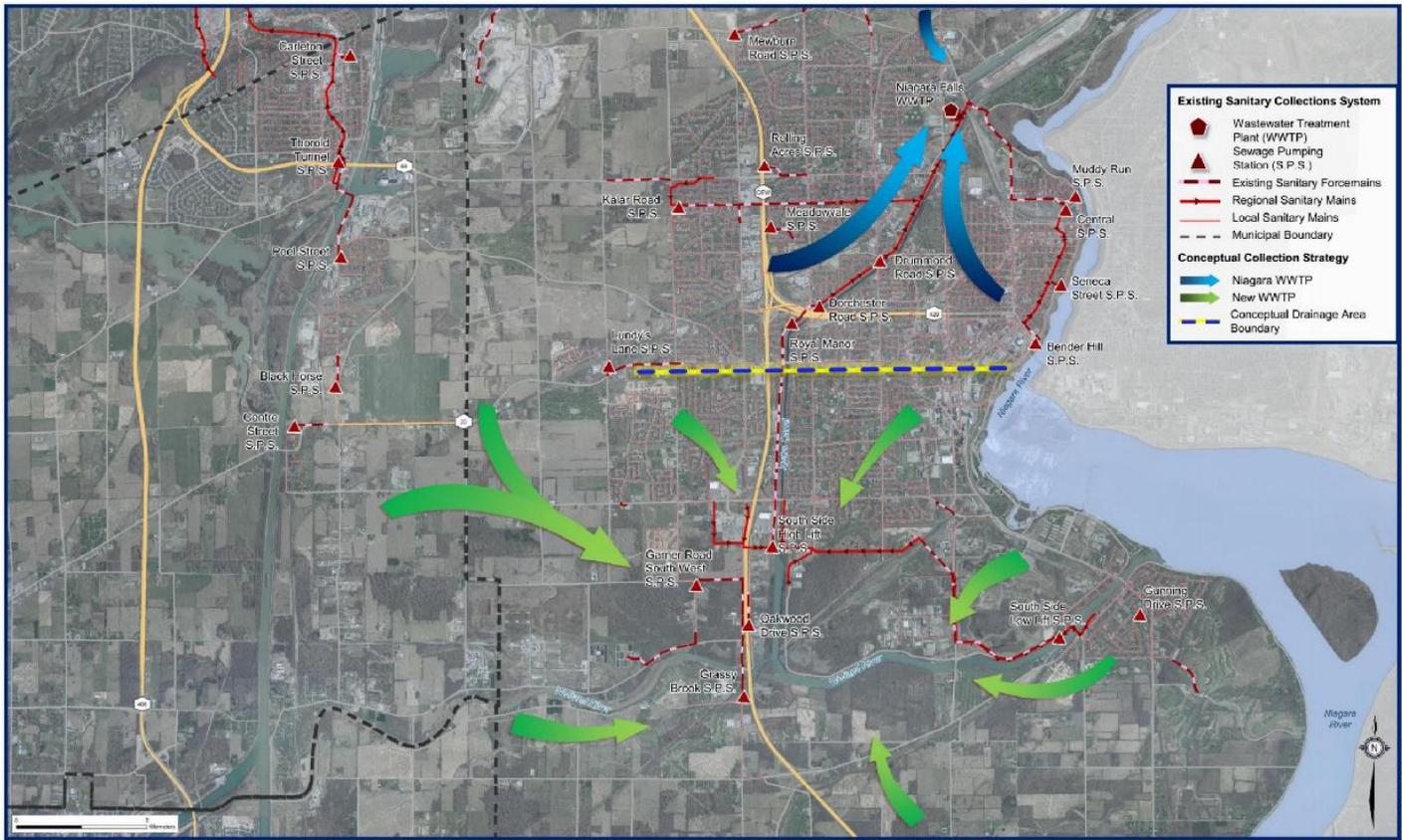
## Project Timing

- Pre-EA Consultation: February 2019
- Phase 1 & 2 Class EA March – Fall 2019
  - Determine list of alternatives
  - Determine the evaluation criteria to compare alternatives
  - Determine preferred servicing strategy
  - Determine new WWTP and outfall location
- Phase 3 & 4 Class EA Fall 2019 – Fall 2020
  - Detailed work on new WWTP and outfall, pre-design and technology selection
  - Detailed work on servicing strategy, wastewater system infrastructure pre-design
- Public Information Centres: May 2019, Fall 2019, Spring 2020
- Environmental Study Report for public review – Fall 2020

Pre  
Consultation

Class EA  
Process

Conceptual  
Design



South Niagara Falls Wastewater Solutions  
 Class Environmental Assessment  
 Sanitary Collection System Understanding

## Key Study Considerations

- Conveying/Understanding wastewater systems and treatment (including environmental benefit)
- Managing odours
  - Construction - naturally occurring H<sub>2</sub>S (odour sources)
  - Long term operations and maintenance
- Public engagement for the WWTP
- Identify potential adverse impacts and mitigation
- Identify a viable WWTP site and discharge location
- Agreement on support data for assimilative capacity analysis
- Agreement on effluent criteria
- Wet weather management and optimization

## Treatment Capacity Management

- Optimize existing servicing south of Lundy's Lane
- Reduce load at existing Stanley Ave WWTP and collection system
- Locates treatment capacity in area of growth and potential future growth
- Supports treatment of flows with current site planning, new technologies, energy efficiency, and long term operational benefits

## Regional Servicing Optimization

- Maximize gravity conveyance to new site
- Opportunity to optimize & reduce number of existing Sewage Pumping Stations
- Opportunity to service Thorold South
- Provide flexibility for future growth areas and intensification

February 11, 2019

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## Asset Management

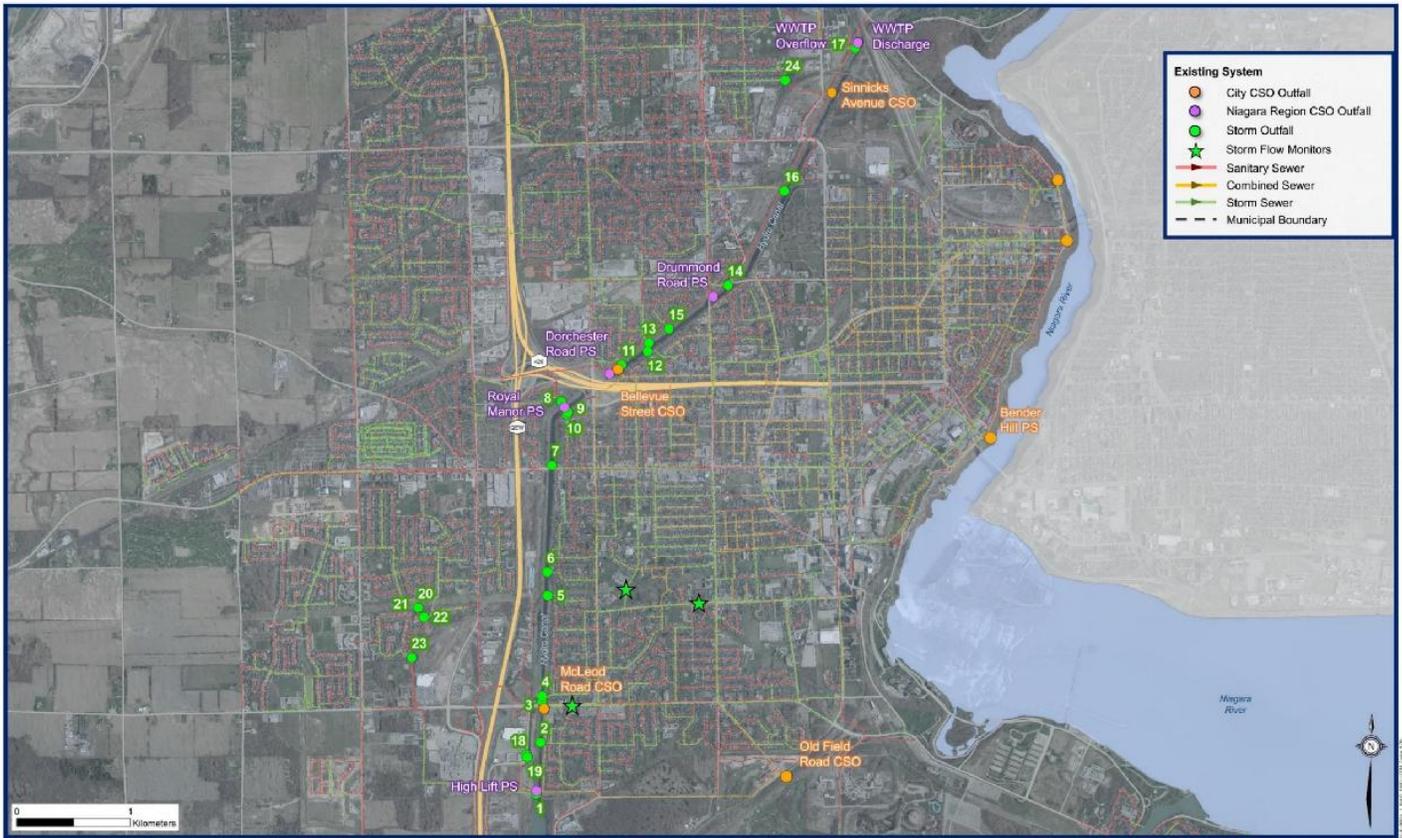
- Provide opportunity to retrofit/upgrade Stanley Ave WWTP – benefit for compliance
- Reduced flows to existing WWTP provides greater flexibility to complete work
- New WWTP Outfall could be located south of the HEPC transition (benefit for HEPC maintenance)

## Combined Sewer Overflow (CSO) Management

- Opportunity to optimize/reduce existing Regional overflows
- Potential to reduce/eliminate High Lift SPS overflow
- Significantly reduce flow conveyance to the Stamford Interceptor – manage impact near Dorchester PS and downstream along Interceptor (reduced overflow potential to HEPC)
- Reduce flow to existing Stanley Ave WWTP (reduced overflow potential to HEPC)
- Flexibility for pumping Central SPS to WWTP (reduce overflow potential to Niagara River)
- Addressing flows from Peel Street SPS with benefit to the Port Weller system

February 11, 2019

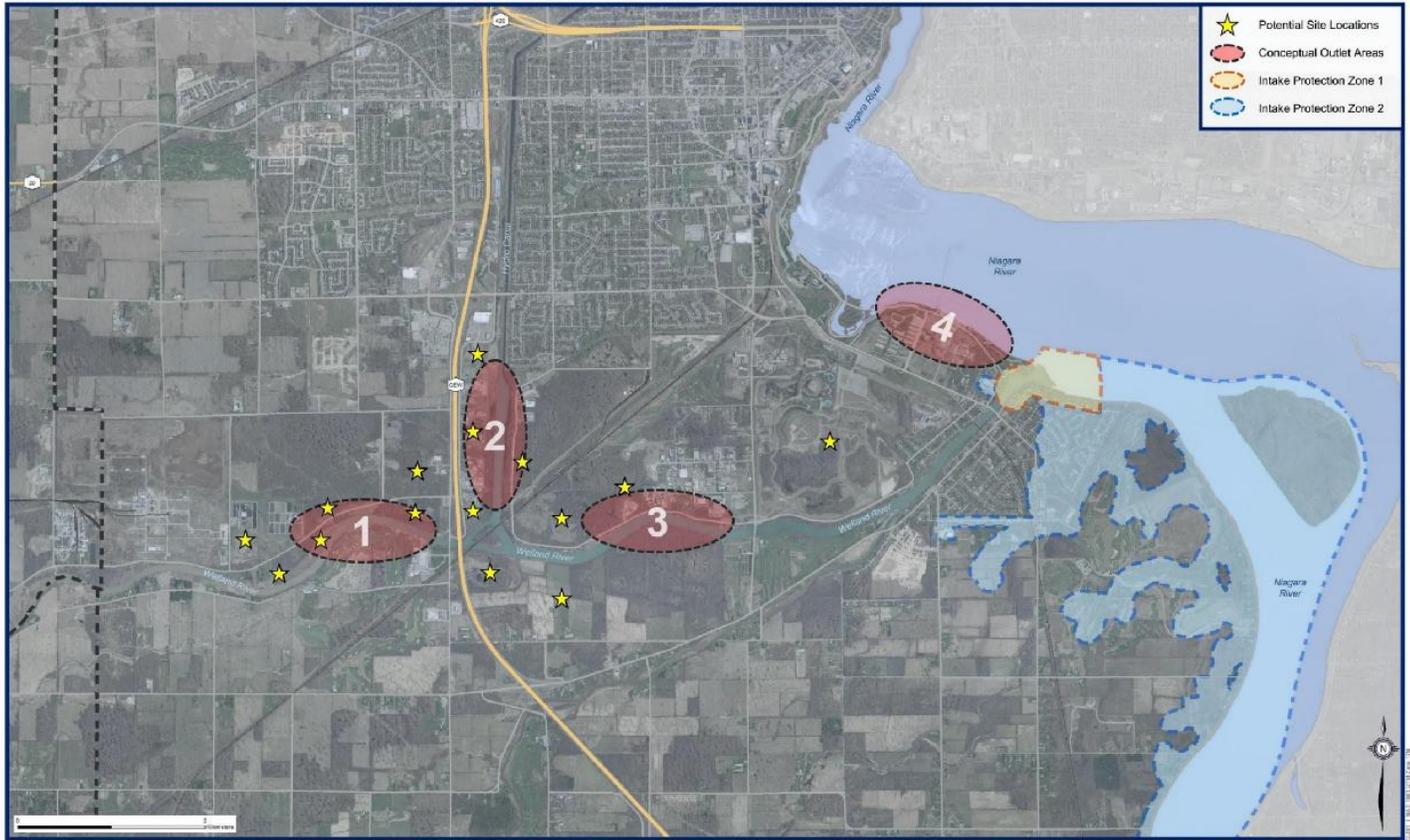
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February 11,

## New WWTP Siting Discussion

February 11, 2019



February 11,

## Data and Modelling

February 11, 2019

- Flow Conditions
- Data Availability
- Conceptual Approach to Completing the Assimilative Capacity Study for the new SNF WWTP
- Surface Water Modelling Considerations and Objectives
- Mass Balance Modelling Approach
- Effluent Dispersion Modelling Approach

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## Conceptual Water Quality Implications of new SNF WWTP

- Existing Stanley Ave WWTP and CSO flows comprise ~0.06% of flows in HEPC
- Future treated flows will be balanced between existing Stanley Ave WWTP and new SNF WWTP
- Future WWTPs and CSO flows estimated to comprise ~0.1% of flows in HEPC
- **Conceptually, implementation of the new SNF WWTP has the potential to reduce total loadings within the Power Canal, Niagara River and to Lake Ontario**

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## • Spatial Coverage of Water Quality and Flow Data is **GOOD**

- Water Quality data available for Niagara River, Welland River, Power Canal, and Lyons Creek;
- Flow data available for Niagara River and Welland River;
- Flow data for Power Canal from OPG along with water management plan
- Flow data for Lyons Creek not available, but able to synthesize data
- Flow and Water Quality data also available for CSOs

## • Spatial Coverage of Bathymetric Data is **GOOD**

- ADCP Survey of Welland River by Golder (2016)
- Geophysical Survey of Wide Section of Power Canal by Golder (2016)
- Survey of Power Canal by ASI (2017?)

## • Temporal Distribution of Data is **REASONABLE**

- Summer and Fall are likely the most critical
- Water Quality data available for variable lengths of time and frequency for Niagara River, Welland River, Power Canal, and Lyons Creek (data requested)
- Flow data available for Niagara River and Welland River (daily, year-round). Power Canal flows to be obtained from OPG. Lyons Creek will be synthesized
- Bathymetric data collected within last two years; no major morphological changes expected

## • Are there any other sources available to supplement these data sets?

Preliminary Seasons	Welland River		Power Canal		Niagara River	
	WR011		PR001		O2HA0045	
Winter	Dec	0		1		202
	Jan	1	2	1	3	202
	Feb	1		1		213
Spring	Mar	3		3		230
	Apr	6	15	5	13	207
	May	6		5		217
Summer	Jun	5		5		207
	Jul	4	13	5	14	210
	Aug	4		4		221
Fall	Sep	6		4		219
	Oct	5	17	3	12	218
	Nov	6		5		226
Total		47		42		2,572

# Effluent Quality Considerations

- The new SNF WWTP provides opportunity to review effluent performance
- The assimilative capacity study will guide key effluent criteria
  - Federal effluent requirements
    - Year-round ammonia removal to provide a non-toxic effluent
    - Elimination of chlorine residuals
  - Effluent TP concentrations
  - Improved disinfection (lower E.Coli concentrations)

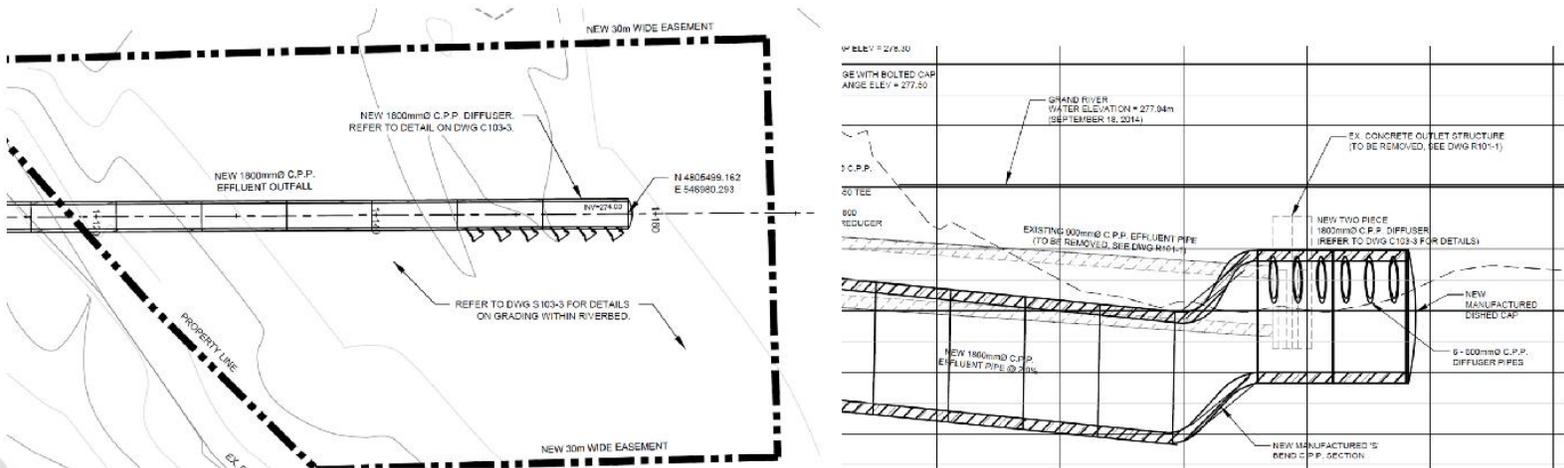
- Existing effluent objectives and compliance limits for the Stanley Avenue WWTP

Parameter	Objective	Limit
Biological Oxygen Demand (BOD <sub>5</sub> )	15 mg/L	25 mg/L
Total Suspended Solids (TSS)	15 mg/L	25 mg/L
Total Phosphorus (TP)	0.5 mg/L	1.0 mg/L
E.Coli	200 CFU/100 mL	200 CFU/100 mL
Chlorine Residual	0.5 mg/L	-

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# Typical Outfall



Kitchener WWTP Outfall to the Grand River

February 11, 2019

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- The HEPC is 1 of 4 alternatives to be reviewed under the Class EA study
- What are the opportunities?
- What are the concerns and how do we address / mitigate these concerns?
- How do we engage and coordinate together moving forward?
  - Points of contact
  - Study involvement
  - Sharing of information
- Coordination ahead of Notice of Commencement (March 2019)
- Coordination ahead of Phase 1 PIC (May 2019)

February 11, 2019

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## South Niagara Falls Wastewater Solutions Class EA

## Thank you for participating Questions?

### Contact Information:

Niagara Region Project Manager:

- Lisa Vespi, [lisa.vespi@niagararegion.ca](mailto:lisa.vespi@niagararegion.ca)

GM BluePlan Project Manager:

- Chris Hamel, [chris.hamel@gmblueplan.ca](mailto:chris.hamel@gmblueplan.ca)

February 11, 2019

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# V4.3.2

REGIONAL MUNICIPALITY OF NIAGARA  
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

## **Pre-Class EA Consultation**

Niagara Peninsula Conservation Authority (NPCA)

## Meeting Agenda: NPCA Stakeholder Meeting – SNF Wastewater Solutions Class EA

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**Date/Time:** Wednesday, February 13, 2019 1:30 p.m. - 3:30 p.m.  
**Location:** NPCA Office Boardroom, 250 Thorold Road West, 3rd Floor, Welland  
**Meeting Called by:** SNF Wastewater Solutions Class EA Team

- Objectives:**
1. Introduce the Study and Provide Background Information
  2. Share our Approach for the Class EA and Technical Analysis
  3. Collect Feedback and Accommodate Additional Inputs/Ideas
  4. Establish Agreement on Key Study Elements
  5. Identify Additional/Available Information
  6. Confirm Study Involvement and Next Steps

### Participants

**Chair:** Chris Hamel  
**Invitees:** Chris Hamel (GMBP), David Watt (GMBP), Danielle MacKinnon (GMBP), Troy Briggs (CIMA), Greg Rose (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Tony Cimino (RMON), Shahab Shafai (RMON), Jason Oatley (RMON), Joe Tonellato (RMON), Dawn Macarthur (RMON), Bob Fleeton (Advisor), Natalie Green (NPCA), Joshua Diamond (NPCA)

Matters for Discussion & Timeframes	Lead
Agenda Outline	
1. Project Introductions	GM BluePlan
2. Wastewater System Overview	
3. Key Study Considerations	
4. Wastewater Treatment & Servicing Strategy – Net Benefit Analysis	
5. Pre-EA Opportunities and Mitigation Measures	
6. Surface Water Modelling Assessment	GM BluePlan with Golder/CIMA
7. Effluent Quality & Discharge Flows	GM BluePlan
8. Study Involvement & Next Steps	

Additional items to be communicated to Chair prior to meeting.

## Meeting Minutes: South Niagara Falls Wastewater Solutions Class Environmental Assessment Niagara Peninsula Conservation Authority, Agency Meeting

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**Meeting Date/Time:** 2019/02/13  
**Location:** 250 Thorold Road West, 3rd Floor, Welland  
**Minutes Prepared by:** Danielle MacKinnon (GM BluePlan)  
**Date of Minutes:** 2019/02/24

### Attendance

**Chair:** Chris Hamel (GM BluePlan)  
**Attendees:** Chris Hamel (GM BluePlan), David Watt (GM BluePlan), Danielle MacKinnon (GM BluePlan), Troy Briggs (CIMA), Gerard Van Arkel (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Dawn MacArthur (RMON), Bob Fleeton (Advisor), Kent Shachowskoj (CNF), Natalie Green (NPCA), Joshua Diamond (NPCA), David Deluce (NPCA)  
**Regrets:** Jason Oatley (RMON), Tony Cimino (RMON), Shahab Shafai (RMON), Joe Tonellato (RMON)

### Items Discussed For Information

1. The South Niagara Falls (SNF) Wastewater Solutions Study is being undertaken as a Schedule C Class Environmental Assessment (EA).
2. The SNF Study is currently in the Pre-Class EA phase, where the internal team (including GM BluePlan, Niagara Region, Golder Associates, and CIMA) are meeting with Agencies for initial consultation. The Agencies being consulted include Ontario Power Generation (OPG), Niagara Peninsula Conservation Authority (NPCA), and the Ministry of the Environment, Conservation and Parks (MECP).
3. The intent of this Agency meeting is to recap project scope and receive input on key agency considerations, data inventory, and study approach.
4. The current schedule includes a Notice of Study Commencement planned for March 2019. The first Introductory Public Information Centre (PIC) in May 2019, Phase 2 PIC in Fall 2019 and Phase 3 PIC in Spring 2020. The Environmental Study Report (ESR) is anticipated to be filed in Fall 2020.
5. The new SNF WWTP is holistic Regional solution intended to address capacity limitations, balance treatment capacity, eliminate pumping flows to the north, improve effluent quality and supporting servicing for greenfield and intensification growth.
6. Key net benefits of the wastewater strategy include treatment capacity management, servicing optimization, asset management and wet weather management.
7. Combined Sewer Overflows (CSOs) and wet weather management has been brought forward in the previous OPG Agency meeting and was further highlighted with NPCA. Solutions including reducing extraneous flows in the collection system will be important for this EA.
8. GM BluePlan and Team are looking at the holistic approach to reduce inflow and infiltration (I/I) and manage impact to Hydro Canal, Welland River, and Niagara River. This will also look to improve any capacity constraints and overflows at existing SPS's and the Stanley Avenue WWTP.
9. The City of Niagara Falls is currently working on targeted I/I reduction strategies through CCTV (and similar) for the south Niagara Falls area on a macro scale. The City and Region are committed to tightening the collection system.

10. GM BluePlan and Team have identified four (4) preliminary outfall locations and fifteen (15) potential WWTP sites. All siting locations are currently on the table as alternatives and will be evaluated through the EA process.
11. There was good discussion on the feasibility of these sites. The Team has been made aware of local recreational constraints, naturalized section of the Hydro Canal, and limitations of existing OPG and Regional infrastructure.
12. The four water bodies were discussed. For Welland River East (section west of the power canal) and the Chippawa River (section of the Welland River east of the power canal), awareness of provincially significant wetlands was raised. For the OPG canal and Niagara River, NPCA noted that there is no NPCA permitting but the agency would remain involved for commenting.
13. NPCA will be looking for environmental protection and mitigation for any WWTP site and outfall location.
14. NPCA will review recommended effluent limits; however, they will defer to MECP regulatory requirements.
15. NPCA expressed interest in reviewing the opportunity for the new WWTP to alleviate capacity at existing plant (Stanley Avenue WWTP) and reduce Combined Sewer Overflows (CSOs) as this could provide water quality benefits.
16. NPCA expressed interest in reducing or removing septic systems as they can be associated with water quality issues and poorly maintained systems. GM BluePlan and Team know the study area is treated by the Municipal system. Currently, the SNF study area is all urban boundary, and anything new will be municipally serviced.
17. NPCA expressed interest in understanding if outfall locations would increase sedimentation. GM BluePlan and team note that treated effluent would have minimal solids. The impact of additional WWTP effluent relative to existing flows would be negligible and there would be no increased scouring with proper outfall design.

Action Items	Action By Date Required
18. NPCA is open in working with GM BluePlan and team to mitigate issues as they arise. NPCA will provide preliminary siting to internal Biologist to provide initial comments.	GMBP, David Deluce (NPCA)
19. NPCA shared data in June 2018 during the procurement process of this study. There is some updated information available that Josh is able to share with GM BluePlan and Team.	Joshua Diamond (NPCA)
20. Golder interested in information available on specific NPCA water quality monitors including Lyon's Creek. Joshua Diamond (NPCA) able to provide this information. Danielle MacKinnon (GM BluePlan) to add this information to the SNF Request for Information tracking sheet.	Joshua Diamond (NPCA) Danielle MacKinnon (GM BluePlan)
21. All submissions to NPCA to be coordinated to David Deluce with initial water quality data requests being directed to Joshua Diamond. David will forward to NPCA team as applicable.	GMBP, David Deluce (NPCA)
22. NPCA would be willing to participate in a stakeholder steering committee (approached to be reviewed).	

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### Items in Agreement

- 23. It was agreed that all potential WWTP sites and four (4) general outfall locations be carried through the EA process to clearly demonstrate and document the evaluation, screening and selection process.
  - 24. Modelling Data – it was agreed that the season of least impact is winter. Data sets and modelling results focused on Spring and Summer are most critical. GMBP and NPCA will continue to coordinate any additional data sets.
  - 25. NPCA would like to be aware of all study Notices and opportunity for meetings.
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**Next Meeting:** TBD

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Notice of any errors or omissions in this document should be communicated by attendees to minute taker within two (2) days of issue of these minutes.

- c. Attendees (by email)

# South Niagara Falls Wastewater Solutions Class Environmental Assessment Study

## Niagara Peninsula Conservation Authority (NPCA) Meeting

Wednesday, February 13, 2019

1:30 – 3:30 p.m.

NPCA, 250 Thorold Road West, Welland

February 13, 2019

Slide 1

## Meeting Agenda

### Agenda

1. Project Introduction
2. Wastewater System Overview
3. Key Study Considerations
4. Wastewater Treatment and Servicing Strategy – Net Benefit Analysis
5. Pre-EA Opportunities and Mitigation Measures
6. Data and Modelling
7. Effluent and Outfall Considerations
8. Study Involvement & Next Steps

February 13, 2019

Slide 2

## What is Important to You?

- How will this project benefit the overall water quality, human health and natural environment in the area?
- What Regional and Local Municipal infrastructure is associated with the water features and this project?
- Will there be new infrastructure in the HEPC, Welland River or Niagara River and what could it look like?
- Does NPCA have any information that can help the study?
- How will NPCA stay engaged through the project?
- Are there any further concerns?

February 13, 2019

Slide 3

## Meeting Objectives

- **Introduce** the Study and Provide Background Information
- **Share** our approach for the Class EA and technical analysis with Regulatory Agencies/Stakeholders; identify points of contact for information exchange and technical review
- **Collect** feedback and adjust our approach, if necessary, to accommodate additional inputs/ideas
- **Establish** agreement on a study approach that satisfies Regulatory Agencies/Stakeholders
- **Identify** whether additional data is available that may be of value to this study
- **Confirm** Study Involvement and Next Steps

February 13, 2019

Slide 4

- Council adopted the 2016 Master Servicing Plan which determined the wastewater strategy and identified the new South Niagara Falls Wastewater Treatment Plant (SNF WWTP)
- A new plant provides opportunity to optimize servicing south of Lundy's Lane and maximizes operational flexibility both now and in the future.
- Niagara Falls will see growth of over 51,585 people and jobs to 2041
- Over 60% of the growth is south of Lundy's Lane
- Over 20% of the growth is south of Welland River
- SNF WWTP supports the Region's vision to address:
  - Growth;
  - System performance;
  - Level of Service;
  - System-wide lifecycle costs;
  - F-5-5 and F-5-1



## Project Introduction - Project Timing

### Project Timing

- Pre-EA Consultation: February 2019
- Phase 1 & 2 Class EA March – Fall 2019
  - Determine list of alternatives
  - Determine the evaluation criteria to compare alternatives
  - Determine preferred servicing strategy
  - Determine new WWTP and outfall location
- Phase 3 & 4 Class EA Fall 2019 – Fall 2020
  - Detailed work on new WWTP and outfall, pre-design and technology selection
  - Detailed work on servicing strategy, wastewater system infrastructure pre-design
- Public Information Centres: May 2019, Fall 2019, Spring 2020
- Environmental Study Report for public review – Fall 2020

Pre  
Consultation

Class EA  
Process

Conceptual  
Design



## Treatment Capacity Management

- Optimize existing servicing south of Lundy's Lane
- Reduce load at existing Stanley Ave WWTP and collection system
- Locates treatment capacity in area of growth and potential future growth
- Supports treatment of flows with current site planning, new technologies, energy efficiency, and long term operational benefits

## Regional Servicing Optimization

- Maximize gravity conveyance to new site
- Opportunity to optimize & reduce number of existing Sewage Pumping Stations
- Opportunity to service Thorold South
- Provide flexibility for future growth areas and intensification

February 13, 2019

Slide 9

## Asset Management

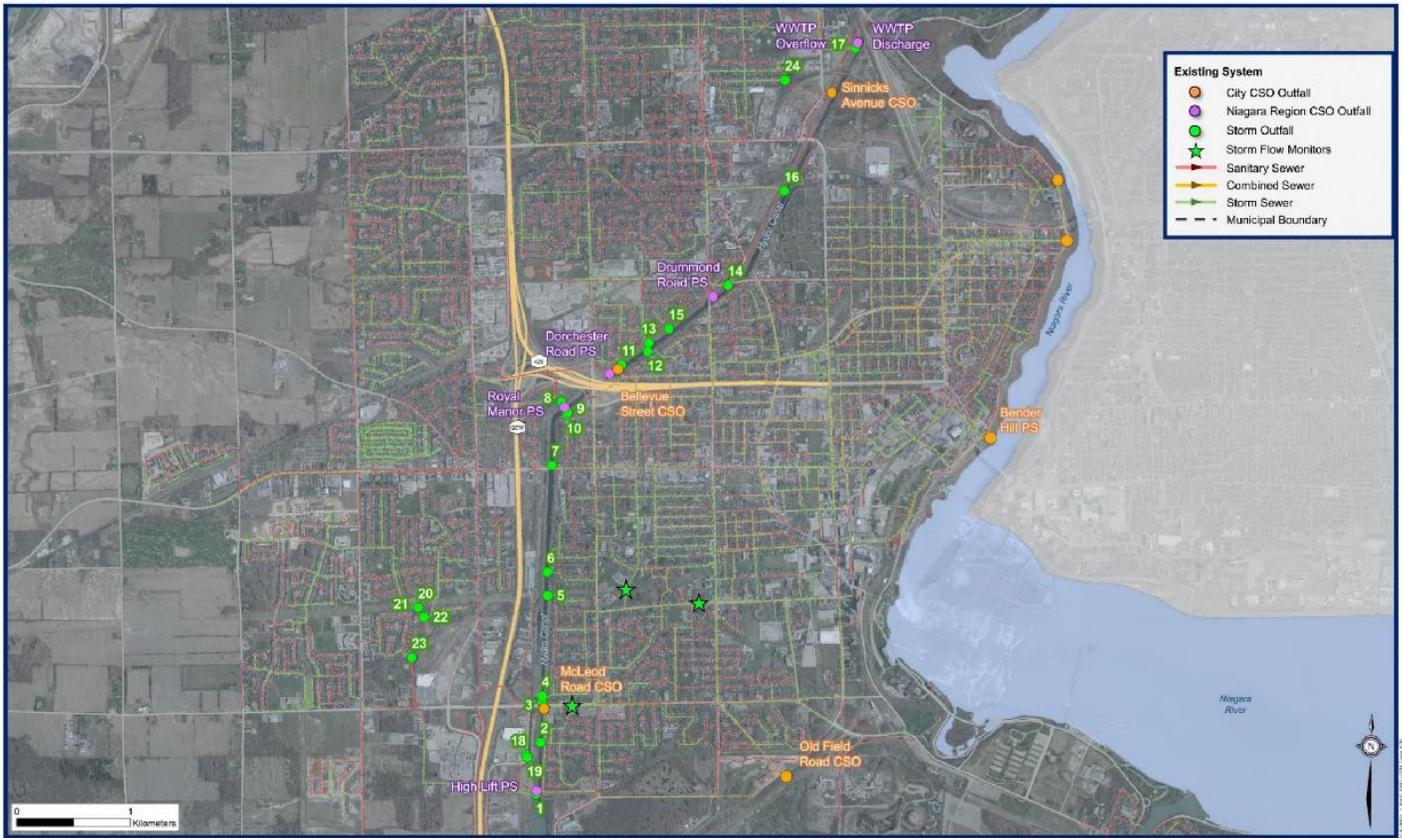
- Provide opportunity to retrofit/upgrade Stanley Ave WWTP – benefit for compliance
- Reduced flows to existing WWTP provides greater flexibility to complete work
- New WWTP Outfall could be located south of the HEPC transition (benefit for HEPC maintenance)

## Combined Sewer Overflow (CSO) Management

- Opportunity to optimize/reduce existing Regional overflows
- Potential to reduce/eliminate High Lift SPS overflow
- Significantly reduce flow conveyance to the Stamford Interceptor – manage impact near Dorchester PS and downstream along Interceptor (reduced overflow potential to HEPC)
- Reduce flow to existing Stanley Ave WWTP (reduced overflow potential to HEPC)
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- Addressing flows from Peel Street SPS with benefit to the Port Weller system

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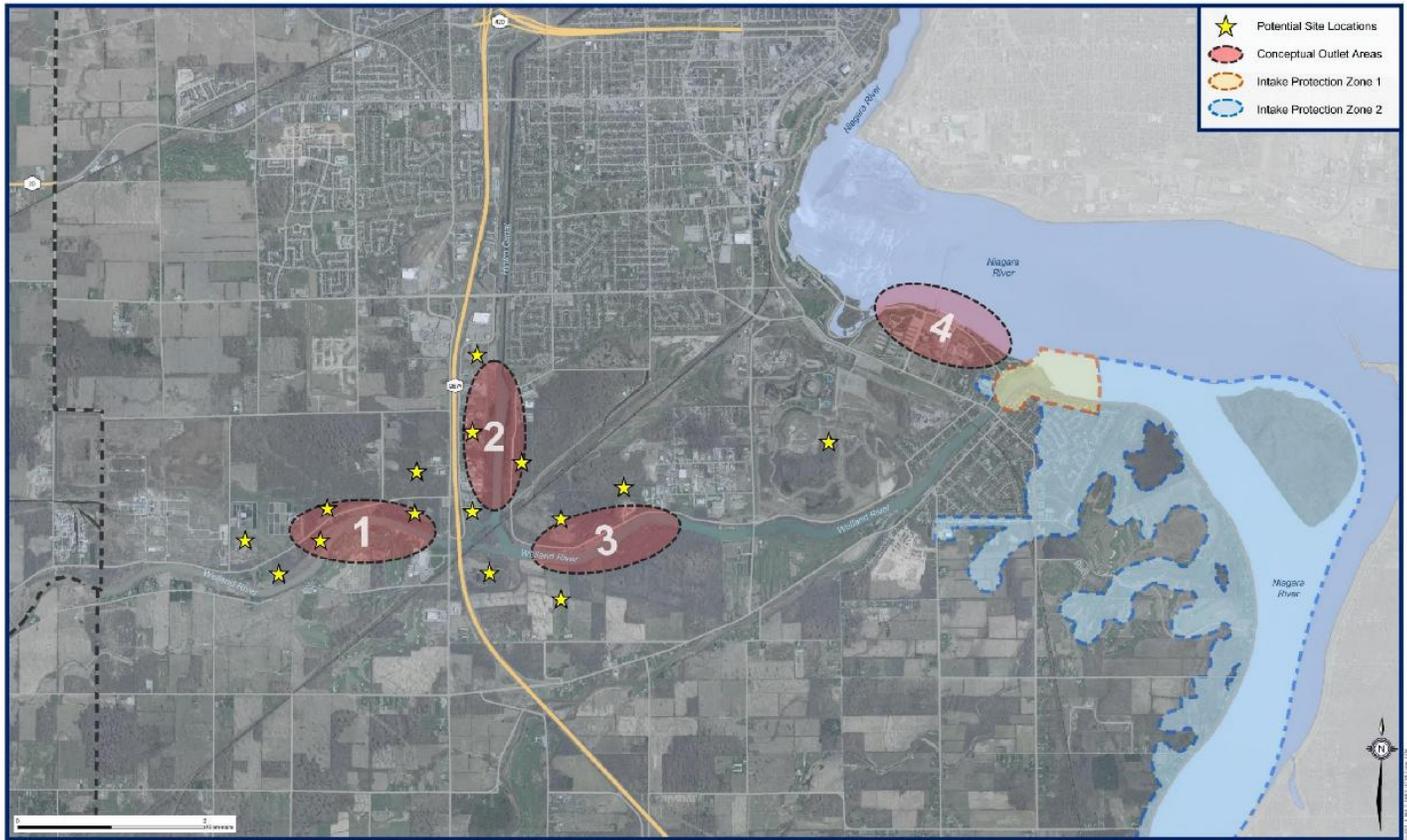
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February 13,

## New WWTP Siting Discussion

February 13, 2019



February 13,

## Data and Modelling

February 13, 2019

- Flow Conditions
- Data Availability
- Conceptual Approach to Completing the Assimilative Capacity Study for the new SNF WWTP
- Surface Water Modelling Considerations and Objectives
- Mass Balance Modelling Approach
- Effluent Dispersion Modelling Approach

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## Conceptual Water Quality Implications of new SNF WWTP

- Existing Stanley Ave WWTP and CSO flows comprise ~0.06% of flows in HEPC
- Future treated flows will be balanced between existing Stanley Ave WWTP and new SNF WWTP
- Future WWTPs and CSO flows estimated to comprise ~0.1% of flows in HEPC
- **Conceptually, implementation of the new SNF WWTP has the potential to reduce total loadings within the Power Canal, Niagara River and to Lake Ontario**

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## • Spatial Coverage of Water Quality and Flow Data is **GOOD**

- Water Quality data available for Niagara River, Welland River, Power Canal, and Lyons Creek;
- Flow data available for Niagara River and Welland River;
- Flow data for Power Canal from OPG along with water management plan
- Flow data for Lyons Creek not available, but able to synthesize data
- Flow and Water Quality data also available for CSOs

## • Spatial Coverage of Bathymetric Data is **GOOD**

- ADCP Survey of Welland River by Golder (2016)
- Geophysical Survey of Wide Section of Power Canal by Golder (2016)
- Survey of Power Canal by ASI (2017?)

## • Temporal Distribution of Data is **REASONABLE**

- Summer and Fall are likely the most critical
- Water Quality data available for variable lengths of time and frequency for Niagara River, Welland River, Power Canal, and Lyons Creek (data requested)
- Flow data available for Niagara River and Welland River (daily, year-round). Power Canal flows to be obtained from OPG. Lyons Creek will be synthesized
- Bathymetric data collected within last two years; no major morphological changes expected

## • Are there any other sources available to supplement these data sets?

Preliminary Seasons	Welland River		Power Canal		Niagara River	
	WR011		PRO01		O2HA0045	
Winter	Dec	0	1		202	617
	Jan	1	1	3	202	
	Feb	1	1		213	
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Total		47		42		2,572

# Effluent Quality Considerations

- The new SNF WWTP provides opportunity to review effluent performance
- The assimilative capacity study will guide key effluent criteria
  - Federal and provincial effluent and receiving water requirements
    - Year-round ammonia removal to provide a non-toxic effluent
    - Elimination of chlorine residuals
  - Effluent TP concentrations
  - Improved disinfection (lower E.Coli concentrations)

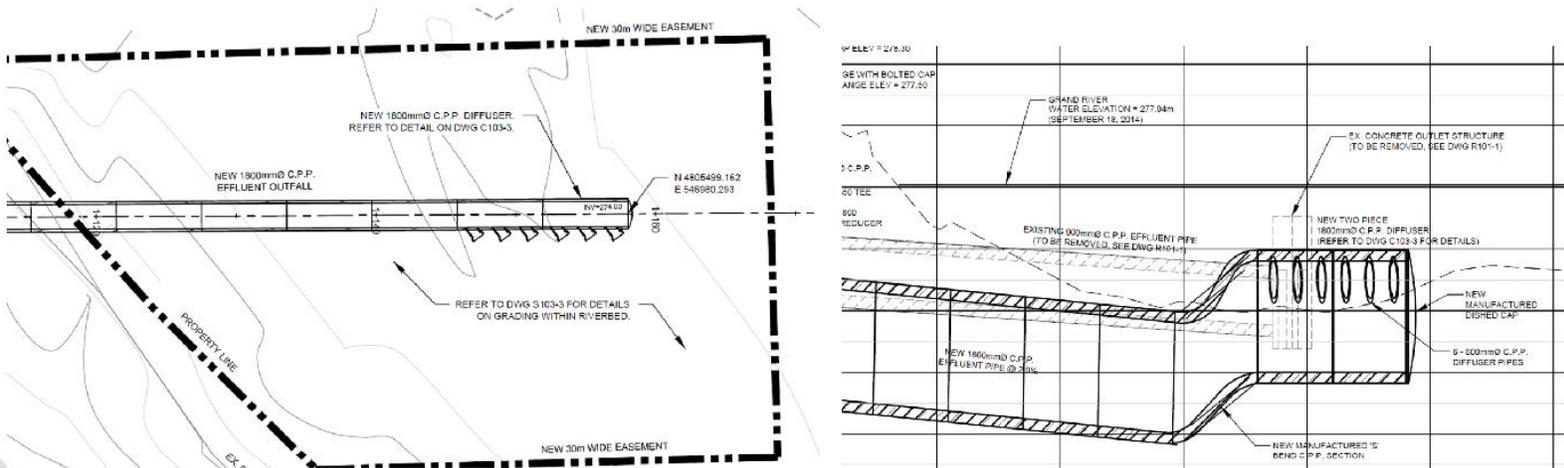
- Existing effluent objectives and compliance limits for the Stanley Avenue WWTP

Parameter	Objective	Limit
Biological Oxygen Demand (BOD <sub>5</sub> )	15 mg/L	25 mg/L
Total Suspended Solids (TSS)	15 mg/L	25 mg/L
Total Phosphorus (TP)	0.5 mg/L	1.0 mg/L
E.Coli	200 CFU/100 mL	200 CFU/100 mL
Chlorine Residual	0.5 mg/L	-

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# Typical Outfall



Kitchener WWTP Outfall to the Grand River

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- There are 4 primary alternatives for a new WWTP and outfall to be reviewed under the Class EA study
- What are the opportunities?
- What are the concerns and how do we address / mitigate these concerns?
- How do we engage and coordinate together moving forward?
  - Points of contact
  - Study involvement
  - Sharing of information
- Coordination ahead of Notice of Commencement (March 2019)
- Coordination ahead of Phase 1 PIC (May 2019)

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## South Niagara Falls Wastewater Solutions Class EA

## Thank you for participating Questions?

### Contact Information:

Niagara Region Project Manager:

- Lisa Vespi, [lisa.vespi@niagararegion.ca](mailto:lisa.vespi@niagararegion.ca)

GM BluePlan Project Manager:

- Chris Hamel, [chris.hamel@gmblueplan.ca](mailto:chris.hamel@gmblueplan.ca)

February 13, 2019

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# V4.3.3

REGIONAL MUNICIPALITY OF NIAGARA  
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

## **Pre-Class EA Consultation**

Ministry of the Environment, Conservation and Parks (MECP)

## Meeting Agenda: Ministry of the Environment, Conservation and Parks Stakeholder Meeting – South Niagara Falls Wastewater Solutions Class Environmental Assessment

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**Date/Time:** Tuesday, February 19, 2019 1:30 p.m. - 3:30 p.m.  
**Location:** Grimsby WWTP Meeting Room, 347 Baker Road North

**Meeting Called by:** SNF Wastewater Solutions Class EA Team

**Objectives:**

1. Introduce the Study and Provide Background Information
2. Share our Approach for the Class EA and Technical Analysis
3. Collect Feedback and Accommodate Additional Inputs/Ideas
4. Establish Agreement on Key Study Elements
5. Identify Additional/Available Information
6. Confirm Study Involvement and Next Steps

### Participants

**Chair:** Chris Hamel  
**Invitees:** Chris Hamel (GM BluePlan), David Watt (GM BluePlan), Danielle MacKinnon (GM BluePlan), Troy Briggs (CIMA), Gerard van Arkel (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Tony Cimino (RMON), Shahab Shafai (RMON), Jason Oatley (RMON), Joe Tonellato (RMON), Bob Fleeton (Advisor), Sylvain Campbell (MECP), Barbara Slattery (MECP), Michael Spencer (MECP)

Matters for Discussion & Timeframes	Lead
Agenda Outline	
1. Project Introductions	GM BluePlan
2. Wastewater System Overview	
3. Key Study Considerations	
4. Wastewater Treatment & Servicing Strategy – Net Benefit Analysis	
5. Pre-EA Opportunities and Mitigation Measures	
6. Surface Water Modelling Assessment	GM BluePlan with Golder/CIMA
7. Effluent Quality & Discharge Flows	GM BluePlan
8. Study Involvement & Next Steps	

Additional items to be communicated to Chair prior to meeting.

## Meeting Minutes:

# South Niagara Falls Wastewater Solutions Class Environmental Assessment

## The Ministry of the Environment, Conservation and Parks, Agency Meeting

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**Meeting Date/Time:** 2019/02/19  
**Location:** Grimsby Wastewater Treatment Plant, Baker Road N.  
**Minutes Prepared by:** Danielle MacKinnon (GM BluePlan)  
**Date of Minutes:** 2019/02/24

### Attendance

**Chair:** Chris Hamel (GM BluePlan)  
**Attendees:** Chris Hamel (GM BluePlan), David Watt (GM BluePlan), Danielle MacKinnon (GM BluePlan), Troy Briggs (CIMA), Gerard van Arkel (Golder), Lisa Vespi (RMON), Gordon Bell (RMON), Dawn MacArthur (RMON), Jason Oatley (RMON), Shahab Sharif (RMON), Bob Fleeton (Advisor), Sylvain Campbell (MECP), Michael Spencer (MECP), Barbara Slattery (MECP)  
**Regrets:** Tony Cimino (RMON), Joe Tonellato (RMON),

### Items Discussed For Information

1. The South Niagara Falls (SNF) Wastewater Solutions Study is being undertaken as a Schedule C Class Environmental Assessment (EA).
2. The SNF Study is currently in the Pre-Class EA phase, where the internal team (including GM BluePlan, Niagara Region, Golder Associates, and CIMA) are meeting with Agencies for initial consultation. The Agencies being consulted include Ontario Power Generation (OPG), Niagara Peninsula Conservation Authority (NPCA), and the Ministry of the Environment, Conservation and Parks (MECP).
3. MECP was previously consulted during the procurement process of this study. The intent of this Agency meeting is to recap project scope and receive input on data inventory, assimilative capacity, and study approach.
4. The current schedule includes a Notice of Study Commencement planned for March 2019. The first Introductory Public Information Centre (PIC) in May 2019, Phase 2 PIC in Fall 2019 and Phase 3 PIC in Spring 2020. The Environmental Study Report (ESR) is anticipated to be filed in Fall 2020.
5. The new SNF WWTP is holistic Regional solution intended to address capacity limitations, balance treatment capacity, eliminate pumping flows to the north, and supporting servicing for greenfield and intensification growth.
6. Key net benefits of the wastewater strategy include treatment capacity management, servicing optimization, asset management and wet weather management.
7. Combined Sewer Overflows (CSOs) and wet weather management has been brought forward in the agency pre-consultation meetings. Solutions including reducing extraneous flows in the collection system will be important for this EA. MECP asked that the Region and the City, as part of this project, look for ways to reduce bypasses and overflows within the City of Niagara Falls.
8. GM BluePlan and Team are looking at the holistic approach to reduce inflow and infiltration (I/I) and reduce impact to Hydro Canal, Welland River, and Niagara River. This will also look to improve any capacity constraints and overflows at existing SPS's and the Stanley Avenue WWTP.

- 
9. The City of Niagara Falls is currently working on targeted I/I reduction strategies through CCTV (and similar) for the south Niagara Falls area on a macro scale. The City and Region are committed to tightening the collection system.
  10. GM BluePlan and Team have identified four (4) preliminary outfall locations including the Welland River, Chippawa Creek, Niagara River and OPG Power Canal and fifteen (15) potential WWTP sites. All siting locations are currently on the table as alternatives and will be evaluated through the EA process.
  11. The SNF Team had good discussions through Agency meetings with OPG and NPCA on feasibility of these sites. The Team has been made aware of local recreational constraints, naturalized section of the Hydro Canal, and limitations of existing OPG and Regional infrastructure.
  12. Additional study considerations raised during the meeting included; addressing hydrogen sulphide issues in the area; proximity to the new hospital, review of other potential flow sources to the new plant such as hauled sewage and wine waste, and traffic related to the new facility.
  13. The four water bodies where the outfall could be located, as mentioned above, were discussed. For Welland River East (section west of the power canal), it was noted that there are fluctuations in flows, potential for stagnant flow, potential for pooling effects and degraded water quality. 7Q20 analysis is applicable. The Chippawa Creek (section of the Welland River east of the power canal) is impacted by the OPG flow requirements. 7Q20 analysis most likely not applicable due to regulated flow control, however, a similarly protective flow should be determined. Niagara River discharge will be impacted by OPG operations, recreational objectives as well as coordination with the United States. All options will need to be mindful of water quality, potential for overlapping mixing zones, OPG operations, other dischargers, recreational uses, Permit to Take Water takers and natural environment impacts.
  14. MECP is interested in notification to New York State. GM BluePlan and Team have an internal advisor from the International Joint Commission, who will be consulted during the EA process and will be documented within the Study's Communication Plan.
  15. Engaging the local Chippawa community is recommended and will be essential in this EA process. The Chippawa community has previously dealt with odour issues and wet weather issues in the past.
  16. As the ESR documentation is prepared, treatment objectives and effluent criteria table will be included to demonstrate that there is no negative impact on the receiving body.
  17. Clear comment and response documentation (between the project team and the public and agencies) will need to be included in the final ESR documentation.
  18. Communication to downstream communities for public consultation as well as the Ministry of Natural Resources and Forestry is recommended.
  19. Indigenous consultation will commence as part of the pre-EA phase with phone calls from the Region to inform the specific parties about the study and ask how they want to be engaged.
  20. Comments and interest regarding the Stevensville Lagoons and other sources of odour should be anticipated under this study.
-

Action Items	Action By Date Required
21. GM BluePlan and Team are to develop a WorkPlan showcasing data inventory, planned approach (including expected software, purpose of use, and expected timelines) for the SNF Study. This will be submitted in the form of a Technical Memorandum to MECP. This will allow MECP to review and engage appropriate internal departments. Comments and ultimately written agreement on the approach would be achieved through the Tech Memo process.	GM BluePlan
22. Barb Slattery (MECP) to send: Specific email address for the West Central Region used for official Notices; and the three (3) local indigenous communities identified for consultation.	Barb Slattery (MECP)
23. The MECP has a new format for Part II orders, which includes a form that concerned parties will submit. This new method will need to be clear within the Notice of Study Completion. Barb to send any relevant updates on the Class EA process applicable for this study.	Barb Slattery (MECP)
24. MECP identified that ECAs for all dischargers in the study area would be available for information to the study.	Barb Slattery (MECP)
25. All submissions to MECP to be coordinated to Barb Slattery. Barb will forward to MECP team as applicable.	GM BluePlan, Barb Slattery (MECP)

Items in Agreement
26. It was agreed that all potential WWTP sites and the four (4) general outfall locations be carried through the EA process to clearly demonstrate and document the evaluation, screening and selection process.
27. Modelling Data – it was agreed that winter is the least critical season for ammonia. Low flow periods such as summer are the most critical period for ammonia toxicity and will be the focus of data sets and modelling results.
28. Preliminary review of available data sets demonstrates a reasonable and sufficient source of data for the project and modelling. This will be further documented and confirmed in the Tech Memo.
29. Using Monte Carlo simulations for screening alternatives in the Class EA is reasonable. This will be further documented and confirmed in the Tech Memo.
30. Cormix modelling will be required for the preferred site and outfall location only. This will be further documented and confirmed in the Tech Memo.
31. MECP would be willing to participate in a stakeholder steering committee (approached to be reviewed).

**Next Meeting:** TBD

Notice of any errors or omissions in this document should be communicated by attendees to minute taker within two (2) days of issue of these minutes.

c. Attendees (by email)

# South Niagara Falls Wastewater Solutions Class Environmental Assessment Study

Ministry of the Environment, Conservation and Parks (MECP) Meeting

Tuesday, February 19, 2019

1:30 – 3:30 p.m.

Grimsby Baker Road WWTP, 347 Baker Road North, Grimsby

February 19, 2019

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## Meeting Agenda

### Agenda

1. Project Introduction
2. Wastewater System Overview
3. Key Study Considerations
4. Wastewater Treatment and Servicing Strategy – Net Benefit Analysis
5. Pre-EA Opportunities and Mitigation Measures
6. Data and Modelling
7. Effluent and Outfall Considerations
8. Study Involvement & Next Steps

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- **Introduce** the study and provide background information
- **Share** our approach for the Class EA and technical analysis with Regulatory Agencies/Stakeholders; identify points of contact for information exchange and technical review
- **Collect** feedback and adjust our approach, if necessary, to accommodate additional inputs/ideas
- **Establish** agreement on a study approach that satisfies Regulatory Agencies/Stakeholders
- **Identify** whether additional data is available that may be of value to this study
- **Confirm** Study Involvement and Next Steps

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# Project Introduction

- Council adopted the 2016 Master Servicing Plan which determined the wastewater strategy and identified the new South Niagara Falls Wastewater Treatment Plant (SNF WWTP)
- A new plant provides opportunity to optimize servicing south of Lundy's Lane and maximizes operational flexibility both now and in the future.
- Niagara Falls will see growth of over 51,585 people and jobs to 2041
- Over 60% of the growth is south of Lundy's Lane
- Over 20% of the growth is south of Welland River
- SNF WWTP supports the Region's vision to address:
  - Growth;
  - System performance;
  - Level of Service;
  - System-wide lifecycle costs;
  - F-5-5 and F-5-1



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## Project Timing

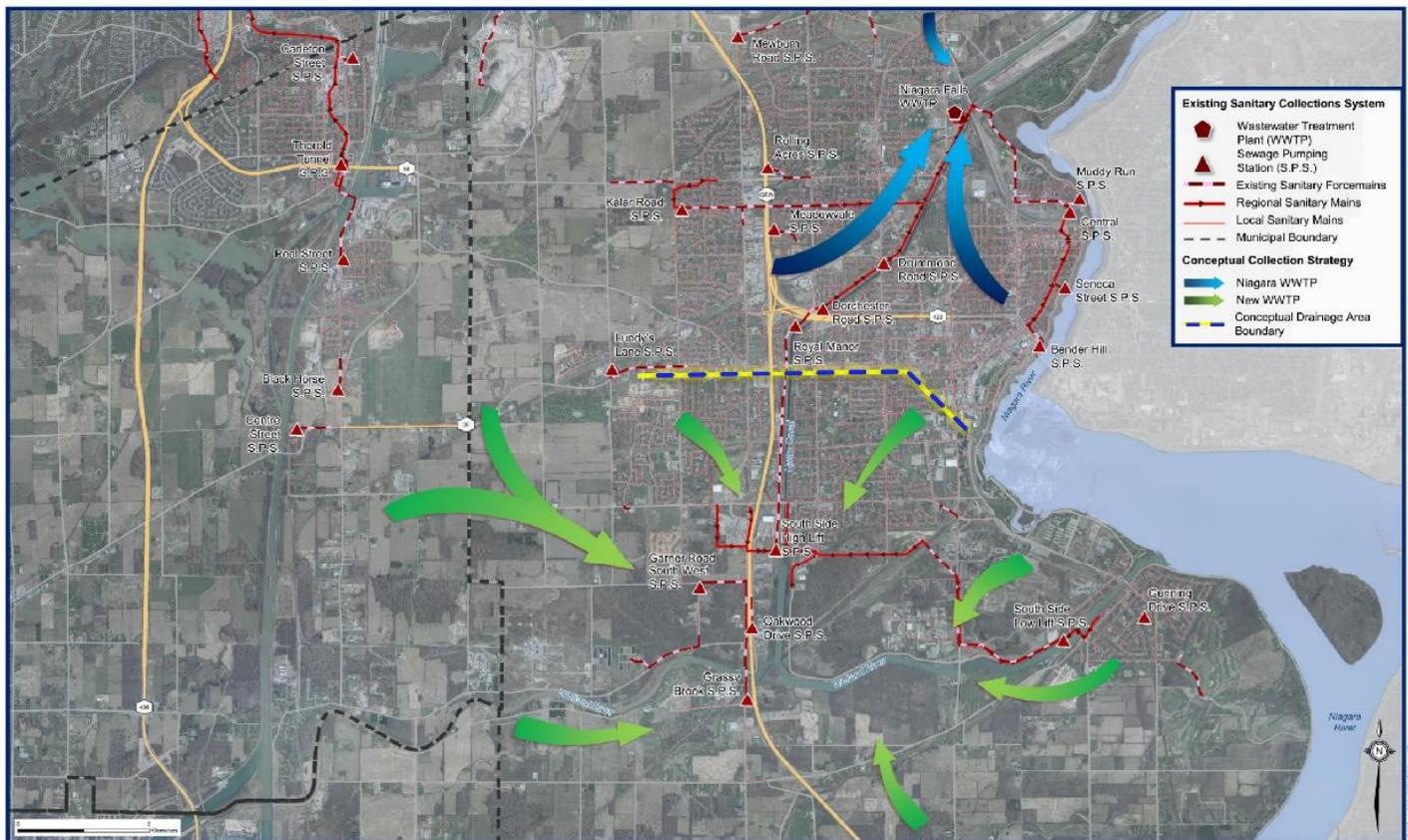
- Pre-EA Consultation: February 2019
- Phase 1 & 2 Class EA March – Fall 2019
  - Determine list of alternatives
  - Determine the evaluation criteria to compare alternatives
  - Determine preferred servicing strategy
  - Determine new WWTP and outfall location
- Phase 3 & 4 Class EA Fall 2019 – Fall 2020
  - Detailed work on new WWTP and outfall, pre-design and technology selection
  - Detailed work on servicing strategy, wastewater system infrastructure pre-design
- Public Information Centres: May 2019, Fall 2019, Spring 2020
- Environmental Study Report for public review – Fall 2020



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## System Understanding



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- Conveying/Understanding wastewater systems and treatment (including environmental benefit)
- Managing odours
  - Construction - naturally occurring H<sub>2</sub>S (odour sources)
  - Long term operations and maintenance
- Public engagement for the WWTP
- Identify potential adverse impacts and mitigation
- Identify a viable WWTP site and discharge location
- Agreement on support data for assimilative capacity analysis
- Agreement on effluent criteria
- Wet weather management and optimization

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## Wastewater Treatment and Servicing Net Benefit

### Treatment Capacity Management

- Optimize existing servicing south of Lundy's Lane
- Reduce load at existing Stanley Ave WWTP and collection system
- Locates treatment capacity in area of growth and potential future growth
- Supports treatment of flows with current site planning, new technologies, energy efficiency, and long term operational benefits

### Regional Servicing Optimization

- Maximize gravity conveyance to new site
- Opportunity to optimize & reduce number of existing Sewage Pumping Stations
- Opportunity to service Thorold South
- Provide flexibility for future growth areas and intensification

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## Asset Management

- Provide opportunity to retrofit/upgrade Stanley Ave WWTP – benefit for compliance
- Reduced flows to existing WWTP provides greater flexibility to complete work
- New WWTP Outfall could be located south of the HEPC transition (benefit for HEPC maintenance)

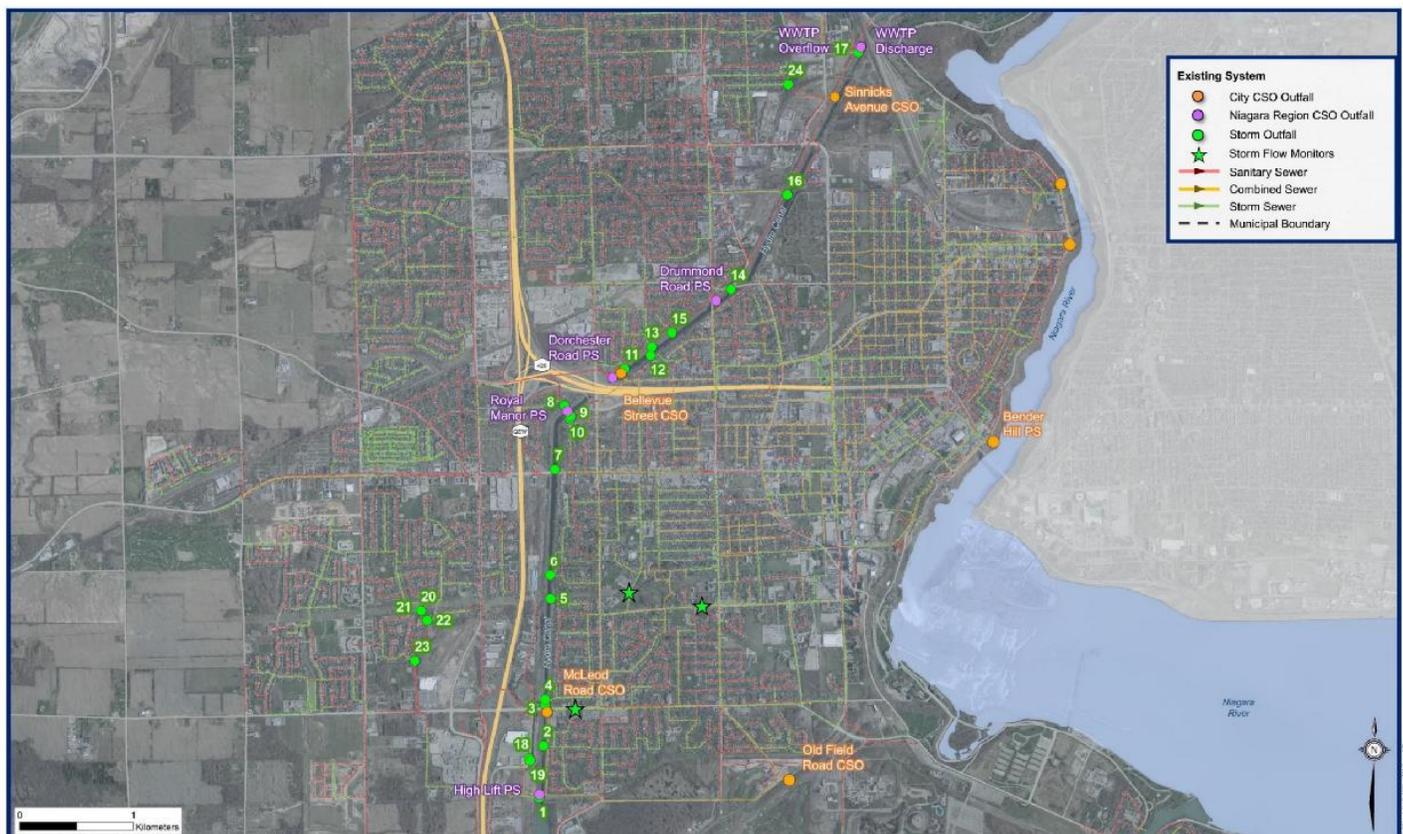
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## Existing WW System – CSO Overview



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# New WWTP Siting Discussion

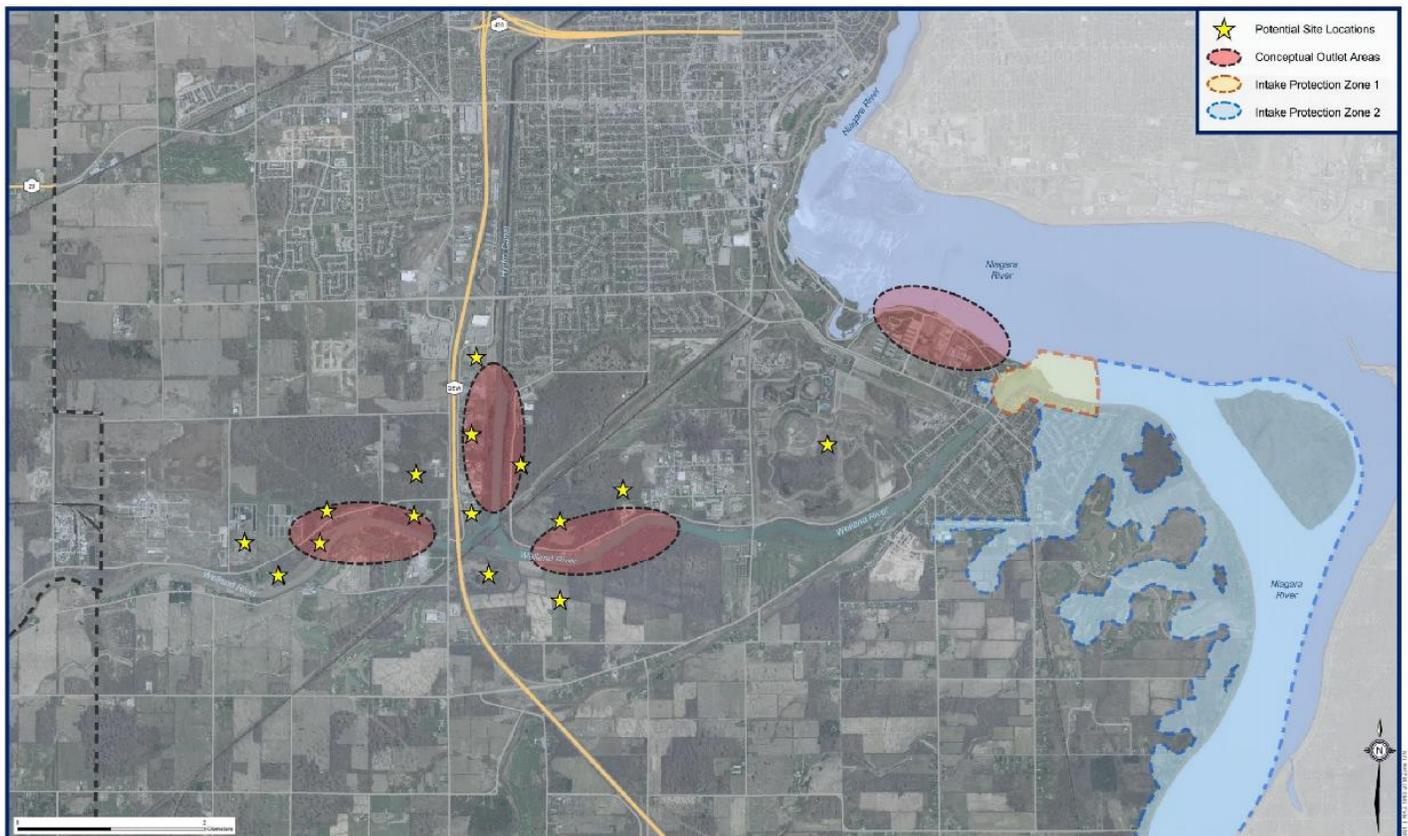
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## Potential New WWTP Sites and Outfall Locations

TEAMING FOR NIAGARA'S FUTURE  
BluePlan CIWA GOLDER redbrick

Niagara Region



February 19,

South Niagara Falls Wastewater Solutions  
Class Environmental Assessment  
Watercourse and Treatment Plant Siting

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TEAMING FOR NIAGARA'S FUTURE  
BluePlan CIWA GOLDER redbrick

# Data and Modelling

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## Available Data and Approach Considerations



- Flow Conditions
- Data Availability
- Conceptual Approach to Completing the Assimilative Capacity Study for the new SNF WWTP
- Surface Water Modelling Considerations and Objectives
- Mass Balance Modelling Approach
- Effluent Dispersion Modelling Approach

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- Existing Stanley Ave WWTP and CSO flows comprise ~0.06% of flows in HEPC
- Future treated flows will be balanced between existing Stanley Ave WWTP and new SNF WWTP
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## Available Data

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  - Flow and Water Quality data also available for CSOs
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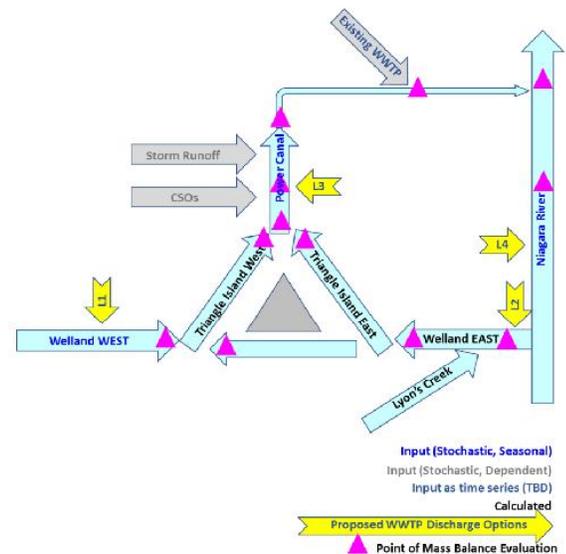
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	Nov	6	5		226	
Total		47		42		2,572

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## Assimilative Capacity Study (ACS) Considerations:

- Overall goal to maintain/reduce system loadings
- There is a mix of naturalized and regulated systems
- Baseline understanding of existing conditions in the Niagara and Welland Rivers (re: existing parameters including P, NH<sub>3</sub>, bacteria)
- **MASS BALANCE** modelling will compare existing conditions to future conditions with new WWTP
- **EFFLUENT DISPERSION** modelling will optimize discharge location and design



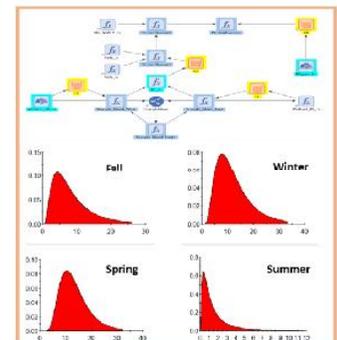
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# Mass Balance Modelling Approach

## Stochastic Modelling (Monte Carlo Simulations) using GoldSim

- Major factors controlling flow are Independent
  - Welland River is influenced by rainfall and snow-melt
  - Flow in Power Canal is controlled by operation of hydro-electric dam diversion
  - Flow for Lyon's Creek influenced by rainfall and pumping from Welland Canal
  - Flow/Water Level in Niagara River controlled by water levels in Lake Erie (long-term precipitation trends, wind events)
- Modelling worst case conditions may result in overly conservative limits.
- Modelling average conditions unlikely to fully represent the range of expected outcomes.
- GoldSim will help predict water quality parameter frequency and conditions.

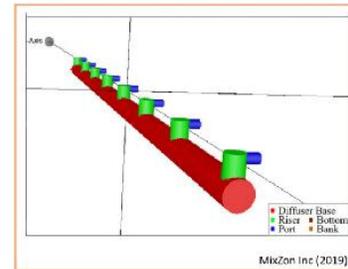


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## Plume Modelling (CORMIX)

- Flow, Effluent and Outfall Dependent Simulations
- Key Parameters
  - Water level and velocity – assimilative capacity and turbulence
  - Channel depth, width and shape - vary by proposed discharge location
  - Temperatures and density of receiving watercourse - vary by location and season
  - Receiving water quality - can vary by location and season
  - Diffuser configuration – orientation, number of ports
- CORMIX modelling will help identify optimal locations and discharge configuration using range of receiving water and effluent characteristics
- Will develop a conceptual design to maximize initial mixing and minimize size of plume



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## Effluent Quality Considerations

- The new SNF WWTP provides opportunity to review effluent performance
- The assimilative capacity study will guide key effluent criteria
  - Federal and provincial effluent and receiving water requirements
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- There are 4 primary alternatives for a new WWTP and outfall to be reviewed under the Class EA study.
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  - Class EA Process
  - Sharing of information
- Coordination ahead of Notice of Commencement (March 2019)
- Coordination ahead of Phase 1 PIC (May 2019)

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## South Niagara Falls Wastewater Solutions Class EA

## Thank you for participating Questions?

### Contact Information:

Niagara Region Project Manager:

- Lisa Vespi, [lisa.vespi@niagararegion.ca](mailto:lisa.vespi@niagararegion.ca)

GM BluePlan Project Manager:

- Chris Hamel, [chris.hamel@gmblueplan.ca](mailto:chris.hamel@gmblueplan.ca)

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