Welcome to Norfolk County's Public Information Centre!

Simcoe Wastewater Treatment Plant – Biosolids Management Upgrade

Tuesday August 12, 2025, from 5:00pm to 7:00pm

Share your Feedback

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Simcoe Wastewater Treatment Plant – Biosolids Management Upgrade
Schedule "B" Municipal Class Environmental Assessment

Public Information Centre

August 12, 2025, from 5:00pm to 7:00pm

Norfolk County Administration Building Council Chambers
50 Colborne St S, Simcoe ON

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Indigenous Acknowledgement

The Municipality of Norfolk County is committed to furthering Truth and Reconciliation in our communities. We recognize the historical and current contributions of Indigenous Peoples throughout Canada, and particularly in Norfolk County, that have added to the rich cultural and social fabric that exists here today.

We will strive to continually strengthen and develop the spirit of respect, co-operation and collaboration to the mutual benefit of all Norfolk County residents.

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Welcome!

Objectives of Public Information Centre (PIC):

1. Introduce the project with background
2. Provide an overview of the study process
3. Present the alternative solutions being considered
4. Present the evaluation process used to identify the recommended preferred solution
5. Discuss next steps and obtain your input

What should I be doing?

- ✓ Reviewing the PIC presentation boards
- ✓ Ask questions or share your comments with the team members in attendance
- ✓ Complete the feedback form or provide comment via email. Any feedback received will inform the selection and finalization of the preferred solution

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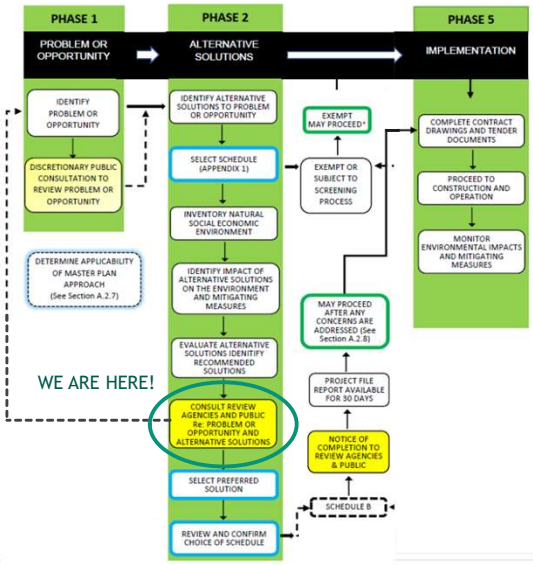
Class Environmental Assessment (EA) Study Process

As the proponent, Norfolk County is committed to conducting a Schedule "B" Class EA for this project.

Schedule "B" projects have the potential for some adverse environmental effects. It requires that the proponent contact affected members of the public and relevant review agencies.

Where are We?

- The County completed the initial studies and developed the preliminary preferred solution
- This PIC represents the "Consult Review Agencies and Public in Problem or Opportunity and Alternative Solutions" step



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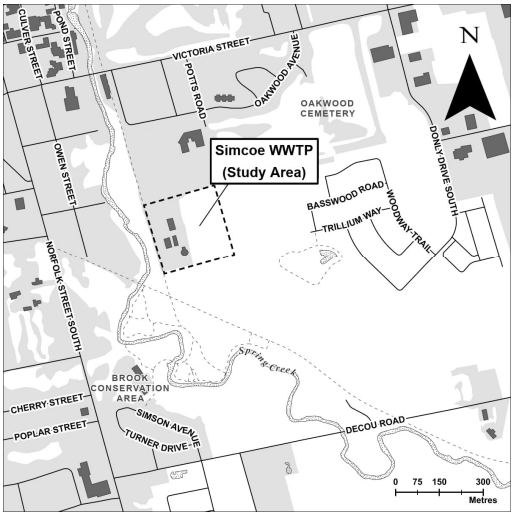
Project Study Area

- The limits of the Study Area extend to the municipal property boundary of the Simcoe Wastewater Treatment Plant (WWTP)
- Location: 16 Oakwood Ave, Simcoe, ON N3Y 1H3
- Plant Vicinities:
  - North: Medium-density residential
  - East: Residential & Institutional/Services
  - South: Low-density residential & Brook Conservation Area
  - West: Residential, light commercial fringe & LE&N Trail
- Community Features Nearby: School, Cemetery, Conservation Land, Trail, Park, Memorial Site, Public Facilities, Recreation Areas
- Lynn River, Small Pond in Wellington Park, Watershed – Drains into Lake Erie



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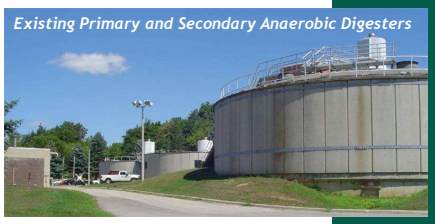
Problem and Opportunities

- **Regulatory Requirements: Biosolids management options must be reviewed in alignment with the current planning horizon to 2051 and in accordance with Ontario's Nutrient Management Act**
- **Current operation of the plant is experiencing issues with ESA Code and regulatory compliance with respect to digester performance and biosolids quality**
- The Norfolk County Integrated Sustainable Master Plan (ISMP) from 2016 identified that upgrades to the Simcoe WWTP solids handling processes are required
- Older technologies, close to end-of-life service life and safety compliance issues with the existing biosolids handling facilities at Simcoe and Port Dover WWTPs
- Newer technologies have become more prominent in the wastewater treatment industry and should be evaluated against conventional technologies
- Possibility to convert biosolids to higher value final product such as Class A product that complies with Canadian Food Inspection Agency (CFIA) fertilizer quality designation
- Lack of expansion space at the other four plants within the Norfolk County to expand/upgrade biosolids facilities to meet the current requirements



Existing Primary and Secondary Anaerobic Digesters

Norfolk County must develop a long-term biosolids management solution to effectively handle materials generated at all wastewater treatment plants. The solution should accommodate future growth, evaluate emerging technologies, maximize value, be fiscally responsible, and minimize environmental impacts.

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Project Background

- **In 2016**, the Integrated Sustainable Master Plan (ISMP) presented a Biosolids Management Solution for the Simcoe WWTP for the 25-year planning horizon and growth management plan
  - Aerobic digestion and thickening of Simcoe WWTP Biosolids
  - Repurposing of the existing anaerobic digesters for storage of biosolids from Simcoe, and excess biosolids from Port Rowan and Port Dover WWTPs in future
  - Builds on 2007 Biosolids Management Options Report
- **In 2019**, the Biosolids Management Solution was re-evaluated for a design year of 2041
  - Considered Delhi WWTP as an additional source of biosolids
  - Recommended technology change to anaerobic digestion at Simcoe WWTP
- **Starting 2024**, Norfolk County started the process to re-evaluate solutions for three reasons
  - County-wide review of biosolids management was necessary
  - New growth projection to 2051, including addition of Waterford WWTP sludge to the design basis
  - New technologies, including Thermal Hydrolysis Process (THP), became more feasible

Simcoe Wastewater Treatment Plant - Overview

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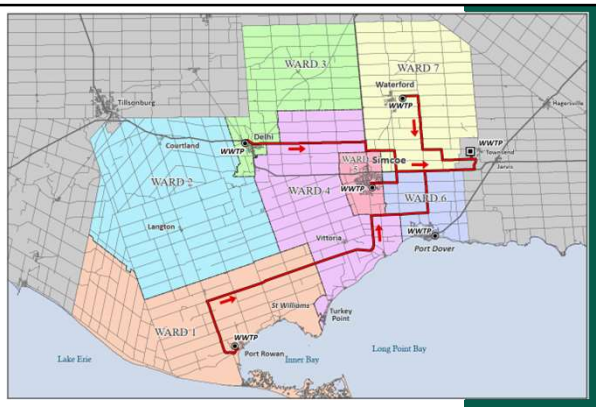
2025 Biosolids Disposal Routes (Current)

Wastewater Treatment Plants	Design Capacity (ADF m^3/d)	Biosolids Class B Production (kg/d)	# trucks per week	Disposal Route
Simcoe	15,400-Rated Capacity 7,261-Actual	1,918	5.5	• 75% to Townsend Lagoons • 25% to Land Application
Delhi	3,182	426	1.5	• 33% to Townsend Lagoons • 67% to Land Application
Waterford	2,200	153	0.5	• 100% Facultative Lagoon Clean Up sent to Townsend Lagoons (2002 & 2025)
Port Dover	5,400	740	2.5	• 100% to Land Application with Storage at the Plant
Port Rowan	1,140	226	1	• 50% to Townsend Lagoons • 50% to Land Application
Norfolk County Totals	**27,322**	**3,463**	**11**	• 51% to Townsend Lagoons • 49% to Land Application



Current Truck Route for Sludge Hauling to Townsend Lagoons


Sludge Loading


Truck Exit to Oakwood Avenue

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What are Biosolids?

Biosolids are nutrient-rich organic materials produced during the treatment of domestic sewage sludge. Once treated to meet regulatory standards, biosolids can be beneficially reused most commonly through land application.

There are two classifications of biosolids considered in this project:

Class A and Class B

Class B Biosolids have undergone treatment to reduce pathogens but do not eliminate them entirely. They are subject to additional restrictions for public health and environmental safety. Non-Agricultural Source Material (NASM) Plans (OMAFRA protocols) are required prior to land application. All five wastewater facilities currently produce Class B biosolids.

Nutrient Management Act, O. Reg. 267/03

E-Coli < 2,000,000 CFU/g (dry solids).

Class A Biosolids must have pathogens reduced to virtually all non-detectable levels and comply with very strict standards for odours, metals, and vector attraction reduction. Class A biosolids are safe for residential home use for lawns and gardens and in agricultural applications. Class A Biosolids are considered fertilizers and therefore NASM Plans are not required.

Nutrient Management Act, Fertilizers Act,

E-Coli < 1,000 CFU/g (dry solids).

All municipal biosolids that are land applied must meet safety standards for trace metals, pathogen indicators, dioxins and furans and pesticide residues if applicable


Transfer from Truck to Field Applicator


Fertilizer (Class A Biosolids) Land Application

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Long List of Alternative Solutions Evaluation

Alternative Number	Alternative Solution	Meets 2051 Growth Requirements?	Feasible Solution?
1	Do Nothing	**No**	**No** *Ruled out*
2	2016 Master Plan (ISMP) Solution – Aerobic digestion and thickening of Simcoe Biosolids, and repurposing of the Simcoe WWTP anaerobic digesters for storage of biosolids from Simcoe, and excess biosolids from Port Rowan and Port Dover WWTPs in future	**No** *•Meets only 2041 planning horizon* *•Did not include Delhi and Waterford WWTPs* *•2019 Delhi WWTP was added*	**No** *Ruled out due to high cost & failure to provide a complete solution for the County*
3	Centralized (for all WWTPs) Anaerobic Digestion and Biosolids Storage with Thickening at Simcoe WWTP	**Yes**	**Yes** *Carried Forward*
4	Centralized (for all WWTPs) Thermal Hydrolysis Process (THP) Stabilization and Biosolids Storage at Simcoe WWTP	**Yes**	**Yes** *Carried Forward*

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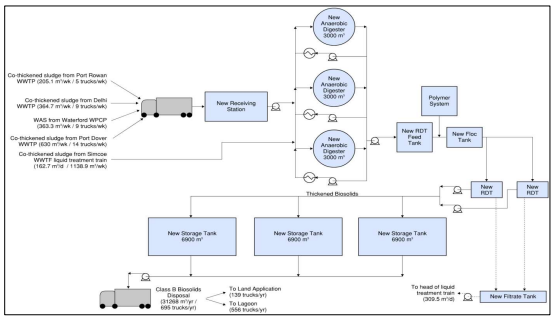
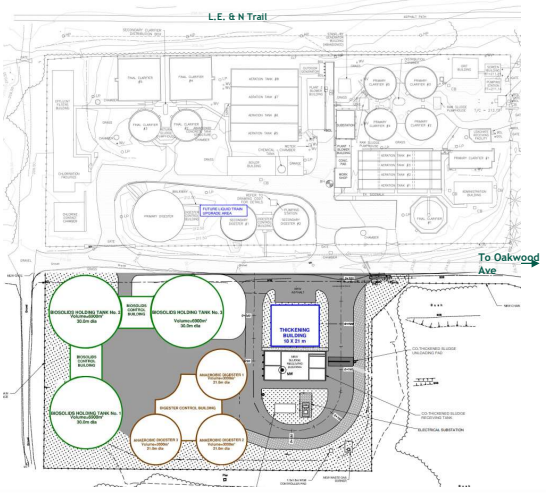
Short Listed Alternative Solution 3 – Centralized Anaerobic Digestion and Biosolids Storage with Thickening at Simcoe WWTP



Proposed Process Flow Schematic



Preliminary Site Layout

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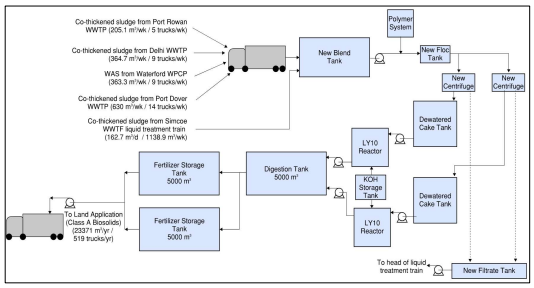
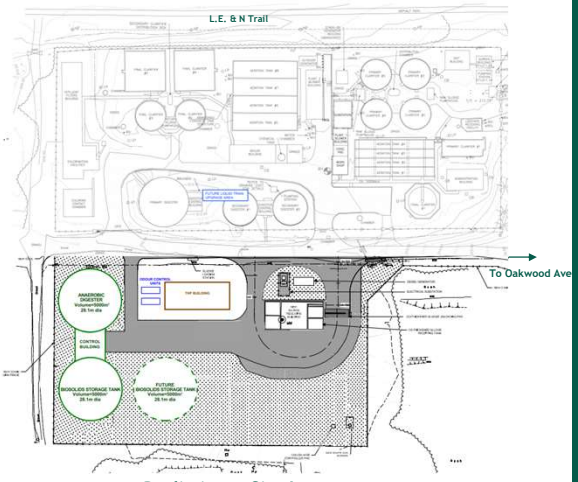
Short Listed Alternative Solution 4 – Centralized Thermal Hydrolysis Process Stabilization and Biosolids Storage at Simcoe WWTP



Proposed Process Flow Schematic



Preliminary Site Layout

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Technical Feasibility Comparison

Alternative Solution 3 – Centralized Anaerobic Digestion

- Produces Class B biosolids, with higher pathogen levels - less ideal for reuse near communities
- Odours can be more noticeable, potentially affecting nearby residents
- Limited operating flexibility as all system components need to be sized to ultimate 2051 flows and loadings, which will impact short term performance if growth is delayed
- Treatment process produces larger volume of biosolids, requiring more trucks (4/week) for hauling compared to THP process and requires larger storage capacity (e.g., 240 days) - increasing land and footprint needs

Alternative Solution 4 – Centralized Thermal Hydrolysis Process

- Advanced treatment delivers Class A biosolids, safest for community and environment
- Significantly reduces pathogens and odours, minimizing nuisance to neighbors
- Higher operating flexibility allows system run time to be adjusted to increase treatment capacity, having no impact on short term performance
- Onsite storage is not regulated - treatment process produces lower volume of biosolids, requiring fewer trucks for hauling and reducing overall storage requirements - smaller footprint, less land use

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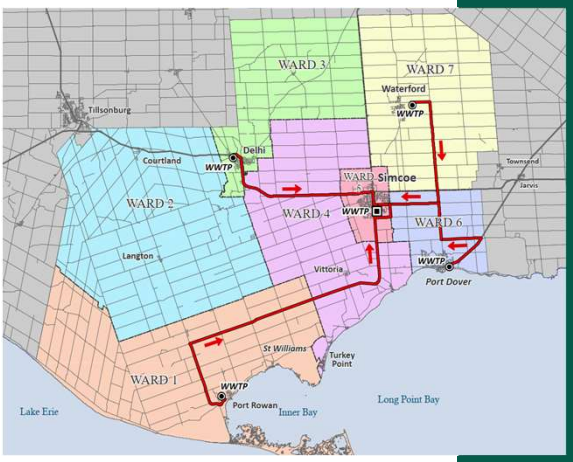
2051 Biosolids Management Forecast (Future)

Wastewater Treatment Plants	Design Capacity Forecast (ADF m3/d)	Sludge Production Forecast (m3/d)	# Sludge trucks per week to Simcoe	# Biosolids trucks to land per week from Simcoe Alternative 3	# Fertilizer trucks to land per week from Simcoe Alternative 4
Simcoe	15,400	4,475	Sludge Treated on Site	14	10
Delhi	3,182	1,563	9	0	0
Waterford	3,500	779	8	0	0
Port Dover	7,500	1,889	14	0	0
Port Rowan	2,280	790	4	0	0
Norfolk County Totals	**31,862**	**9,496**	**35**	**14**	**10**



Truck Route for Sludge Hauling with County-wide Biosolids Management Facility at Simcoe WWTP

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Financial Impact Comparison

Indicator / Alternative	Alternative 3 – Centralized Anaerobic Digestion and Biosolids Storage with Thickening at Simcoe WWTP	Alternative 4 – Centralized Thermal Hydrolysis Process Stabilization and Biosolids Storage at Simcoe WWTP
Capital Cost	$100,330,000*	$56,264,000*
Annual Operation and Maintenance Cost	$530,000**	$915,000**
27-year Life Cycle Cost (to 2051)	$121,305,000	$92,455,000

Recommended Preferred Alternative

** Proposed Access Road worth $7M-$9M is not included in the capital cost*
*** Annual Operation and Maintenance Costs including core process elements for each alternative for comparison purposes*

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Detailed Evaluation of Short-listed Alternatives

Evaluation Criteria	Alternative 3 – Centralized Anaerobic Digestion and Biosolids Storage with Thickening at Simcoe WWTP	Rating	Alternative 4 – Centralized Thermal Hydrolysis Process Stabilization and Biosolids Storage at Simcoe WWTP	Rating
Environmental	• Reduction in current CO_2 emissions • Produces lower quality **Class B** biosolids – E. coli levels must be < 2,000,000 CFU/g • A Non-Agricultural Source Material (NASM) Plan is required for an agricultural operation/ application • Storage at Townsend lagoons required when land application is not feasible	◑	• Reduction in current CO_2 emissions • Achieves **Class A** biosolids standard – E. coli < 1,000 CFU/g; produces higher quality biosolids • Pathogen and Odour Reduction • Storage at Townsend lagoons no longer required • Enhanced Biogas Production which will be used for energy recovery	◔
Social	• Higher biosolids volume to be hauled from Simcoe WWTP (14 trucks per week) • Increased incoming sludge truck traffic (35 trucks/week) than current operation	◑	• Lower biosolids volume to be hauled from Simcoe WWTP (10 trucks per week) • Increased incoming sludge truck traffic (35 trucks/week) than current operation	◔
Economic	• Higher capital cost • Lower operating cost • Higher life cycle cost	●	• Lower capital cost • Higher operating cost • Lower life cycle cost	◑

Technical	• Follows NASM regulatory requirements
	• Product quality will restrict its use
	• 240 days of storage and a larger storage footprint
	• Lower operational risk:
	  • Operating temperatures (<40C)
	  • Process includes gas emissions and explosion risk
		◑	• Follows Canadian Food Inspection Agency (CFIA) regulations
			• Pathogen destruction
			• Product quality will not restrict its use
			• Operational flexibility for increased capacity
			• Higher operational risk:
			  • Operating temperatures (<100C)
			  • Process includes high speed rotating equipment, chemical use, gas emissions, explosion risk
				◑

Planning	• Larger footprint with no room for future expansion	◑	• Smaller footprint with room for future expansion	◔

Legend: Most preferred ○ ◔ ◑ ◕ ● Least Preferred

Recommended Preferred Alternative

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Recommended Preferred Solution: Alternative 4 – Centralized Thermal Hydrolysis Process Stabilization and Biosolids Storage at Simcoe WWTP

New Norfolk County Biosolids Management Facility to be located east of the Simcoe WWTP - Phase 1 Upgrades

Facility will receive biosolids from all other WWTPs in Norfolk County to produce a Class A product

- Suitable for use as a fertilizer with minimal restrictions
- Proven through testing to produce Class A quality and low PFAS concentrations

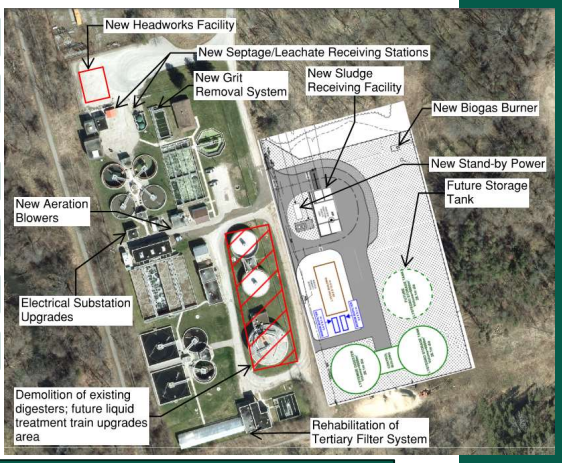
Overall sludge truck traffic will increase to a total of 35 trucks (in and out) per week on average

A new access road will be constructed to mitigate traffic impacts on the surrounding community

Highest economic benefit of all options, with lower life cycle costs

Planned Simcoe WWTP Phase 2 upgrades to support the biosolids facility will include

- New headworks facility with screening and grit separators
- New septage, raw sewage and leachate receiving stations
- Electrical substation and stand-by power unit
- Sludge recirculation pumping stations



Alternative 4 has been identified as the preferred solution, offering the best overall balance of environmental protection, community benefit, cost efficiency, and long-term planning

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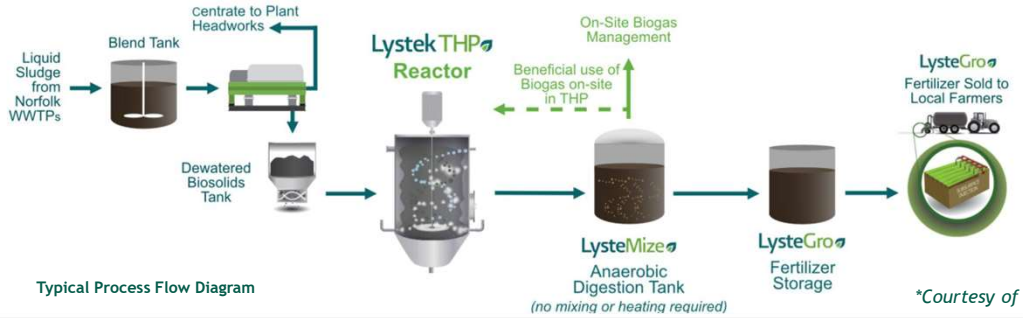
Typical Thermal Hydrolysis Process Application

Dewatering centrifuge and dewatered biosolids tank

Odour Control Unit

Typical THP Building

Storage Tanks



Typical Process Flow Diagram

*Courtesy of Lystek

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Proposed Access Road – Phase 1 Upgrades

Projecting up to twice as many trucks entering and leaving the plant by 2051

The current Oakwood Avenue access is not feasible for future increased truck traffic due to:

- Restricted truck access times due to school drop offs/pickups means increased truck traffic during other times
- Safety concerns for both public and operations staff

Proposing a new access road, approximately 1km long, from either Victoria Street or Sherman Avenue to the plant. Alignment feasibility under review, pending Class EA completion

Traffic impact mitigation includes controlled hauling routes that divert heavy trucks away from sensitive areas near the school and cemetery to improve road safety and reduce disturbances

Scope includes a road extending to the south side of the plant, with width and construction designed to meet municipal standards and accommodate safe, two-way traffic

The road alignment will be designed to prioritize the preservation of existing trails and natural areas

The design will accommodate potential future plant expansions or infrastructure upgrades, ensuring long-term value and operational flexibility

Additional cost estimated between $7M and $9M, depending on site conditions and mitigation measures (slope, watershed, soil type)

*Includes leachate, septage, raw sludge, chemical delivery, and sludge trucks
**Includes trucks for leachate, septage, raw sludge and chemical deliveries

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Archaeological Assessment

- The Stage 1 Archaeological Assessment showed that parts of the Project Area have archaeological potential, and a Stage 2 assessment is required due to:
  - 16 previously registered archaeological sites within 1km
  - Water sources within 300m (Lynn River)
  - Elevated topography (Lynn River Terrace)
  - Early settlements within 100m (possible homesteads)
- Norfolk County is committed to completing the Stage 2 assessment prior to any construction activities

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Natural Environment Assessment

- 35 species of birds and 2 mammal species observed. Species at Risk were seen near south-west corner of existing site (possibly outside construction area):
  - Red-headed Woodpecker (endangered)
  - Chimney Swift (threatened)
- Preliminary vegetation assessments characterized the property as primarily cultural meadow habitat with deciduous-dominant mixed woodlands adjacent

Existing L.E. & N Trail West of Study Area

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Potential Impacts and Proposed Mitigation

Short-Term Construction Impacts Noise, Dust, Traffic, Vibration, Public and Workers Safety	• Health and safety is a priority to the County. All construction will adhere to strict safety guidelines • Traffic management controls will be maintained on surrounding streets • Construction activities will comply with local noise by-laws
Natural Environment Impacts	• Complete Stage 2 Archaeological Assessments to ensure no archaeological potential is disrupted • Ensure construction area is clear of nesting sites prior to start of work
Long-Term Community Impacts Odour Control, Traffic	• Implementation of odour, noise and emissions control measures to limit impact on surrounding community • Considering an alternative road to improve access to the plant as well as public and operational traffic safety

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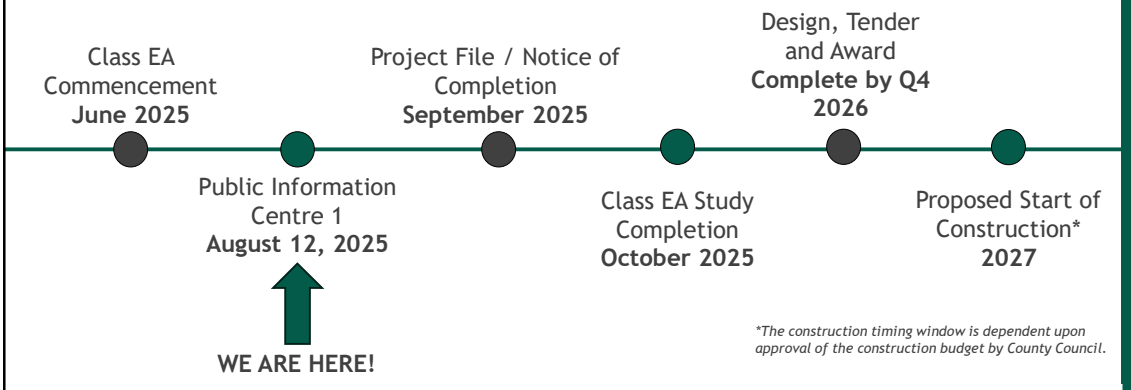
Project Timeline



**The construction timing window is dependent upon approval of the construction budget by County Council.*

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Next Steps

- Review and consider all input received from stakeholders and the community
- Confirm the preferred solution based on evaluation and feedback
- Release the Project File for a 30-day public review period
- Issue the Notice of Completion
- Proceed with the detailed design and engineering of the preferred solution
- Continue to engage with the community and provide updates throughout the project

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Thank you!

Comments or Questions?

Your questions and comments are greatly appreciated!

Please email them by September 9, 2025, to:
Paolo Oddi, Project Manager
paolo.oddi@norfolkcounty.ca

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