



COMMITTEE OF THE WHOLE - GENERAL

Tuesday, April 21, 2026, 6:00 p.m.

	Pages
1. CALL TO ORDER	
2. ADOPTION OF AGENDA	
3. CONFLICT OF INTEREST	
4. CLOSED SESSION	
Governance Review - Closed meeting to consider matters that qualify under the Municipal Act 2001 Section 239(2)(k) a position, plan, procedure, criteria or instruction to be applied to any negotiations carried on or to be carried on by or on behalf of the municipality or local board.	
5. MEMBERS' ANNOUNCEMENTS	
6. DELEGATIONS	
6.1 Non-Agenda Delegations	
6.1.1 Harry Schlange - Restructuring Governance in Niagara-on-the-Lake and the Region of Niagara	3
6.1.2 St. Davids Ratepayers Organization - Value Engineering Workshop for Refurbishing the St. David's Pool	6
6.2 Agenda Delegations	
7. RESPONSE TO DELEGATIONS	
8. PRESENTATIONS	
9. RECOMMENDATION REPORTS	
9.1 Lease Renewal Agreement - 176 Wellington Street, CPS-26-006	17
9.2 Invasive Species Management Plans, OPS-26-010	21
9.3 Encroachment Agreement for 61 Melville Street, OPS-26-011	214
9.4 Fire Code Administrative Monetary Penalties Adoption, CPS-26-003	227
9.5 Revised Recommendation Report - 263 Concession 6 Road – Zoning By-law Amendment Application (ZBA-18-2024), PBDS-26-003	233
9.6 Pickleball Courts – Update and Next Step, CPS-26-009	261
10. INFORMATION REPORTS AND INFORMATION ITEMS	

10.1	Tree Canopy Coverage and Planting Initiatives - OPS-26-009	265
10.2	Winter Weather Event Policy - OPS-26-012	306
10.3	News Release - Niagara's Mayors Welcome Provincial Action on Regional Council Reform Deferred from the April 14, 2026 Committee of the Whole - Planning Meeting.	314
10.4	News Release - Niagara Region Council Votes to Launch Made-in-Niagara Governance Review, Putting Taxpayers First Deferred from the April 14, 2026 Committee of the Whole - Planning Meeting.	317
10.5	News Release - Town Council Approves Motion to Reduce Niagara-on-the-Lake Council Size Deferred from the April 14, 2026 Committee of the Whole - Planning Meeting.	319
10.6	Town Statement - Town Provides Update on Royal George Theatre Judicial Review Deferred from the April 14, 2026 Committee of the Whole - Planning Meeting.	321
10.7	2025 Legal Expenditure Disclosure - CS-26-016	322
11.	NOTICE OF MOTION	
11.1	Councillor Mavridis - Notice of Motion - Developing a Comprehensive Lifecycle Strategy for Niagara-on-the-Lake	325
11.2	Councillor Vizzari - Notice of Motion - Active Transportation Connectivity in St. Davids	327
12.	ADJOURNMENT	

From: [Town of Niagara-on-the-Lake](#)
To: [Clerks](#)
Subject: Webform submission from: Delegation Request Form
Date: Sunday, March 29, 2026 7:04:27 PM

CAUTION: This email originated from outside the Town of Niagara-on-the-Lake. Use caution when clicking on a link or opening an attachment, unless you were expecting it or know that the content is safe. Forward the email to IT to validate.

Submitted on Sun, 03/29/2026 - 19:04

Submitted by: Anonymous

Submitted values are:

Information

Name

harry schlange

Address

[REDACTED]

Email Address

[REDACTED]

Telephone Number

Cell: [REDACTED]

Presentation

Agenda Delegation

Non Agenda Delegation

Reason for Non-Agenda Delegation

Information to Council

Item

I have never spoken on this item before

Title of Non-Agenda Delegation or Agenda Number and Title of Agenda Delegation

An opportunity to balance financial affordability while addressing the emerging needs of Niagara on the lake and the region

Please provide an overview of the main point you will be speaking to:

speaking to a solution to addressing the affordability crisis by restructuring governance in Notl and the region

as a NOTL resident and property owner like the opportunity to present the data i provided in 2023 (but updated in 2025) that was mentioned by the former chair of region

In point form please provide an overview of any additional or supporting points you will be speaking to:

-providing data to advise the NOTL council of the problem that exists today and the forecast of higher increases.

-provide the evidenced based data for a potential solution that council should consider

Terms

I have read and understand the Delegation Protocol and acknowledge the information contained on this form, including any attachments, will become public documents and listed on Town Meeting Agendas. I also understand presentation materials including speaking notes and electronic presentations must be submitted by email to clerks@notl.com no later than 12:00 p.m. on the Monday prior the scheduled meeting.

Yes

Meeting Time

I wish to appear before:

Committee of the Whole

Date

Tue, 04/21/2026 - 00:00

Presentation Requirements

I acknowledge that my presentation must not include statements or materials that are:

- Intended for the sole purpose of generating publicity
- Related to litigation or potential litigation or to any matter which is currently before any court or administrative tribunal affecting the Town of Niagara-on-the-Lake
- Disrespectful towards Committee/Council members, Town employees or any other member of the community

I agree

Yes

Do you have a visual presentation (slideshow or photos) to accompany your delegation?

Yes

Delegation

I will be appearing:

In person

I agree to provide a copy of my speaking notes to clerks@notl.com no later than 12:00 p.m. on the Monday prior to the scheduled meeting.

Yes

I understand any presentation materials including electronic presentations must be submitted by email to clerks@notl.com no later than 12:00 p.m. on the Monday prior to the scheduled meeting in order to be displayed as part of my delegation. Late presentations will not accepted.

Yes

I acknowledge I have 10 minutes to delegate

Yes

I give permission to be audio and video recorded on the Town of Niagara on the Lake's livestream

Yes

Do you require any accommodations to support your participation (e.g., seating while presenting, accessible formats, or other supports)?

No

Privacy Disclaimer

I have read and understand the above Privacy Disclaimer.

Yes

From: [Town of Niagara-on-the-Lake](#)
To: [Clerks](#)
Subject: Webform submission from: Delegation Request Form
Date: Tuesday, February 24, 2026 3:07:23 PM

CAUTION: This email originated from outside the Town of Niagara-on-the-Lake. Use caution when clicking on a link or opening an attachment, unless you were expecting it or know that the content is safe. Forward the email to IT to validate.

Submitted on Tue, 02/24/2026 - 15:07

Submitted by: Anonymous

Submitted values are:

Information

Name

Mike Pearsall

Organization Name

St. Davids Ratepayers Organization

Address

[REDACTED]

Email Address

[REDACTED]

Telephone Number

Cell: [REDACTED]

Presentation

Agenda Delegation

Non Agenda Delegation

Reason for Non-Agenda Delegation

Request of Council

Item

I have never spoken on this item before

Title of Non-Agenda Delegation or Agenda Number and Title of Agenda Delegation

Value engineering workshop for refurbishing the St. David's pool.

Please provide an overview of the main point you will be speaking to:

The St. Davids Ratepayers Association would like to undertake a wholly voluntary workshop using value engineering principals to help create a design to yield a substantially reduced budget for an energy efficient and modern St. Davids Pool including a children-friendly component.

In point form please provide an overview of any additional or supporting points you will be speaking to:

We would like to invite town staff to participate where we will not seek more than 8 hours of staff time to obtain their contribution. As well, we seek cursory access to the facility in order to gather measurements and document existing equipment.

Terms

I have read and understand the Delegation Protocol and acknowledge the information contained on this form, including any attachments, will become public documents and listed on Town Meeting Agendas. I also understand presentation materials including speaking notes and electronic presentations must be submitted by email to clerks@notl.com no later than 12:00 p.m. on the Monday prior the scheduled meeting.

Yes

Meeting Time

I wish to appear before:

Committee of the Whole

Date

Tue, 04/21/2026 - 00:00

Presentation Requirements

I acknowledge that my presentation must not include statements or materials that are:

- Intended for the sole purpose of generating publicity
- Related to litigation or potential litigation or to any matter which is currently before any court or administrative tribunal affecting the Town of Niagara-on-the-Lake
- Disrespectful towards Committee/Council members, Town employees or any other member of the community

I agree

Yes

Do you have a visual presentation (slideshow or photos) to accompany your delegation?

Yes

Delegation

I will be appearing:

In person

I agree to provide a copy of my speaking notes to clerks@notl.com no later than 12:00 p.m. on the Monday prior to the scheduled meeting.

Yes

I understand any presentation materials including electronic presentations must be submitted by email to clerks@notl.com no later than 12:00 p.m. on the Monday prior to the scheduled meeting in order to be displayed as part of my delegation. Late presentations will not accepted.

Yes

I acknowledge I have 10 minutes to delegate

Yes

I give permission to be audio and video recorded on the Town of Niagara on the Lake's livestream

Yes

Do you require any accommodations to support your participation (e.g., seating while presenting, accessible formats, or other supports)?

No

Privacy Disclaimer

I have read and understand the above Privacy Disclaimer.

Yes

St Davids Pool & Alternatives

On Behalf of:

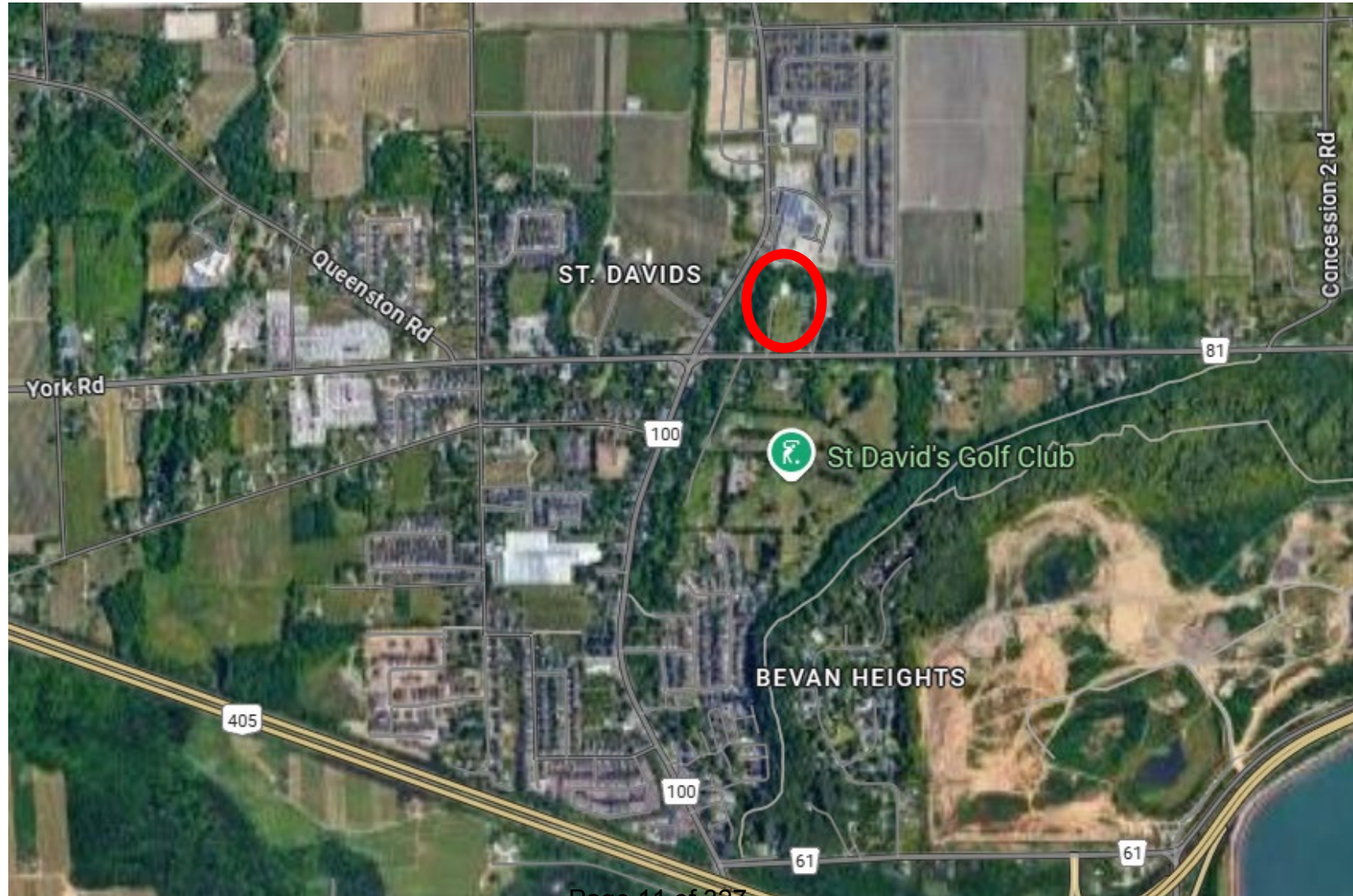
The St Davids Ratepayers Association (SDRA)

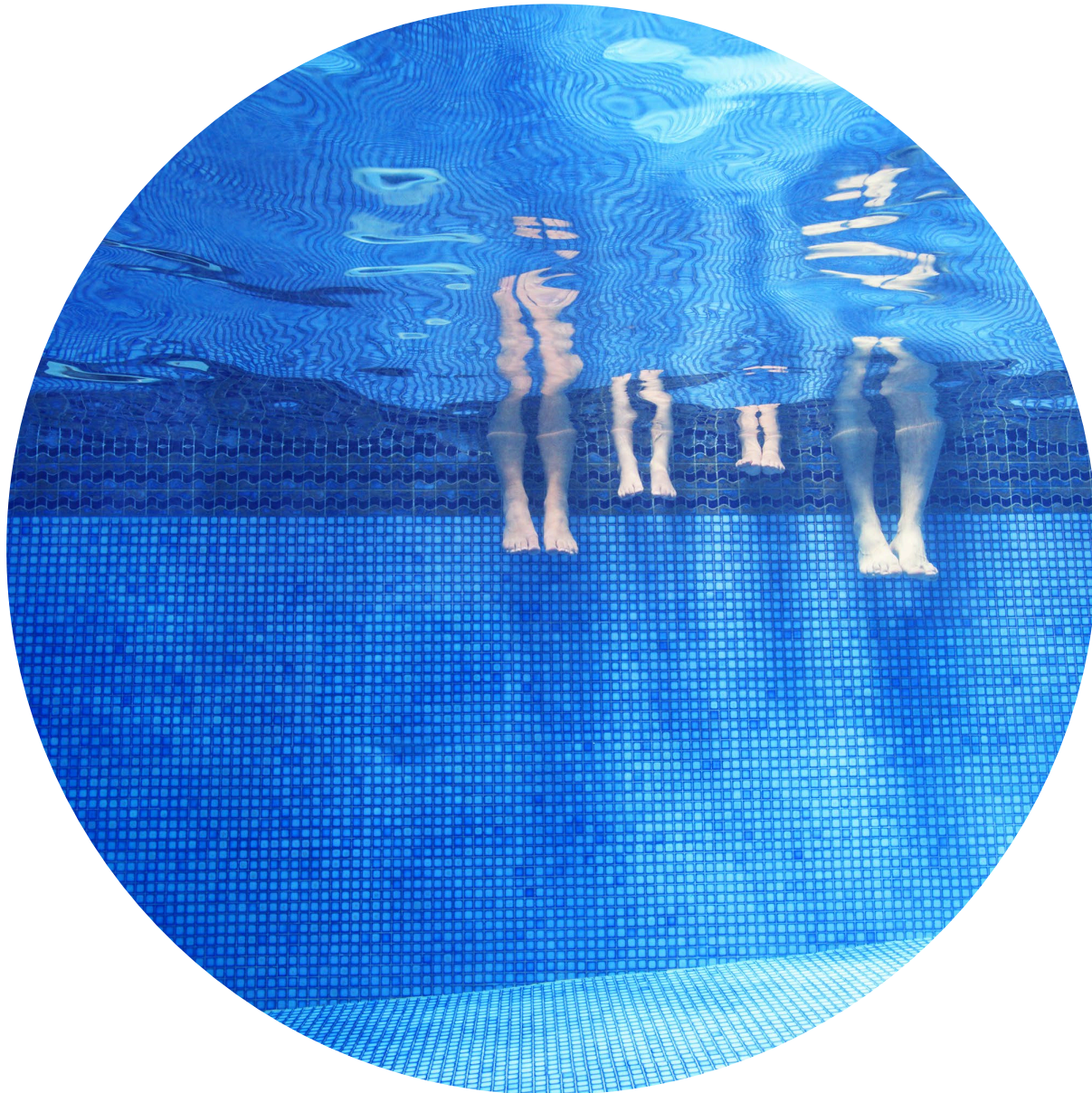


Why Are We Here?

- Community Pool Important to all Residents
 - Recreation
 - Exercise
 - Lessons
 - Attraction
- Aging Infrastructure / Limited \$\$

Location – Important to Community





Our Offer

- The St Davids Ratepayers Association (SDRA) wants to host a Value Methodology workshop to help the Town find the best value for maintaining or improving the local pool.
- Follow SAVE International guide
- SDRA will conduct 2-day workshop and report back to Council

What is the Value Methodology?

- Facilitated and creative process in a workshop.
- Generates alternative solutions.
- Involves people from a variety of backgrounds.
- Workshop involves six phases or steps.
- Workshop is 1 to 5 days.
- Pre and post workshop work is required.



“It is about stepping away from the current solution or process and ensuring that good value is achieved”

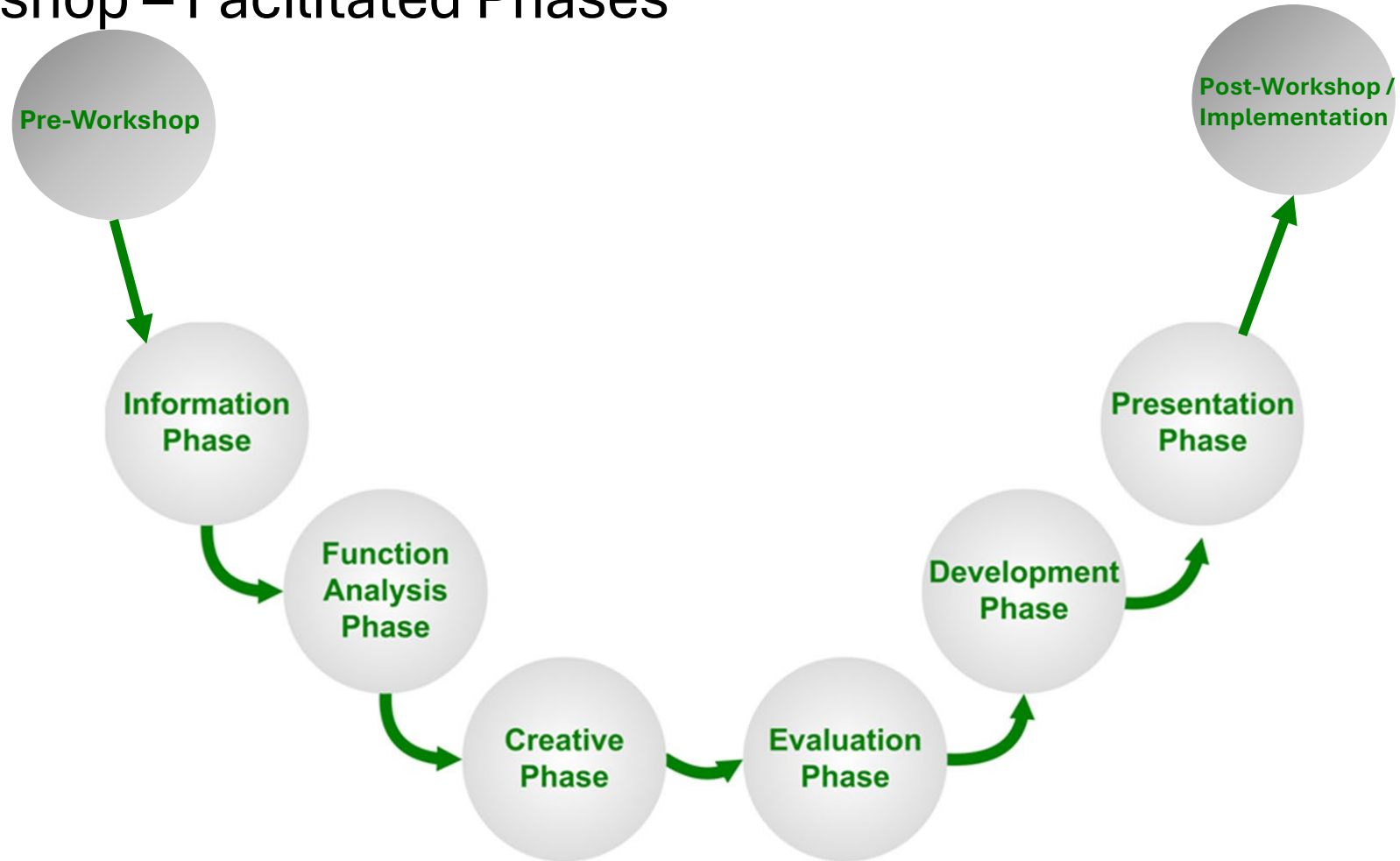
Why Use the Value Methodology?

- Everything has room for improvement - All projects, products and processes have unnecessary costs
- Helps teams:
 - Agree upon Key Needs
 - Maximize use of Resources
 - Foster Innovation
 - Manage Risk
 - Improve Performance
 - **Decrease Uncertainty**
- The Value Methodology (VM/VE/VA) is a structured approach to innovation and innovation is key to delivering public services in a fiscally constrained environment.



The Value Engineering Workshop – Facilitated Phases

- Information
- Function Analysis
- Creative
- Evaluation
- Development
- Presentation





Our Ask?

- SDRA would like access to pool facility to gather information to use in the workshop
- SDRA would like access to any recent reports on the condition of the existing pool
- SDRA would like access to the most recent design brief for the proposed replacement



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: CPS-26-006 **COMMITTEE DATE:** 2026-04-21
REPORT TO: Council **DUE IN COUNCIL:** 2026-04-28
SUBJECT: Lease Renewal Agreement -176 Wellington Street

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 Council **RECEIVES** Report CPS-26-006;
- 1.2 The Lord Mayor and Town Clerk **BE AUTHORIZED** to execute the Lease Renewal Agreement (**Appendix I**) between the Corporation of the Town of Niagara-on-the-Lake and Terry Harford RMT.

2. EXECUTIVE SUMMARY

- Terry Harford RMT has leased space at 176 Wellington Street since 2020.
- Lease renewals and interim extensions have allowed the business to remain in the space through June 30, 2026.
- Staff recommend executing a lease renewal with Terry Harford RMT until June 30, 2027, while Council continues to evaluate the long-term future of the property.

3. PURPOSE

The purpose of this report is to request Council's approval to execute a Lease Renewal Agreement (**Appendix I**) between the Town (Lessor) and Terry Harford RMT (Lessee) for a Town-owned space at 176 Wellington Street.

4. BACKGROUND

The Town purchased the property located at 176 Wellington Street from the Niagara Health System in March 2017. Approximately three years later, the Town began leasing a portion of the building to Terry Harford RMT, who has continued to occupy the space. Staff have continued to extend the lease while Council reviews potential long-term uses of the property.

5. DISCUSSION / ANALYSIS

As Council continues to evaluate potential long-term uses for the site, staff recommend executing a Lease Renewal Agreement to extend the existing tenancy with Terry Harford RMT to June 30, 2027, providing continuity while maintaining flexibility for future decisions regarding the property.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

3. Enrich Community Assets, Environment, & Infrastructure

Priority
3.3 Infrastructure

Action
3.1 a) Assets

7. OPTIONS

- 7.1 **Option 1:** Council approves the 176 Wellington Street Lease Renewal Agreement between the Town of Niagara-on-the-Lake and Terry Harford RMT. *(Recommended)*
- 7.2 **Option 2:** Council does not approve the 176 Wellington Street Lease Renewal Agreement, directs staff to provide notice to the Tenant to vacate in accordance with the lease terms. *(Not Recommended)*

8. FINANCIAL IMPLICATIONS

The proposed Lease Renewal Agreement includes a 5% increase in the monthly rent, effective January 2027, generating additional rental revenue for the Town for the duration of the agreement.

9. ENVIRONMENTAL IMPLICATIONS

There are no environmental implications associated with the proposed Lease Renewal Agreement.

10. COMMUNICATIONS

Upon Council's approval of the 176 Wellington Street Lease Agreement between the Town of Niagara-on-the-Lake and Terry Harford RMT, staff will communicate Council's decision to Terry Harford RMT.

11. CONCLUSION

Renewing the Lease with Terry Harford, RMT, provides operational stability for the tenant while allowing the Town to continue evaluating the long-term future of the property at 176 Wellington Street. Extending the term to June 30, 2027, ensures the space remains occupied and maintained while supporting cost recovery for the Town. Staff recommend approval of the Lease Renewal Agreement.

12. PREVIOUS REPORTS

N/A

13. APPENDICES

- Appendix I – Lease Renewal Agreement 2026

Respectfully submitted:

Prepared by:



Jay Plato
Director / Fire Chief
Community & Protective Services

Submitted by:



Nick Ruller, M.A.
Chief Administrative Officer

LEASE AMENDING AGREEMENT

176 Wellington Street

THIS LEASE AMENDMENT AGREEMENT made this ____ day of _____, 2026.

BETWEEN:

THE CORPORATION OF THE TOWN OF NIAGARA-ON-THE-LAKE (the
“Landlord”)

and

TERRY HARFORD RMT (the “Tenant”)

WHEREAS The Landlord and Tenant entered into a Lease dated July 1, 2023, for the premises municipally known as 176 Wellington Street, Niagara-on-the-Lake, being approximately 288 square feet of interior space in the basement of the building (the “Premises”).

AND WHEREAS The Lease term expired on June 30, 2024, and the Tenant has continued possession of the Premises pursuant to written holdover agreements between parties.

AND WHEREAS the parties wish to amend the Lease to extend the term and adjust the rent, with all other provisions of the Lease remaining unchanged unless expressly amended herein.

1. EXTENSION OF TERM

- 1.1 The parties acknowledge that the Tenant is currently in possession pursuant to written holdover agreements. The Lease is hereby amended to provide that the Term shall continue and expire on June 30, 2027. (“Extended Term”).
- 1.2 The Tenant shall continue to occupy the Premises on the same terms and conditions as contained in the Lease, except as amended by this Agreement.

1.3 Notwithstanding the foregoing, the Landlord may terminate the Lease at any time during the Extended Term upon providing four (4) months' written notice to the Tenant.

2. RENT

- 2.1. Effective January 1, 2027, the annual Rent payable by the Tenant shall be increased by five percent (5%) over the Rent set out in the existing Holdover Agreement.
- 2.2. The Tenant shall continue to pay Rent in accordance with the payment terms set out in the Lease.

3. CONFIRMATION OF LEASE

- 3.1 Except as expressly modified by this Agreement, all other terms, conditions, covenants, and schedules of the Lease remain unchanged and in full force and effect.
- 3.2 This Agreement forms part of and amends the Lease and shall bind the parties and their successors.

4. COUNCIL APPROVAL

- 4.1 This Agreement is subject to approval and execution by the Lord Mayor and Town Clerk in accordance with the Landlord's delegated authority requirements.

IN WITNESS WHEREOF the parties have executed this lease as of the above date.

THE CORPORATION OF THE TOWN OF NIAGARA-ON-THE-LAKE

Per:

Gary Zalepa -Lord Mayor

Grant Bivol -Town Clerk

TERRY HARFORD - RMT



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: OPS-26-010 **COMMITTEE DATE:** 2026-04-21
REPORT TO: COTW-General **DUE IN COUNCIL:** 2026-04-28
SUBJECT: Invasive Species Management Plans

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 Council **APPROVES** the Invasive Species Management Plan (ISMP) and supplemental Priority Species Control Plan;
- 1.2 Council **DIRECTS** Staff to identify and prioritize site-specific invasive species workplans based on operational experience and risk to municipal infrastructure and public safety;
- 1.3 Council **DIRECTS** Staff to establish an invasive species monitoring program, including volunteer participation, to support mapping and early detection; and
- 1.4 Council **DIRECTS** Staff to develop or adopt additional Priority Species Control Plans, as required, to address emerging or escalating invasive species risks.

2. EXECUTIVE SUMMARY

- The purpose of this report is to present Council with a new Invasive Species Management Plan and a supplemental Priority Species Control Plan.
- The proposed Plans intend to establish a coordinated, Town-wide framework for invasive species management while recognizing that each species is unique in biology, which can differ in control activities and mitigation strategies.
- The Plans encompass best management practices and the most current data from established federal, provincial, and sector organizations.
- The Plans allow Staff to proactively respond to invasive species to protect infrastructure, public safety, and environmental stewardship.

3. PURPOSE

The purpose of this report is to seek Council approval of the Town's Invasive Species Management Plan and supplemental Priority Species Control Plan. Together, they provide a structured framework to detect, manage, and reduce invasive species impacts on municipal lands.

4. BACKGROUND

The Town does not currently have a formal, coordinated approach to invasive species management, despite increasing impacts on municipal operations, natural heritage, and community safety. Staff routinely encounter challenges, including impaired access to infrastructure, degraded natural areas, safety hazards, sightline obstructions, and rising maintenance and removal costs, including losses associated with Emerald Ash Borer and the spread of phragmites. Across Ontario, municipalities and Conservation Authorities spend an estimated \$50.8 million annually on invasive species, with the average municipality spending \$28,976 per year ([Invasive Species Centre](#)). These pressures are expected to intensify with climate change, land-use change, and site disturbance, stressing the scale of the issue.

In response, Council identified the development of an Invasive Species Management Plan (ISMP) as a Strategic Plan priority. The ISMP aligns with the Official Plan, Climate Change Adaptation Plan, and applicable federal and provincial legislation and strategies. Together, the ISMP, supported by a Priority Species Control Plan, will enable the Town to shift from reactive to proactive management while strengthening long-term environmental and community resilience.

5. DISCUSSION / ANALYSIS

The Invasive Species Management Plan (ISMP) and supplemental Priority Species Control Plan establish a coordinated, evidence-based framework to address the ecological, operational, and financial risks posed by invasive species on municipal lands. The Plans emphasize prevention, early detection, and targeted management while aligning with best management practices from recognized organizations and applicable legislative and policy requirements.

The Priority Species Control Plan focuses resources on a defined set of high-risk invasive species that pose the greatest threat to municipal infrastructure, public safety, natural heritage, and agriculture. Priority species were selected based on Staff expertise, local experience, and assessment of ecological, operational, and economic risk. The approach is intentionally flexible, allowing priorities to evolve, additional species-specific plans to be developed, and resources to be reallocated as new threats emerge.

The Plans were informed through consultation with the Niagara Phragmites Management Area Collaborative, the Environmental Advisory Committee, and the Agricultural Advisory Committee, as well as internal review across multiple departments. Implementation will improve coordination, support public education and stewardship, and provide staff with clear operational direction to manage invasive species proactively and effectively.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

3. Enrich Community Assets, Environment, & Infrastructure

Priority

3.2 Environment

Action

3.2 a) Sustainable Natural Environment

Pillar

4. Optimize Organizational Excellence

Priority

4.1 Streamline & Modernize

Action

4.1 a) Streamline Processes

7. OPTIONS

- 7.1 **Option 1:** Council approve the Invasive Species Management Plan and supplemental Priority Species Control Plan. **(Recommended)**
- 7.2 **Option 2:** Council continue without a formal invasive species management plan. Not recommended as invasive species pressures are increasing, and the absence of a formal plan would continue to expose the Town to escalating ecological, operational, and financial risks. *(Not Recommended)*

8. FINANCIAL IMPLICATIONS

No additional operating or capital costs are anticipated from adopting the Plans. The Invasive Species Management Plan formalizes and coordinates existing practices within current departmental roles and integrates invasive species management into ongoing operations such as road maintenance and planning approvals. Adoption also strengthens the Town's eligibility for external grant funding and may support future policy tools to offset long-term costs and reduce financial risk associated with unmanaged invasive species.

It is important to note that once the Plans are in place, there may be future budget impacts to help in the mitigation of the invasive species.

9. ENVIRONMENTAL IMPLICATIONS

Approval of the Plans will enhance the Town's ability to protect natural heritage features, agricultural lands, and municipal infrastructure through prevention, early detection, and targeted control of invasive species. By aligning with best management practices and provincial legislation, the Plans support biodiversity protection, ecosystem function, and long-term environmental resilience.

Without adoption, invasive species management would remain reactive and fragmented, increasing the likelihood of unmonitored spread, environmental degradation, higher remediation costs, and missed opportunities for early intervention. Non-adoption would also undermine the Town's climate resilience and sustainability objectives.

10. COMMUNICATIONS

Upon approval, the Plans will be posted on the Town's website and communicated to all Staff. Public-facing communications, including social media, will support education, prevention, and reporting of invasive species.

11. CONCLUSION

Approval of the Invasive Species Management Plan and supplemental Priority Species Control Plan will provide a clear, proactive, and coordinated approach to invasive species management across the Town. Staff recommend approval of the attached Plans to protect municipal assets, natural heritage, and community well-being.

12. PREVIOUS REPORTS

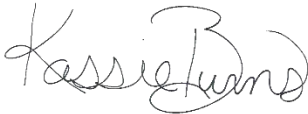
N/A

13. APPENDICES

- Appendix I – Invasive Species Management Plan
- Appendix II – Invasive Species Management: Priority Species Control Plan

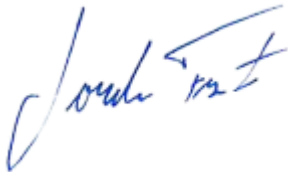
Respectfully submitted:

Prepared by:



**Kassie Burns
Climate Change Coordinator**

Recommended by:



**Jordan Frost
Director of Public Works &
Infrastructure Services**

Recommended by:



**Darren MacKenzie
Manager of Public Works**

Submitted by:



**Nick Ruller, M.A.
Chief Administrative Officer**

Invasive Species Management Plan

2026



Table of Contents

Section 1: Introduction	1
Section 2: Prevention	8
Section 3: Best Management Practices	19
Section 4: Management Framework & Action	41
Connect with the Town	52
References	53
Appendix	55

Section 1: Introduction

What are invasive species?

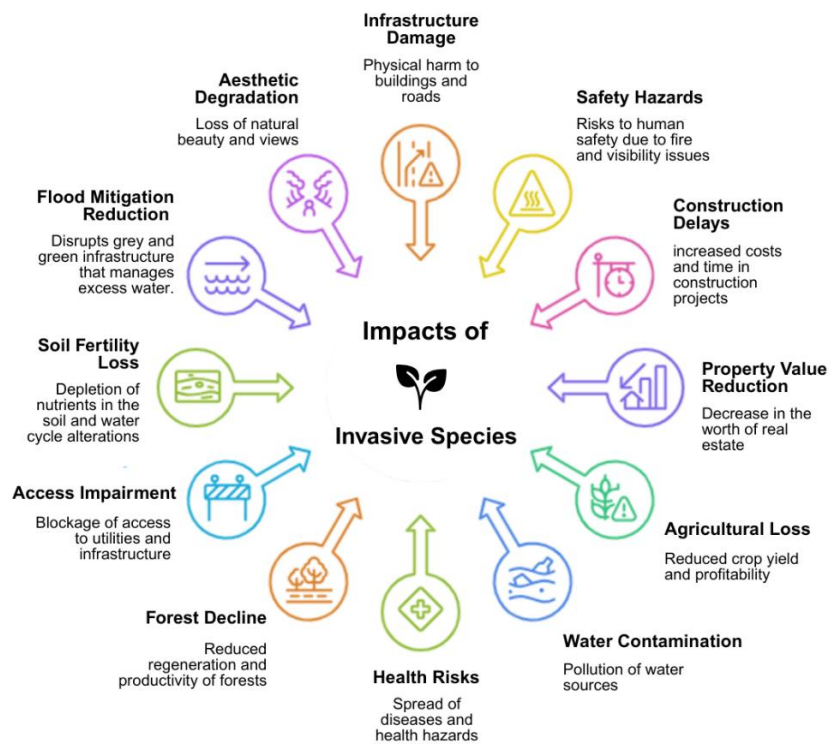
Invasive species are organisms that do not originate from a local area and, when introduced to a new environment, cause harm to the ecosystem, economy, or human well-being. Invasive species are characterized by outcompeting native species, disrupting natural ecosystems.

Their enormity created the *Invasive Species Act*, 2015, S.O. 2015, c. 22 - Bill 37, which states “invasive species” means a species that is not native to Ontario, or to a part of Ontario, and,

- (a) Is harming the natural environment of Ontario or of the part of Ontario in which it is present; or,
- (b) Is likely to harm the natural environment of Ontario or of a part of Ontario, regardless of whether it is present in Ontario or in a part of Ontario

Why are they important to manage?

Invasive species reproduce at alarming rates, and without proper management, they can quickly dominate and overwhelm landscapes and ecosystems. Municipalities and conservations authorities approximately spend **\$50.8 million / year** on invasive species in Ontario, with an average Township spending **\$28,976 / year** ([Invasive Species Centre](#)).



Introduction

Key Legislation

Both federal and provincial legislation exists that regulates invasive species to prevent and control populations.

Legislation	Purpose
Plant Protection Act (Federal)	“To protect plant life and the agricultural and forestry sectors of the Canadian economy by preventing the importation, exportation and spread of pests and by controlling or eradicating pests in Canada”.
Invasive Species Act (Provincial)	“Sets out a legislative framework that provides for the identification of invasive species that threaten Ontario’s natural environment, including mechanisms for detecting the appearance of invasive species and bringing them within the legislative framework as quickly as possible after they first appear”.
Weed Control Act (Provincial)	Regulates the designation and management of noxious (harmful, destructive) weeds in Ontario.

**Note: Other legislation exists both federally and provincially that focuses on invasive species, listed in the appendix.*

Key Agency Roles

Multiple groups play a role in invasive species management, from resource- and collaboration-focused organizations to federal and provincial regulators.

Agency / Partner	Role / Mandate	Legislation / Framework	Contact
Canadian Food Inspection Agency (CFIA)	Federal lead for detection, surveillance, and response to invasive pests or diseases (e.g., oak wilt, spotted lanternfly, hemlock woolly adelgid).	Plant Protection Act	Phone: 905-937-7434 Address: 10-350 Ontario Street, St. Catharines, ON L2R 5L8 Online Contact Form
Pest Management Regulatory Agency’s (PMRA)	Registers and re-evaluates pesticide products on the market in Canada, while promoting sustainable pest management.	Pest Control Products Act	Phone: 613-996-9231 Address: 2 Constellation Drive Ottawa, ON K1A 0K9 Email: pmra.info-arla@hc-sc.gc.ca
Ministry of Environment, Conservation and Parks (MECP)	Get, renew, replace or update information on an exterminator or operator licence and permits to apply pesticides in Ontario.	Pesticides Act; O. Reg. 63/09	Phone: 416-314-8001 Address: 135 St. Clair Avenue West, Toronto, ON M4V 1P5

Agency / Partner	Role / Mandate	Legislation / Framework	Contact
Ministry of Agriculture, Food, and Agribusiness (OMAFRA)	Monitors agricultural invasive species; outreach via tree banding, newsletters, blogs, and presentations; supports insecticide research.	Provincial ministry mandate	Phone: 519-826-3100 Email: ag.info.omafra@ontario.ca
Ministry of Natural Resources	Lists prohibited and restricted invasive species, provides educational material and resources	Invasive Species Act; Invasive Species Strategic Plan	Phone: 1-800-563-7711
Natural Resources Canada (NRCan)	Researches invasive species biology and cold tolerance to inform management strategies.	Federal department mandate	Phone: 1-343-292-6098
Agriculture and Agri-Food Canada (AAFC)	Supports surveillance, funds research, coordinates with provinces and international partners.	Federal department mandate	Phone: 1-855-773-0241
Invasive Species Centre (ISC)	Provides resources, training, and support for invasive species prevention and management across Ontario/Canada.	Non-profit, collaborative with governments	Phone: 705-541-5790 Email: info@invasivespeciescentre.ca Website: invasivespeciescentre.ca
Ontario Invasive Plant Council (OIPC)	Promotes awareness and best practices for managing invasive plants through training, guides, and collaboration.	Non-profit, provincial network	Email: info@oninvasivespecies.ca Website: ontarioinvasiveplants.ca

Introduction

Niagara Agency Roles

There are several agencies in the Niagara Region specifically that contribute to invasive species management, including the Town of Niagara-on-the-Lake, that offers local opportunities for collaboration.

Agency / Partner	Role / Mandate	Legislation / Framework	Contact
Town of Niagara-on-the-Lake (NOTL)	Municipal lead for invasive species detection and management on Town property and provides public education to support coordinated action.	Niagara-on-the-Lake Official Plan	Phone: 905-468-3266 Address: 1593 Four Mile Creek Road, Virgil, ON L0S 1T0 Email: info@notl.com Website: www.notl.com
Niagara Region	Leads management on regional lands, promotes native species, and supports collaboration with municipalities, agencies, and conservation groups.	Niagara Region Official Plan	Phone: 905-980-6000 Address: 1815 Sir Isaac Brock Way, ON L2V 4T7 Website: https://www.niagararegion.ca
Niagara Peninsula Conservation Authority (NPCA)	Manages invasive species in NPCA conservation areas on a priority basis, or as prescribed by CFIA. May provide resources, guidance or information to partners and individuals. Coordinates some collaborative working groups.	Conservation Authorities Act	Phone: 905-788-3135, Email: info@npca.ca Website: www.npca.ca
Niagara Phragmites Management Area Collaborative (PMAC)	Led by NPCA. Regional initiative (launched Feb 2025) coordinating phragmites control efforts among municipalities and local groups.	Regional collaborative	Contact via NPCA and NOTL
Niagara Invasive Species Strategy Advisory Committee	Led by NPCA. Developing a coordinated invasive species strategy for Niagara Region (launched Jan 2026).	Regional initiative (in development)	Contact via NPCA and NOTL

Introduction

Town Commitment and Current Practices

The Town of Niagara-on-the-Lake actively manages invasive species, identified as a key priority in **Council's Strategic Plan**, **Official Plan**, and **Climate Change Adaptation Plan**.

In recent years, the Town has focused on mechanically removing invasive phragmites, which have obstructed stormwater ponds and roadside ditches. Phragmites are among Canada's most damaging invasive species, costing Ontario municipalities on average **\$2.8 million annually** ([Invasive Species Centre, 2019](#)). In 2025, the Town expanded its efforts by hiring a contractor to treat stormwater ponds at Sandalwood, Bunny Glen, and Centennial Arena with Habitat Aqua herbicide, following best-practice control methods.

The Town has also addressed the significant loss of ash trees caused by the emerald ash borer, the most costly invasive species for Ontario municipalities, with average annual expenditures exceeding **\$22 million** ([Invasive Species Centre, 2019](#)). Hundreds of ash trees have been removed in Niagara-on-the-Lake and replaced through restoration initiatives such as the Trees 4 NOTL project, partnership with **Friends of One Mile Creek**, the **Niagara Peninsula Conservation Authority**, **Niagara-on-the-Lake**, and **Communities in Bloom Committee**.

Collaboration with **Federal and Provincial agencies** has supported early detection and prevention of emerging threats such as oak wilt and spotted lanternfly, through trap installations and monitoring by the Parks Division. The Site Alteration By-law further supports prevention by requiring soil inspection and proper disposal of invasive materials.

Town staff regularly participate in **training and educational workshops**, while the Communications Team promotes public awareness through campaigns and online resources. These efforts reflect the Town's commitment to protecting infrastructure, urban forests, green infrastructure, and community well-being.

New in 2025, Niagara-on-the-Lake joined the **Niagara Invasive Species Strategy Advisory Committee (ISSAC)** and the **Niagara Phragmites Management Area Collaborative (PMAC)**, strengthening regional cooperation and accelerating progress through shared expertise and resources.

Introduction

Town Commitment and Future Opportunities

The Town will continue to apply the latest research and best practices from leading organizations such as the [Invasive Species Centre](#) and the [Ontario Invasive Plant Council](#) to guide invasive species management.

Recognizing that invasive species impact all areas of municipal Divisions, from **By-law and Planning** to **Public Works and Communications**, the Town aims to strengthen a coordinated, corporate wide approach. This can include enhancing policies for proper disposal during development, prohibiting the planting of invasive species, and expanding monitoring and removal activities.

Prevention offers the greatest opportunity for long-term success. The Invasive Species Centre emphasizes that proactive investment in prevention is far more cost effective than addressing the economic impacts of invasive species once they become established. The Town can explore new **policies and procedures** for decontamination, and early detection and rapid response to limit the spread of invasive species.

Community engagement could also be prioritized through volunteer programs to survey and report invasive species, forming the foundation of a Town-wide **Invasive Species Program**. Data on sightings and management actions can be tracked through a **GIS database** to help identify priorities and allocate resources effectively. Increased **education and outreach**, through events, workshops, and resource distribution, would further support public awareness and participation. Community science platforms, including [iNaturalist](#) and [EDDMapS](#), can be used to support monitoring and early detection by tracking observations and generating alerts for priority invasive species within the Town.

Protecting Niagara-on-the-Lake's communities, local economy, and natural environment requires coordinated and collective action, and the Town remains fully committed to this important initiative.






Introduction

Purpose of the Document

This document outlines the steps that Town Staff will take to manage invasive species. Its completion fulfills an action item identified in Council’s 2022–2027 Strategic Plan (Appendix I: Implementation and Indicators of Success) and supports the goals outlined in the Climate Change Adaptation Plan.

Navigating the Plan

This plan is broken into three subsequent sections to manage invasive species:

-  Prevention
-  Best Management Practices
-  Management Framework & Actions

Each section is organized using a combination of paragraphs, tables, figures, and action item tables to present the information effectively. As invasive species management is an ongoing process, specific timeframes are not assigned to each action. Instead, actions are linked to general start periods, identified by quarters of the year, intended to be ongoing efforts afterwards. The action item tables should be interpreted as follows:

Action Item Header	Action Item	Lead	Start	Indicators of Success

Lead Department/Division Key:

BL – By-Law

OPST – Organizational Performance, Strategy & Transformation

CC – Climate Change

PBDS – Planning, Building & Development Services

COM – Communications

CS – Corporate Services

ENG – Engineering

ES – Environmental Services

FN – Finance

CPS – Community & Protective Services

LS - Legislative Service

PRK – Parks

PLN – Planning

PW – Public Works

PWI – Public Works & Infrastructure

RDS – Roads

Section 2: Prevention

Prevention is the most crucial and cost-effective stage of invasive species management, serving to stop both the initial introduction and further spread of invasive species within and beyond the Town. As the **foundational step** in any successful management strategy, prevention must be an ongoing effort, integrated into all aspects of invasive species control and management.

Preventive measures are far **less costly** and **easier to implement** than responding to well-established populations, making prevention the top priority. This approach involves preventing species from becoming established in the area and implementing rapid response actions to contain and eliminate any new detections before they can spread. To effectively address these threats, the Town will implement a prevention framework focused on four key focus areas designed to stop the spread of invasive species.



1 Inform: Prevent harmful introductions by raising awareness on invasive species, response methods, pathways of spread, decontamination strategies, and alerts.



2 Detect: Identify invasive species early with regular surveillance and report them on EDDMaps, iNaturalist, or by calling the Invading Species Hotline at 1-800-563-7711.



3 Respond: Take rapid response to invasive species detections to prevent their establishment or spread.











4 Manage & Adapt: Implement proactive management strategies and take effective measures to mitigate the impacts of invasive species.

Prevention

Engagement Campaign

An engagement campaign will be key to the success of this management phase. The Town will do its best to promote topics on its website, social media platforms, public events, and within internal communications with Staff. A variety of topics will be discussed including but not limited to:

-  **Spot It:** Learn how to identify invasive species and monitor high-risk areas (parks, trails, boat launches, ditches). Early detection is crucial for easier and cost-effective removal.
-  **Stay on Trails:** Stick to marked trails to prevent the spread of invasive species. Keep pets on leashes and on the trail.
-  **Stop the Spread:** Inspect and clean mud, seeds, plant parts, and insects from clothing, pets, vehicles, and equipment. Wash gear on-site and before leaving the area.
-  **Keep it Natural:** Avoid disturbing soil and never remove native plants, as this can create space for invasive species to thrive.
-  **No Dumping:** Never dump plants, fish, pets, or bait into waterways or natural areas. This includes weeds/compost from gardens and dumping in natural areas to prevent vectors spreading invasive species. Even small pets, such as goldfish, can be invasive.
-  **Use Local Firewood:** Only use firewood sourced locally to prevent the spread of pests and diseases.
-  **Groom Your Pets:** Brush off mud, seeds, and insects from pets after walks to prevent the spread of invasive species.
-  **Garden Responsibly:** Plant native species in your garden and avoid invasive ones. If you remove invasive plants, dispose of them properly by sealing them in a bag before disposal. Never dump garden waste or compost in natural areas, as this can spread invasive species. For alternatives, consult the Ontario Invasive Plant Council's [Grow Me Instead](#) guide.

These tips will be shared on the Town's website, social media, and through internal communications to promote awareness and prevention of invasive species.

Prevention Action Items:

Inform

Prevent harmful introductions by raising awareness on invasive species, response methods, pathways of spread, decontamination strategies, and alerts. Public engagement campaigns will be key and target messaging to groups at risk, such as anglers, boaters, cottagers, gardeners, and hikers.

The Town will implement the following action items to help keep the community informed and prevent invasive species from being introduced and establishing in the area.

Action Item	Lead	Start	Indicators of Success
P-1.1 Prohibit invasive species planting in development applications	PLN CC	Q2 2026	<ul style="list-style-type: none"> Ensure landscape plans (private and public) do not include invasive species, characterized as being listed on the Invasive Species Act, Noxious Weed under the Weed Control Act, pest under the Plant Protection Act, Invasive Species Centre, or Ontario Invasive Plant Council Create a summary list of prohibited invasive species to post on Town's website or in applications
P-1.2 Enhance current systems on fill requirements	PLN CC	Q3 2026	<ul style="list-style-type: none"> Develop a system to ensure imported and exported fill in development does not transport invasive species (partial fragments or complete)
P-1.3 Promote invasive species awareness	COM CC	Q2 2026	<ul style="list-style-type: none"> Post an annual invasive species prevention campaign on social media Update Town website content on invasive species
P-1.4 Provide educational opportunities on invasive species	CC	Q2 2026	<ul style="list-style-type: none"> Host at least one annual invasive species event open to the public (i.e. workshop, biolitz etc.) Offer community informational sessions on identifying invasive species, decontamination strategies, and prevention practices Arrange educational events for Town Staff as new information becomes available Distribute educational materials on invasive species, highlighting their impact, reporting methods, and prevention strategies

Prevention Action Items:

Inform

Action Item	Lead	Start	Indicators of Success
P-1.5 Stay informed on invasive species	CC	Q2 2026	<ul style="list-style-type: none"> • At least one Town Staff member will attend at least two invasive species events annually • At least one Town staff member will subscribe to the invasive species centre e-newsletter • At least one Town staff will be a member of the Niagara Invasive Species Strategy Advisory Committee and the Niagara Phragmites Management Area Collaborative • Investigate resources and literature as needed
P-1.6 Distribute alerts with staff and public	COM CC	Q2 2026	<ul style="list-style-type: none"> • Be aware of alerts to new information (i.e. inaugural species sighting, novel management methods, etc.) • Use communication channels (website, social media, newsletters) to send timely updates on new invasive species reports and prevention measures with the public • Share alerts as required with Town Staff virtually or in person (i.e. email, meetings, conversations)
P-1.7 Identify how to report invasive species	PWI	Q2 2026	<ul style="list-style-type: none"> • Identify the platform(s) the Town will use to report invasive species
	COM CC	Q3 2026	<ul style="list-style-type: none"> • Communicate platform(s) to report sightings (EDDMaps, iNaturalist, etc.) • Encourage residents and visitors to report sightings through EDDMaps, iNaturalist, or the Invading Species Hotline (i.e. games or rewards) • Provide easy access to reporting tools on the Town’s website and social media

Prevention Action Items:

Inform

Action Item	Lead	Start	Indicators of Success
P-1.8 Integrate strategies in by-laws, policies, and plans	CC BL PLN	Q2 2026	<ul style="list-style-type: none"> Update by-laws, policies, and plans as needed to incorporate invasive species strategies for prevention and effective management Inform staff of invasive species to be able to incorporate knowledge in new by-laws, policies, or plans
P-1.9 Communicate pathways of spread	CC COM	Q2 2026	<ul style="list-style-type: none"> Develop an infographic to highlight pathways of spread Create social media posts featuring ways invasive species can spread Update Town website to include pathways of spread on the Invasive Species page Inform Town Staff on pathways of spread to carry into decision-making Create tailored educational messages for groups at risk (i.e. anglers, boaters, cottagers, gardeners, hikers)
P-1.10 Create decontamination strategies	CC COM	Q3 2026	<ul style="list-style-type: none"> Create an infographic summarizing decontamination strategies Utilize social media to inform viewers of decontamination strategies to prevent invasive species spread

Prevention Action Items:

Detect

Identify invasive species early with regular surveillance and report them on EDDMaps, iNaturalist, or by calling the Invading Species Hotline at 1-800-563-7711.

If a new invasive species is suspected, contact the St. Catharines Canadian Food Inspection Agency (CFIA) at 905-937-7434 or complete the [online form](#), ensuring to include the location and a photo when possible.

The Town will implement the following action items to help detect invasive species introduced to the area to prevent establishment.

Action Item	Lead	Start	Indicators of Success
P-2.1 Create a reporting system	ENG CC	Q2 2026	<ul style="list-style-type: none"> Set up a streamlined process for staff and residents to report suspected invasive species, including instructions on capturing photos and noting GPS coordinates
P-2.2 Build an early detection and rapid response program	CC	Q3 2026	<ul style="list-style-type: none"> Collaborate with local environmental groups or volunteers to monitor key areas for early detection, such as parks, trails, and waterways Create an Early Detection and Rapid Response (EDRR) program utilizing partners and volunteers Dedicate Town Staff to monitor sites of concern and work with a lead individual to develop a program
P-2.3 Partner with agencies	CC PWI ENG PRK	Q2 2026	<ul style="list-style-type: none"> Work with the CFIA to ensure rapid reporting and action on suspected new invasive species Collaborate with organizations to share data for mapping
	CC	Q2 2026	<ul style="list-style-type: none"> Utilize the Niagara Invasive Species Strategy Advisory Committee and Niagara Phragmites Management Area Collaborative to share resources

Prevention Action Items:

Detect

Action Item	Lead	Start	Indicators of Success
P-2.4 Use technology	CC COM	Q3 2026	<ul style="list-style-type: none"> Encourage the community to use tools like EDDMaps, iNaturalist, and other mapping software to track and report invasive species sightings
	CC ENG	Q2 2026	<ul style="list-style-type: none"> Create the Town's first invasive species inventory database Establish monitoring and mapping inspection process for infrastructure and natural assets
P-2.5 Establish invasive species inventory	CC	Q2 2026	<ul style="list-style-type: none"> Compile a comprehensive list of all known invasive species in the area Establish a list of invasive species with human health impacts Develop a list of invasive species that are most likely to impact infrastructure
	CC COM	Q3 2026	<ul style="list-style-type: none"> Distribute species lists with corresponding distribution maps to Staff and the public
	CC ENG	Q2 2026	<ul style="list-style-type: none"> Update inventory layers based on reports and new findings on a regularly basis

Prevention Action Items:

Respond

Take rapid response to invasive species detections to prevent their establishment or spread. Early action is key to minimizing their impact.

The Town will implement the following action items to quickly and effectively respond to invasive species.

Action Item	Lead	Start	Indicators of Success
P-3.1 Develop a response plan	CC	Q2 2026	<ul style="list-style-type: none"> • Develop a rapid response protocol to include clear, actionable response plans for detected invasive species, including immediate containment and removal strategies • Determine priority species, candidates for eradication, immediate eradication is the goal but containment or long-term management may be needed depending on the detected site and intensity • Establish a Response Team responsible for managing invasive species outbreaks, (i.e. experts from local agencies, environmental groups, and Town Staff) • Identify High-Risk Areas for prioritization (i.e. wetlands and sensitive ecosystems) to prevent further spread of invasive species
P-3.2 Approve a clean equipment protocol	CC	Q3 2026	<ul style="list-style-type: none"> • Create a clean equipment protocol • Investigate decontamination methods • Correlate methods to pathways of spread
P-3.3 Decontaminate equipment	PWI	Q3 2026	<ul style="list-style-type: none"> • Ensure all equipment, including boots, gets washed with water at the site of invasive species as per protocol • Provide business case for installation of boot brushes and boat washing stations in areas of concern

Prevention Action Items:

Respond

Action Item	Lead	Start	Indicators of Success
P-3.4 Coordinate with partners	PWI	Q2 2026	<ul style="list-style-type: none"> • Collaborate with local, provincial, and federal agencies for expert advice, funding, and additional resources in response to new invasive species threats • Establish a shared "watch list" for emerging threats not yet present in Niagara
P-3.5 Public communication	CC COM	Q3 2026	<ul style="list-style-type: none"> • Keep the public informed about response efforts via social media, the Town's website, etc. • Provide continual updates to inform the public of actions they need to take (i.e. avoiding certain areas or reporting new sightings)

Prevention Action Items:

Manage and Adapt

Implement proactive management strategies and take effective measures to mitigate the impacts of invasive species.

The Town will implement the following action items, emphasizing adaptive strategies to protect local ecosystems, prevent further harm, and remain informed of innovative solutions that help minimize the negative impacts of invasive species.

Action Item	Lead	Timeframe	Indicators of Success
P-4.1 Implement management plan	CC	Q4 2026	<ul style="list-style-type: none"> Utilize this document to develop long-term management strategies for controlling and eradicating established invasive species in the area
P-4.2 Review development applications for invasive species removal and disposal plans	PLN CC	Q3 2026	<ul style="list-style-type: none"> Initiate process to require invasive species Removal and Disposal Plans, if they are present at a development site, consistent with best management practices and Town By-laws Store Removal and Disposal Plans into reporting database or system
P-4.2 Stay informed	CC	Q2 2025	<ul style="list-style-type: none"> Town staff will stay informed about new invasive species management methods and technologies Adjust strategies as needed based on emerging science and best practices
P-4.3 Restore Ecosystems	CC ES PRK RDS	Q3 2026	<ul style="list-style-type: none"> Launch restoration projects to reintroduce fast-growing native vegetation that can effectively outcompete invasive species Prioritize restoration efforts in areas most vulnerable to invasive species establishment
P-4.4 Promote resilience	CC	Q4 2026	<ul style="list-style-type: none"> Implement programs that strengthen the resilience of local ecosystems (i.e. planting native species, maintaining biodiversity, reducing human activity)

Prevention Action Items:
Manage and Adapt

Action Item	Lead	Timeframe	Indicators of Success
P-4.5 Monitor and evaluate	CC	Q4 2026	<ul style="list-style-type: none"> Annually assess the effectiveness of management actions and adapt the approach based on monitoring results Establish environmental indicators to track success over time
P-4.6 Train staff	CC	Q2 2026	<ul style="list-style-type: none"> Provide ongoing training for Town Staff on invasive species identification, management techniques, and response protocols to ensure a knowledgeable and prepared staff

Section 3: Best Management Practices

A range of control measures exists for invasive species management, each with unique advantages suited to specific species and site conditions. There is no one-size-fits-all solution, which makes management a challenge. For instance, flying insects require different control methods than rooted plants, and smaller, early-stage infestations are more manageable than widespread ones. Even among a single species, the products and methods used for removal can differ.

Common control measures have been identified from the [Invasive Species Centre](#) and [Ontario Invasive Plant Council](#). Following their guidelines on best management practices (BMPs), the Town will apply current strategies, remain informed by the latest research, and adapt its approaches to address both species-specific characteristics and site-specific conditions. These common control practices include:

Pulling & Digging

Solarization

Cutting & Mowing

Flooding

Chemical Application

Prescribed Burns

Traps and Barriers

Grazing

While these represent standard approaches, they are not exhaustive, and the Town will adapt strategies as new methods emerge. All treatments will be timed to coincide with the lifecycle of the target species, maximizing effectiveness and minimizing the spread. Most methods require repeated applications over consecutive years, though early and well-timed intervention can reduce the need for follow-up. Each technique presents its own benefits and challenges. It is important to recognize that invasive species management is inherently complex, and the presence of challenges does not necessarily rule out the use of a particular control method. Instead, these challenges should be acknowledged and addressed as part of a thoughtful and adaptive management approach.

Prior to any implementation of control measures, each site will be assessed to protect non-target species, with special attention to those that are endangered or at risk. The Town will also apply best practices for identifying priority sites for invasive species management and proper biomass disposal.

Best Management Practices

Pulling & Digging

Pulling and digging are often categorized under the broader management approach of manual, physical, or mechanical practices, which are frequently used interchangeably. However, the term 'pulling and digging' most commonly refers to the use of non-motorized, handheld tools. This control measure is the most versatile and least complicated to implement in both terrestrial and aquatic ecosystems, especially for early infestations or small, isolated populations of invasive seedlings or young plants. With additional personnel and proper tools, it can also be scaled for larger efforts.

Effectiveness depends on the size and distribution of the population; removal is most successful in areas with sparse or newly established growth and less effective for well-established infestations. It is important to determine whether the site contains new, isolated plants or sprout regrowth from larger, existing populations.

Hand Pulling:

Plants are removed slowly and steadily to minimize soil disturbance, followed by refilling the soil. Complete root removal is essential to prevent regrowth. All uprooted material must be removed from the site, especially if seeds are present, to avoid re-rooting.

Digging:

Using handheld tools (i.e. shovel), the entire root system is extracted by digging a wide hole around the plant, followed by soil replacement. As with hand pulling, all plant material must be removed to prevent regrowth.

Equipment & Supplies

- **Aquatic Ecosystem:**
Spades or other hand tools; hip waders for shallow water work; canoes or floating devices for plant transport and access.
- *Note: Removal of aquatic species may require permits. Please refer to the appendix for details.*
- **Terrestrial Ecosystem:**
Spades, weed wrenches, shovels, buckets, bags, and other hand tools.
- *Note: Excavators can also be used in practice but are typically **not recommended**, due to their ineffectiveness in removing all plant material, soil disturbance, expense, time consumption, and inability to use in natural habitats.*

Best Management Practices

Pulling & Digging

To determine if pulling and digging control measures are appropriate, the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Woodlots, parks, open spaces, rivers, lakes, etc.
Prohibited Areas:	None
Affects:	Terrestrial and aquatic plants
Benefits:	<ul style="list-style-type: none">• Less training required for operators• Flexibility on application timing (best prior to seed emergence – April to August)• Community engagement opportunities• Ability to apply at all sites (terrestrial and aquatic)• Suitable for a wide range of invasive species (terrestrial and aquatic)
Challenges:	<ul style="list-style-type: none">• Time-consuming and labour intensive• Impracticable at larger sites (greater than 0.5 hectares)• Difficult or impossible to remove large root systems• Regrowth/occurrence can occur quickly• Requires multiple applications annually• Risk spreading fragments to new areas• More personnel can be required for reducing species• Can cause soil compaction

Best Management Practices

Cutting

Cutting (or mowing) involves the removal of above-ground plant biomass using various types of equipment, typically making cuts as close to ground level as possible to separate the material from the roots. This technique is versatile and relatively simple to implement in both terrestrial and aquatic environments. Similar to pulling and digging control measures, it is classified under the broader management approach of manual, physical, or mechanical practice.

It is best suited for small to medium-sized populations of invasive species and is most effective when used in combination with chemical application controls, as cutting does not remove root systems and allows for regrowth.

The effectiveness of this method depends on using the appropriate equipment, which can range from basic hand tools to motorized machinery. Hand tools are ideal for managing small, isolated infestations, while brush cutters or vehicles are commonly used for larger-scale efforts. Larger equipment may be required for intensive work, but it often necessitates specialized training or licensing.

Equipment & Supplies

Aquatic Ecosystem:

- Common handheld tools include raspberry cane cutters, loppers, and other cutting implements suitable for shallow water. Hip waders may be used for standing in water, while canoes or floating platforms assist in transporting plant material. Boats or heavy machinery may be needed for large-scale aquatic removal.
- *Note: Work permits may be required for aquatic species removal -refer to the appendix for permitting information.*

Terrestrial Ecosystem Equipment:

- Loppers, hand tools, brush cutters, chainsaws, and vehicles (i.e. rollers).

Best Management Practices

Cutting

To determine if cutting control measures are appropriate, the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Woodlots, parks, open spaces, rivers, lakes, etc.
Prohibited Areas:	None
Affects:	Terrestrial and aquatic plants
Benefits:	<ul style="list-style-type: none">• Less training required for operators• Flexibility on application timing (best prior to seed emergence – April to August.)• Community engagement opportunities (handheld tools)• Ability to apply at all sites (terrestrial and aquatic)• Suitable for a wide range of invasive species (terrestrial and aquatic)
Challenges:	<ul style="list-style-type: none">• Does not remove root systems• Time-consuming and labour intensive• Regrowth/occurrence can occur quickly and requires multiple treatments annually• Risk spreading fragments to new areas• More heavy equipment is needed for larger sites• Can cause soil compaction

Best Management Practices

Chemical Application

Chemical control measures are a widely used and effective method for managing invasive species. They are often combined with other best management practices to improve results. In Canada, the term "pesticide" encompasses all chemical applications, including herbicides, insecticides, fungicides, rodenticides, acaricides, and acaricidal. Pesticide use is regulated by both federal and provincial authorities.

In Ontario, all pesticides must be:

- **Federally registered** under the *Pest Control Products Act* by Health Canada's Pest Management Regulatory Agency (PMRA), and
- **Provincially classified** under Ontario's [Pesticides Act](#) and [Ontario Regulation 63/09](#) by the Ministry of the Environment, Conservation and Parks (MECP).

For details on obtaining permits and licenses, please refer to the appendix section. Permits and authorizations are best obtained between August and January to ensure application schedules can be met.

Chemical control can be effective as a standalone method or in combination with other management strategies. When chemical treatment is applied, either by contractors or Town staff, all products must be registered by the Pest Management Regulatory Agency for use on the specific target species. A full list of registered products, along with instructions for using the search engine, is provided in the appendix. Site-specific work plans must be developed prior to application, and treatment activities must be communicated in advance to Council, staff, and the public.

For insect pests, pesticides may be applied directly to the insects or to host plants, where the chemicals are absorbed and ingested during feeding. Timing for applications must follow the product's label but typically is best applied Late Summer to Early Fall (August to October). Whereas herbicides applied to invasive plants can be applied directly when the plants are at a manageable height, and the risk of spray drift is low. When plants are too tall or dense, increasing the risk of drift, they should first be cut and the biomass properly contained or removed before applying herbicide to the regrowth. Depending on the product, a buffer zone may be needed when applying pesticides.

Equipment & Supplies

Terrestrial Ecosystem Equipment

Backpack sprayer, injection syringe, or vehicle systems for application; pesticide signs, communications and notice of time of re-entry with date/time of application.

Best Management Practices

Chemical Application

Application Methods

Chemical treatments target plants and insects using various techniques for application methods:

Systemic Treatment	<ul style="list-style-type: none"> • Absorbed throughout the plant • Requires less volume of herbicide • Minimizes impact on non-target species • Typically requires annual applications
Foliar Sprays	<ul style="list-style-type: none"> • Applied directly to leaves or insects (coated, not dripping) • Cost-effective for treating large areas • May affect non-target species • Often requires multiple applications per year • Adding vegetable or tracker dye can improve spray accuracy and reduce drift
Basal Bark	<ul style="list-style-type: none"> • Herbicide is applied in a 5–10 cm band around the base of the stem • Less labour intensive than some other methods • May affect non-target species • Most effective on small to medium shrubs or trees under 2.5 cm in diameter
Hack-and-Squirt	<ul style="list-style-type: none"> • Herbicide sprayed into downward-angled cuts spaced 2.5 cm apart on the trunk • Cuts create cavities for herbicide absorption without severing the plant • Highly species-specific, minimizing non-target impact • Labour intensive • Best suited for trees or shrubs over 2.5 cm in diameter
Cut Stump	<ul style="list-style-type: none"> • Tree or shrub is cut near the base (30–45 cm high) • Herbicide is applied to the exposed stump surface • Severs the connection between roots and foliage • Selective and cost-effective • Prevents seed production and regrowth • Suitable for a range of population sizes and large stem diameters • Typically requires annual application or re-treatment as regrowth occurs

Best Management Practices

Chemical Application

Pesticide Products

A variety of pesticide products exist, with continual updates occurring on the [Health Canada Consumer Product Label Search website](#). Common best practices will highlight the active ingredient in chemicals and not the product name, but some examples are listed below:

Glyphosate	Roundup, Aqua Neat
Triclopyr	Garlon, Renovate, Element
Imazapyr	Habitat, Polaris, Arsenal

To determine if chemical control measures are appropriate, the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Woodlots, trails, open spaces, and with precaution parks
Prohibited Areas:	Near or in waterbodies unless granted permission
Affects:	Terrestrial plants and insects; occasional aquatic use
Benefits:	<ul style="list-style-type: none"> • Most effective control measure for eradicating invasive species • Applicable at small to large sites • Effective in various surroundings • Horticulture or insecticidal soaps and acetic acid (vinegar) based products available for lower chemical impact
Challenges:	<ul style="list-style-type: none"> • Requires licenses/permits that differ for landscape settings, forests, and agricultural lands • Must apply at a specific timing/schedule • Debated to be the most harmful control measure to the environment • Spray drift poses risks for human and environmental health • Must restrict human access until the point of return • Extra precautions required in high profile areas such as parks and sport fields • May increase species' tolerance/resistance to pesticides and limit effectiveness • Can affect other desired species and cause adverse effects • Must comply with the <i>Pesticides Act</i> and Regulation 63/09 regarding herbicide storage, disposal, use, transport and sale

Best Management Practices

Prescribed Burns

Prescribed burning is the intentional use of fire by trained and authorized personnel as part of a planned land management strategy. It is commonly used in terrestrial restoration projects where fire plays a **natural role** in the disturbance regime. This technique helps reduce above-ground vegetation and is most effective when integrated into a broader invasive species management plan.

Prescribed burns involve clearly outlined burn areas, bordered by **firebreaks** such as gravel paths, pavement, or saturated zones of desirable vegetation to prevent the spread of fire. Low-intensity, slow-moving burns are generally preferred for greater control and effectiveness.

These burns are typically scheduled annually or within specific seasonal windows to align with natural ecological cycles. The **optimal time frame** for burns is from late Fall to the end of Winter (October to March) and should never be conducted in late spring and summer during nesting periods. If the desired species are known or suspected to be present, adjacent areas with similar habitat should be left unburned to serve as a refuge and support their survival.

Prescribed burning is especially effective in large monoculture areas and combined with other methods, such as cutting or herbicide application. **Post-burn monitoring** is essential to observe if target species begin to resprout, and if so, a follow-up herbicide treatment should be applied. When herbicide treatment is used, allow **at least three weeks** after the last herbicide application before implementing a controlled burn.

In some cases, fire can also be used as a method for **disposing** of plant material. A thorough site assessment should always be conducted prior to implementation.

Equipment & Supplies

Terrestrial Ecosystem Equipment: A prescribed burn plan, necessary permits, fuel, ignition source, coordination with the fire department, internal staff, and public notification. A trained professional must oversee the operation, supported by on-site staff.

Additional requirements include a water truck for fire control and safety, as well as advanced public communication.

Best Management Practices

Prescribed Burns

To determine if prescribed burn control measures are appropriate the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Savannah habitat, grasslands, slightly sloped areas (with no infrastructure), open spaces, meadows, woodlots
Prohibited Areas:	Under powerlines
Affects:	Terrestrial plants
Benefits:	<ul style="list-style-type: none"> • Natural management of some ecosystems (i.e. grassland) • Suitable for larger areas • Effective at removing invasive plants • Greater environmental benefits (i.e. soil nutrient cycling) • Reduces leaf litter/fuel source for igniting unpredictable fires • Access to Fire & Emergency Services Department Staff
Challenges:	<ul style="list-style-type: none"> • Requires trained professionals • Highly site-specific to implement • Must implement in specific timeframes or schedules • Heavy planning of site prior to burning • Communication with Staff, including alerting the Fire & Emergency Services Department and the public • Requires permits and compliance with regulations • Needs multiple staff to be in attendance to ensure safety at the time of the burn • Risk of difficulty in controlling fire • Potential to damage other vegetation • Adverse impacts on air quality • Root systems are not removed • Established populations may re-establish more aggressively if restoration planting is not completed

Best Management Practices

Solarization

Solarization (or tarping) involves covering an area with invasive plants using dark or clear material (typically tarps or heavy-duty sheets) to draw sunlight, disrupt photosynthesis, and effectively "cook" the root systems beneath. Before tarping, the vegetation should be cut to ground level to maximize contact with the material.

This method is most effective when initiated in late spring and maintained throughout the growing season. It is a viable option for controlling small to medium-sized infestations, particularly in areas where chemical treatments are not appropriate or permitted.

Regular monitoring is essential to ensure the tarp remains intact and undisturbed by both wildlife or human interference. Any new growth around the edges should be promptly removed to prevent further spread.

Solarization is also a practical method for disposing of invasive plant biomass. When plant material must be moved off-site, it can be piled in direct sunlight under tarps to dry out and neutralize seeds or viable fragments. Although it depends on weather conditions, the practice typically takes a week to dry all biomass.

Equipment & Supplies

Terrestrial Ecosystem Equipment: Dark or clear tarp, sheet or bag for covering the invasive species. In addition: stakes, string, and a mallet to securely anchor the covering to the ground.

Best Management Practices

Solarization

To determine if solarization measures are appropriate the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Terrestrial landscapes or shallow water with small to medium populations
Prohibited Areas:	None
Affects:	Terrestrial and aquatic plants
Benefits:	<ul style="list-style-type: none">• Environmental conscious approach• Affects all plant parts (including roots)• Minimal equipment required
Challenges:	<ul style="list-style-type: none">• Needs direct sunlight most of the day• Time-consuming – tarp needs to remain for the entire growing season• Requires monitoring for rips/tears and growth from the edges of the tarp• Restricted to small populations• Labour-intensive

Best Management Practices

Grazing

The use of grazing animals as a landscape management tool is not typically recommended as a best practice to implement, however has become a relatively recent and increasingly popular approach for controlling invasive species. This method has been most effective when implemented using a managed herd of goats supported by a trained farmer and herding dog. In the Niagara Region, targeted grazing has demonstrated effectiveness as a control strategy, however, research into its long-term outcomes is ongoing. While grazing can help manage invasive plants and offers positive public engagement benefits, other control methods, such as chemical treatments, have generally demonstrated greater effectiveness in achieving sustained control.

In successful implementations, farmers transport goat herds to infested sites using trailers. While it is uncommon for organizations to raise and maintain their own goats, partnering with farmers who provide this service is a viable and often preferred alternative.

Upon arrival, goats are enclosed within an electric fence surrounding the targeted area. In Niagara, the goat grazing program typically consists of two one-week grazing periods during the summer, with goats on site for approximately 8 hours per day. Desirable vegetation is protected from trampling and consumption with fencing, and sites must not contain endangered or at-risk species as an additional precaution. Goats have access to food and water on-site and will rest as needed. At the end of the day, they are transported back to the farm.

The success of this method relies heavily on proper planning and coordination, including hiring an experienced and dedicated farmer. As the practice evolves, grazing protocols may be adapted to improve outcomes.

Important Note: Grazing should not be used on sites where herbicides have been applied within the past three years.



Equipment & Supplies

Terrestrial Ecosystem Equipment: A herd of grazing animals, electric fencing, on-site farmers or trained staff, food and water supplies, a trailer for transportation, and signage.

Best Management Practices

Grazing



To determine if grazing control measures are appropriate, the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Open spaces, woodlots, cliff edges, rocky terrain, tight spaces where machinery cannot reach, shorelines
Prohibited Areas:	Sites with pesticide use in the last 3 years
Affects:	Terrestrial and aquatic plants
Benefits:	<ul style="list-style-type: none"> • Goat digestive enzymes break down plant seeds, making them inviable and unable to spread • Nature-based solution to invasive species management • Ability to reach difficult landscapes (i.e. sharp angled cliffs, rocky terrain) • Niagara-on-the-Lake publicity for innovative approaches • Practical for large areas
Challenges:	<ul style="list-style-type: none"> • Effectiveness is highly debated and often considered a public relations move to increase awareness • Requires specific farmer participation or extensive knowledge of grazing animals • Newly adopted herds can take years to train • Several materials/equipment are needed for animals. Communications required (i.e. internal, public, farmer)

Best Management Practices

Flooding

Flooding (or drowning) invasive plants works by ensuring there is at least 30 cm depth of water (ideally more) with vegetation cut to the substrate or ground. The lack of above-water plant material will limit the amount of oxygen that can travel to the root system, suffocating the plant, and can prevent germination of seeds or establishment of seedlings. The lower oxygen level will decrease the growth of the plant or cause die-off.

However, flooding less than 30 cm does not kill seedlings, and mature plants thrive in these conditions, so caution is needed when applying. Short-term or temporary flooding of a natural area can actually cause a disturbance that may allow some invasive seeds in the seedbank to germinate, grow and proliferate once water levels have returned to a previous level.



Equipment & Supplies

Aquatic Ecosystem: Common handheld tools include raspberry cane cutters, loppers, and other cutting implements suitable for shallow water. Hip waders may be used for standing in water, while canoes or floating platforms assist in transporting plant material. Boats or heavy machinery may be needed for large-scale aquatic removal.

Terrestrial Ecosystem Equipment: Loppers, hand tools, brush cutters, chainsaws, and rollers.

Best Management Practices

Flooding

To determine if flooding control measures are appropriate the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Aquatic sites or areas with water level control (stormwater management ponds, dam infrastructure, hydro infrastructure)
Prohibited Areas:	No prohibited areas are specified; however, caution can be given around drainage areas
Affects:	Aquatic and terrestrial plants
Benefits:	<ul style="list-style-type: none">• Effective in medium to large areas• Environmental conscious management option• Impacts the root system (when done at appropriate depths)
Challenges:	<ul style="list-style-type: none">• Can affect non-targeted species• Site specific to utilize at least 30 cm of water

Best Management Practices

Traps & Barriers

Traps and barriers are effective tools for isolating invasive organisms within a designated area, preventing their spread to surrounding environments. These methods require initial setup and ongoing monitoring to determine whether any target species have been captured.

However, it's important to note that some traps and barriers are non-selective and may pose risks to non-target species. This makes careful planning essential. For instance, terrestrial sticky band traps can be fitted with protective cages around tree trunks to prevent harm to birds and small mammals.

The success of traps and barriers heavily depends on strategic placement, which should be guided by species-specific behaviours. Traps are often positioned near preferred host plants, nesting or spawning sites, or areas known to be vulnerable to invasive species. One widely used product is the *BugBarrier Tree Band® Kit*, used for a variety of insects and vectors such as the spotted lanternfly.

This approach is especially useful for Early Detection and Rapid Response (EDRR) efforts, helping to quickly identify and address new invasive species before they become established. When a potential invasive is found, it's critical to report sightings to the Canadian Food Inspection Agency (CFIA). If a species is confirmed in a trap, follow CFIA guidance, with typical disposal at a landfill or, where suitable, at composting facilities is recommended.

Equipment & Supplies

Aquatic Ecosystem:

Netting, wall barriers, electric fencing, and dams.

Terrestrial Ecosystem Equipment: Tree bands, cages, hormonal hanging traps.

Best Management Practices

Traps & Barriers













To determine if traps and barrier control measures are appropriate the Town will review the site and species while evaluating the following summary:

Suitable Sites:	Terrestrial and aquatic sites
Prohibited Areas:	None, but site-specific planning required to select the trap/barrier
Affects:	Aquatic and terrestrial non-plant species (i.e. insects, fish, vectors of pathogens, etc.)
Benefits:	<ul style="list-style-type: none">• Affects terrestrial and aquatic sites• Effective in medium to large areas• One-time major setup and less continual labour
Challenges:	<ul style="list-style-type: none">• Can harm the desired species• Requires regular monitoring

Best Management Practices

Site Prioritization

Due to invasive species being wide spread, resources will be allocated to specific sites deemed as priority. The [Site Prioritization Tool for Control of Invasive Phragmites](#) will be used as a guideline and adopted for all invasive species. The following will be evaluated to determine prioritization:

-  **Safety:** Species with human safety concerns, such as skin irritation/toxins, blockage to roadside/intersection sightlines, fire prone near buildings/homes, obstruction to flood mitigation infrastructure, etc., will be prioritized first.
-  **Landownership:** Sites where the Town only owns and manages the area will be given first priority over those that share land ownership or management.
-  **Population size:** Isolated and smaller populations (less than 50m² with less than 25% density at site) will be given priority over increasingly larger populations, unless deemed a priority for other reasons.
-  **Technique:** When managing large populations, working from the perimeter of the site towards the middle is the most effective strategy to not disturb and promote further spread.
-  **Shape:** Linear sites will be preferred over non-linear features.
-  **Full or partial treatment:** Sites that will be completely treated for removal will be prioritized over ones with partial treatment.
-  **Paths of Spread:** Areas that function as pathways for invasive species dispersal, such as roadsides, will be given higher priority for management compared to locations with minimal potential for spread.
-  **Accessibility:** Sites with easy access to the entire population of invasive species will be given priority of management over ones that are difficult to access.
-  **Habitat Value:** Sites with strong habitat quality, conservation value, and natural area will be given first consideration.
-  **Sensitive Areas:** Sites near provincial or national parks, crown land, provincially Significant Wetland (PSW), Area of Natural and Scientific Importance (ANSI), or similar areas of local natural history importance will be given higher priority for management.
-  **Recreation:** Species severely impacting recreation activity (i.e. obstruction of boat access, restricted use of trails/parks, etc.) will be given priority.
-  **Coordination of Sites:** Sites that are neighbouring other confirmed areas to be treated for invasive species will take priority to share resources rather than ones that have neighbouring invasive species with no plan of treatment.
-  **Aesthetics:** Species entirely affecting scenic views will be considered over ones partially or not affecting aesthetic views.

Best Management Practices

Disposal

Proper disposal is essential to effectively manage invasive plants and prevent further spread. The method selected should depend on the type and amount of biomass, site conditions, and available resources.

Solarization

The first step in disposing of invasive plant material is solarization, which involves exposing the material to direct sunlight to kill it. To prevent further spread, the plant matter should remain at the removal site until it is thoroughly dried. If roots or seeds are present, they should be sealed in bags to prevent dispersal when unattended. For large volumes where bagging is impractical, the material should be placed on a raised platform away from soil and covered with a tarp to reduce risk of regrowth; if this is not feasible, piling is acceptable but requires frequent monitoring to ensure it is not disturbed by wind, animals, or human activity.

Smaller plant material can be placed in dark plastic bags, which retain heat effectively, or in yard waste bags if composting is an option, though they are more prone to tearing, moisture damage, and slower drying. Whether bagged or piled, the material must be left in direct sunlight for one to three weeks, depending on size and weather, until completely dry. Once solarized, the plant material can be safely composted at an approved facility, sent to a landfill, or burned at appropriate sites.

Composting or Landfill

Composting is only recommended at large-scale municipal facilities capable of reaching sufficient temperatures to destroy living plant material, viable seeds, and that accept invasive species for processing. It is important to consult with the facility before sending any plant material for composting. Backyard or home composting should not be used, as these systems do not achieve the temperatures necessary to kill seeds. If a waste facility cannot reach adequate temperatures to neutralize viable biomass, the material should be securely bagged and sent to a landfill.

Best Management Practices

Disposal

Leave-On-Site

This is the most cost- and time-efficient method, involving on-site drying and natural decomposition of plant material. It is best following herbicide application, when biomass can safely decompose without the risk of spreading invasive species through transport. For cut vegetation with no herbicide, on-site disposal is generally suitable for stems, depending on the species, but roots must be removed to prevent resprouting. Plant material free of seeds and roots may also be piled to create wildlife habitat or a food source. However, there should be no safety concerns with piles, and aesthetic impacts should be considered with frequent site monitoring to detect any regrowth. Piles should also not be next to waterbodies. Biomass can also be chipped, mulched, or burned on-site when approved. If roots or seeds are present, the material should be bagged for solarization and then sent to a landfill or composted at approved facilities.

Trees

Invasive tree species or ones infected by invasive pathogens can generally be removed using standard tree removal practices, with particular attention given to the proper disposal of roots and seeds to prevent regrowth or spread. Depending on the size of the tree, either chainsaws or handsaws may be used to cut the trunk and associated branches. Stump removal is essential, and all tree material should ideally be dried, debarked, and have all root connections severed. Once prepared, the wood may be chipped or burned. As a last resort, logs may be buried to minimize the risk of regrowth.

Insects

In certain situations, insect disposal may be necessary. Whenever possible and safe to do so, it is best practice to first capture the insect, take a clear photograph for documentation, and then proceed with disposal. If the insect is suspected to be a novel invasive species to the area, such as the spotted lanternfly, notification to the Canadian Food Inspection Agency (CFIA) may be required. Captured insects should be securely sealed in a plastic bag or container. Once documented, they should be disposed of through a landfill or composted at a municipal facility approved for such materials.

Best Management Practices

Restoration

Once the invasive species have been removed, it is best practice to implement a site restoration plan to prevent their return. Following best practices from the Ontario Invasive Plant Council, the following restoration practices will be considered for implementation after control measures have been completed:

Mulching

Mulching is a common practice that brings organic matter back into the soil to enhance plant growth. It can be made from various chipped plants, including invasive species (without seeds or roots). Thick layers of mulch (> 5 cm) can smother vegetation and change nutrient composition. Adding a thick layer of mulch over a landscape right after a control measure (i.e. cutting, chemical, etc.) can be an effective measure to prevent regrowth of all invasive species and reduce soil compaction. However, if desirable vegetation is present, it is best to avoid heavy mulching for the entire site and select site-specific spots, typically best suited for urban parks and gardens.

Planting

Planting native species is strongly recommended following the completion of invasive species control efforts, especially when nearby areas still contain invasive populations. However, native plantings should be delayed until all removal activities are finalized, including follow-up efforts in subsequent years, to prevent accidental damage during continued management. When selecting native species, consider site-specific conditions such as sunlight exposure, available space, and water capacity to ensure successful establishment and competitiveness. Prioritize fast-growing species that produce abundant seeds, as these are more likely to outcompete remaining invasives and support native ecosystem recovery. Incorporating a diverse mix of native plants increases resilience, and using more mature plants further enhances their ability to establish dominance. Transplanting mature native species from healthy sites can also be an effective strategy for accelerating restoration.

Seeding

Distributing native seeds can be an effective restoration strategy once invasive species control measures are complete. The success of this method often depends on site conditions. For example, in urban areas, seeds may be more vulnerable to being eaten by wildlife due to limited food sources, unlike more natural settings where alternative resources are abundant. To improve effectiveness, it is best to select fast-growing native species that produce abundant seeds, as these can help offset seed loss and more effectively outcompete invasive plants. It is also essential that native seed collection is carried out ethically and sustainably to protect source populations and maintain ecological integrity.

Section 4: Management Framework & Action

The invasive species management framework provides a clear and consistent approach for addressing all types of invasive species. It is grounded in four key pillars: awareness and education, mapping and site evaluation, management and monitoring, and site restoration. Staff can work towards completing each pillar when managing any invasive species, with more specific removal actions for select invasive species mentioned in the Priority Species Control Plan.



Awareness and Education: Provide communication and outreach to the public, interested parties, and Staff to share information on invasive species.



Mapping and Site Evaluation: Collect baseline data and continue to update it in correspondence with the location to inform priority areas and species of concern.



Implementation and Monitoring: Identify priority areas and species, define management goals, identify management practices most suitable for the area and species, and monitor management activities.



Site Restoration: Utilize restoration techniques such as mulching, planting native species, and soil rehabilitation to improve the area. Circle back to spread awareness and education on restoration while continually mapping and monitoring the area.

Management Framework & Action

Awareness & Education

Provide communication and outreach to the public, interested parties, and staff to share information on invasive species.

Action Item	Lead	Start	Indicators of Success
1.1 Launch social media and web campaign	COM CC	Q2 2026 (Last week in February is annual invasive species awareness week)	<ul style="list-style-type: none"> • Launch a targeted social media and web campaign on invasive species • Create monthly posts highlighting species of concern • Track social media engagement metrics (i.e. likes, shares, clicks) • Provide clear instructions on how to report invasives through social media and the website • Promote decontamination and prevention strategies on social media and the Town website • Distribute informative resources via email to local groups, organizations (i.e. hiking centers, volunteer groups, Ontario Federation of Anglers and Hunters (OFAH), Federation of Ontario Cottagers' Association (FOCA))
1.2 Host public education events	CC COM	Q2 2026	<ul style="list-style-type: none"> • Host at least one public event per year (i.e. workshop, info session, workshop) • Promote events online and at public buildings to aim for at least 20 attendees at events • Reach out to volunteer groups and local organizations, informing them of events • Create post-event surveys to receive feedback and integrate into future events

Management Framework & Action

Awareness & Education

Provide communication and outreach to the public, interested parties, and staff to share information on invasive species.

Action Item	Lead	Start	Indicators of Success
1.3 Provide staff training on invasive species	CC	Q2 2026	<ul style="list-style-type: none"> Distribute the Invasive Species Management Plan Provide Staff training on invasive species Hold internal info sessions for all relevant Departments Share Departmental opportunities and challenges with Staff on invasive species and provide shared resources Send timely alerts to Staff about new invasive species threats Support Staff in feeling confident recognizing, reporting, and managing invasive species
1.4 Distribute educational materials to local partners	CC REC	Q3 2026	<ul style="list-style-type: none"> Place brochures, posters, or signs in parks, trails, and community facilities (i.e. Community Centre) Communicate with staff so they can spread information on invasive species and are aware of the materials available at sites
	CC	Q3 2026	<ul style="list-style-type: none"> Maintain active participation with the Phragmites Management Area Collaborative, provincial, local, and federal communities of practice, or working groups Partner with schools and youth groups to develop presentations, learning kits, and/or engagement sessions

Management Framework & Action

Mapping & Site Evaluation

Collect baseline data and continue to update it in correspondence to the location to inform priority areas and species of concern.

Action Item	Lead	Start	Indicators of Success
2.1 Develop and implement a standardized mapping protocol	CC	Q2 2026	<ul style="list-style-type: none"> • Mapping protocol created and shared • Staff and/or volunteers trained on standardized mapping protocol • Baseline data collected for at least one high-priority area
2.2 Update and maintain the GIS database	CC ENG	Q4 2026	<ul style="list-style-type: none"> • Update and maintain a centralized GIS database of invasive species occurrences • Update GIS layers and surveys as needed and review them on an annual basis • Ensure data is accessible to relevant departments • Promote the use of data results to inform management priorities
2.3 Promote public reporting	CC COM	Q4 2026	<ul style="list-style-type: none"> • Create and promote a public survey reporting tool using the Join the Conversation platform or a similar platform for standardized site evaluation • Tool launched and promoted via outreach • Increase community-submitted data for mapping and site evaluation • Host community events to collect data and engage the public
2.4 Establish partnerships and collaborative opportunities	CC	Q2 2026	<ul style="list-style-type: none"> • Maintain active participation in Phragmites Management Area Collaborative and other regional initiatives • Stay informed from the Invasive Species Centre and the Invasive Species Plant Council for opportunities to collaborate • Seek partnership opportunities with local organizations • Access shared data and resources • Organize student or volunteer-led invasive species reporting and mapping

Management Framework & Action

Mapping & Site Evaluation

Collect baseline data and continue to update it in accordance with the location to inform priority areas and species of concern.

Action Item	Lead	Start	Indicators of Success
2.5 Establish priority sites	CC	Q2 2026	<ul style="list-style-type: none"> • Identify priority areas through site assessments using the criteria outlined in the site prioritization section • Prioritize removal of invasive species that have human health impacts in public spaces • Coordinate with staff to align planned infrastructure and asset maintenance activities with invasive species management • Engage all bordering municipalities and relevant organizations to unite work • Use mapping data to determine priority and high-risk areas for management • Integrate GIS data into site-specific planning • Reassess priority invasive species each year to inform priority sites • Share updates across departments annually and as needed
2.6 Conduct annual site evaluations	CC	Q3 2026	<ul style="list-style-type: none"> • Conduct annual site evaluations to prioritize and reassess areas of concern • Complete evaluation reports as needed for sites of concern • Prioritization site and species list reviewed annually and updated as needed • Results and public reports integrated to inform the following year's work plan

Management Framework & Action Implementation & Monitoring

Identify priority areas and species, define management goals, identify management practices most suitable for the area and species, and monitor management activities.

Action Item	Lead	Start	Indicators of Success
3.1 Develop site-specific work plans	CC	Q2 2026	<ul style="list-style-type: none"> • Develop comprehensive work plans for staff or contractors, including pre-assessment of potential impacts to species at risk and other environmental considerations • Work with the Invasive Species Centre and relevant agencies to develop plans • Engage a licensed pesticide contractor as needed and ensure the plan is clearly understood by all parties • Ensure RFP/RFQ processes require completion of environmental pre-assessments • Consult with contractors, as needed, to confirm project work is on track and removal activities do not pose environmental risks prior to implementation • Collaborate with Indigenous communities and organizations • Establish clear goals and timelines for each target site • Engage with private landowners and form public-private partnerships • Workplan approved and communicated • Progress tracked and reported annually
3.2 Seek funding opportunities and develop a budget	CC	Q1 2027	<ul style="list-style-type: none"> • Integrate invasive species management into operational budgets and workplans • Approve a Natural Area Stewardship Technician in budget • Submit an application to the Invasive Species Action Fund and/or Invasive Species Phragmites Fund • Investigate other funding streams • Seek out collaborative opportunities to expand projects, share resources, and strengthen grant applications • Explore joint procurement opportunities

Management Framework & Action

Implementation & Monitoring

Identify priority areas and species, define management goals, identify management practices most suitable for the area and species, and monitor management activities.

Action Item	Lead	Start	Indicators of Success
3.3 Monitor and document actions	CC	Q3 2026	<ul style="list-style-type: none"> • Monitor and document all management actions using standardized forms or tools • Identify trends to inform future management efforts
3.4 Develop an inspection and monitoring plan	CC	Q4 2026	<ul style="list-style-type: none"> • Inspect and monitor vulnerable/priority sites throughout the year • Create proposal on boating inspection stations and biomass disposal areas • Map and record any sighted invasive species • Establish policies and/or by-laws requiring inspection and decontamination of watercraft/vehicle before use
3.5 Evaluate management practices	CC	Q4 2026	<ul style="list-style-type: none"> • Evaluate the effectiveness of management practices through pre- and post-treatment surveys • Establish species specific key performance indicators (e.g. % reduction in invasive cover) • Results used to adapt methods as needed • Review best practices biannually to ensure the most appropriate techniques are being used • Share phragmites data with the Niagara working groups to refine practices
3.6 Engage the community	CC COM	Q1 2027	<ul style="list-style-type: none"> • Launch volunteer or community scientist monitoring program • Schedule volunteer monitoring days with training provided • Encourage participation by sharing community contribution impact (i.e. increase of area covered, photo submissions, surveys completed)

Management Framework & Action

Site Restoration

Utilize restoration techniques such as mulching, planting native species, and soil rehabilitation to improve the area. Circle back to spread awareness and education on restoration while continually mapping and monitoring the area.

Action Item	Lead	Start	Indicators of Success
4.1 Develop site-specific restoration plans	CC	Q1 2027	<ul style="list-style-type: none"> • Develop site-specific restoration plans following invasive species removal • Restoration plans completed for each major treatment site using native plantings, mulch, and soil rehabilitation • Plans shared across departments for implementation
4.2 Plant native species	CC	Q1 2028	<ul style="list-style-type: none"> • Develop guidelines or best management practices for plantings, gardens, and beautification projects that prioritize the use of native species • Plant native species and apply mulch in restored areas • Native species planted in at least one priority area per year • Mulch applied where appropriate to suppress invasive species regrowth • Survival rates of plantings monitored seasonally
4.3 Improve soil health	CC	Q2 2028 (after no re-growth of invasive species)	<ul style="list-style-type: none"> • Improve soil health through targeted rehabilitation (i.e. mulch, aeration), especially around shorelines • Test soil after treatment to amend as needed • Improvement in soil quality indicators tracked over time • Work with partners (i.e. Vineland Research and Innovation Centre) to improve soil health

Management Framework & Action

Site Restoration

Utilize restoration techniques such as mulching, planting native species, and soil rehabilitation to improve the area. Circle back to spread awareness and education on restoration while continually mapping and monitoring the area.

Action Item	Lead	Start	Indicators of Success
4.4 Monitor restored sites	CC	Q3 2027	<ul style="list-style-type: none"> • Monitor restored sites to assess establishment and identify maintenance needs • Follow-up visits conducted at least once per year • Restoration success documented (e.g., % native cover) • Maintenance actions recorded and scheduled
4.5 Develop a native seed collection program	CC	Q3 2028	<ul style="list-style-type: none"> • Explore options to collect native seeds to house ethically and sustainably • Develop native seed collection protocols • Engage with the Native Tree Seed Collection Community of Practice • Gather required data and create a strategy to establish a Town nursery to support restoration initiatives
4.6 Share restoration stories	CC COMS	Q3 2028	<ul style="list-style-type: none"> • Share restoration stories and successes with organizations and the public to encourage stewardship • Collect before/after photos and stories posted online • Signage installed at restored sites • Encourage public engagement in restoration activities and recognition of local efforts

Management Framework & Action

Key Performance Indicators

To effectively measure the success of invasive species management through the framework mentioned above, key performance indicators (KPIs) will be established for each site-specific work plan. Although they can differ on a case-by-case basis and be specific to the project, some general indicators the Town will incorporate are as follows:

KPI	Description	Target/Benchmark
Species early detection reports	Number of early detections (insects or plants) submitted through internal or public reporting	≥ 10 verified early detections annually
Rapid response time	Time from detection to management action for new invasions	≤ 2 weeks from verified detection to action plan initiation
Number of educational campaigns on invasive insects	Social media posts, workshops, newsletters, etc. focused on pest prevention and ID	At least 1 campaigns annually
Decontamination awareness compliance	Trailheads or facilities with signage and boot brush stations installed	≥ 90% of priority sites equipped and maintained
Volunteer/community participation rate	Number of community members involved in invasive species work (events, monitoring, etc.)	≥ 25 participants annually
Public reporting rate	Number of invasive species reports submitted via public platforms (e.g., Survey123)	20% increase in reports per year
Infestation area (ha or m ²)	Total area affected by specific invasive species	Annual reduction in the total infestation zone
Number of priority sites treated	Total number of identified high-priority sites where invasive species management occurred	Annual increase; e.g., 5+ sites treated per year
Pre- and post-treatment species counts	Count of invasive species at a site before and after management activities	≥ 50% reduction in invasive plant individuals over 1–2 seasons; ≥ 50% increase in native cover
Tree mortality rate from invasive insects	Tracks number of trees lost to invasive pests like EAB or LDD moths annually	≤ 5% mortality rate in managed zones
Pheromone or trap capture rate	Number of insects captured in monitoring traps for early detection (i.e. spotted lanternfly, spongy moth)	Stable or decreasing capture trend over time

Management Framework & Action

Key Performance Indicators

To effectively measure the success of invasive species management through the framework mentioned above, key performance indicators (KPIs) will be established for each site-specific work plan. Although they can differ on a case-by-case basis and be specific to the project, some general indicators the Town will incorporate are as follows:

KPI	Description	Target/Benchmark
% Reduction in invasive cover	Percentage decrease in ground/area cover of invasive species at treated sites	≥ 60% reduction in invasive cover within 1 year
Native species establishment rate	Percentage of planted native species that survive after 1 growing season	≥ 70% survival rate of planted native species
Restored Area (in hectares or m ²)	Total area restored with native planting, soil rehab, and other actions post-treatment	≥ 500 m ² restored per year, depending on scale
Native tree replanting after insect infestation	Number of native trees planted to replace insect-killed trees	≥ 2 native trees planted per tree lost

Connect to the Town

Sign up to Receive Town news and alerts at www.notl.com/subscribe

Contact the Town:



905-468-3266



info@notl.com



1593 Four Mile Creek
Road, Virgil, L0S 1T0



www.notl.com

Follow the Town on Social Media:



@Town of Niagara-on-the-Lake



@niagara.on.the.lake



@Town_of_NOTL



@Town of Niagara-on-the-Lake

If you spot an invasive species, report it through the Government of Ontario:

- **Phone:** Invading Species Hotline at Toll-free **1-800-563-7711**
- **Online:** Visit [EDD MapS](#), or visit the [Invasive Species in Ontario project](#) to report a sighting
- **Mobile app:** Download the [EDDMapS](#) Ontario app on your mobile phone



References

- Anderson, Hayley. 2012. Invasive Japanese Knotweed (*Fallopia japonica* (Houtt.)) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.invasivespeciescentre.ca/wp-content/uploads/2019/12/OIPC_BMP_JapaneseKnotweed.pdf
- Canadian Food Inspection Agency. (2024). Spotted Lanternfly Survey Protocol. Government of Canada. https://www.invasivespeciescentre.ca/wp-content/uploads/2024/07/Lycdel_EN_External_WEB.pdf
- Canadian Nursery Certification Institute. (2024). Spotted Lanternfly Best Management Practices. [32913d228a9fb5326b411074dae9ae](https://www.invasivespeciescentre.ca/wp-content/uploads/2024/02/OIPC_BMP_Phragmites_Feb212024_D13_WEB.pdf)
- Derry, V., DiGasparro, M., MacQuarrie, C. J., & Sturba, M. (2024, March 28). Guide for Managing Hemlock Woolly Adelgid (*Adelges tsugae*): An Invasive Insect Threatening Eastern Hemlock (*Tsuga canadensis*) in Canada. Sault Ste. Marie; Invasive Species Centre. https://www.invasivespeciescentre.ca/wp-content/uploads/2024/04/HWAManagementGuide_FINAL_April2024_WEB.pdf
- Francine MacDonald and Hayley Anderson. 2012. Giant Hogweed (*Heracleum mantegazzianum*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/06/OIPC_BMP_Hogweed.pdf
- Health Canada. (2021). Product Search. <https://pest-control.canada.ca/pesticide-registry/en/product-search.html>
- Invasive Species Centre. (2025). Japanese Knotweed (*Fallopia japonica*). <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/japanese-knotweed/>
- Lower Hudson. (N/A). Tree of Heaven (*Ailanthus altissima*). Invasive Species Management. <https://www.lhprism.org/tree-of-heaven-ailanthus-altissim/>
- Ministry of Natural Resources. (2024). Remove Invasive Aquatic Plants. <https://www.ontario.ca/page/remove-invasive-aquatic-plants>
- Nichols, Gabby. (2020). Invasive Phragmites (*Phragmites australis*) Best Management Practices in Ontario: Improving species at risk habitat through the management of Invasive Phragmites. Ontario Invasive Plant Council. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2024/02/OIPC_BMP_Phragmites_Feb212024_D13_WEB.pdf

Ontario Invasive Plant Council. (2025). Site Prioritization Tool for Control of Invasive Phragmites. <https://www.ontarioinvasiveplants.ca/resources/technical-documents/phragmites-site-prioritization-tool/>

Ontario Ministry of Natural Resources. (2013). In-water work timing window Guidelines. <https://docs.ontario.ca/documents/2579/stdprod-109170.pdf>

RIPARIAS. Invasive Alien Aquatic and Riparian Plant Species Best Management Practice Guide. <https://www.riparias.be/>

Simkovic, Vicki. 2020. Flowering Rush (*Butomus umbellatus*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2021/01/FloweringRush_Edn1.0_March2020.pdf

Simkovic, Vicki. 2024. Oriental Bittersweet (*Celastrus orbiculatus*): Best Management Practices in Ontario. Ontario Invasive Plant Council, ON. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2024/11/OIPC_BMP_OrientalBittersweet- Nov18_D4_FINAL_WEB-1.pdf

Warne, Amanda. 2016. Purple Loosestrife (*Lythrum salicaria*) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. <https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Purple-Loosestrife-BMP-April-2016-final.pdf>

Wildlife and Nature. (2023). Oak wilt. Ontario Government, <https://www.ontario.ca/page/oak-wilt>

Appendix

Ontario Invasive Species Act

There are two classes of invasive species regulated under the act: prohibited and restricted. A link to both lists is available [here](#).

Prohibited Invasive Species

The Invasive Species Act defines prohibited invasive species as “it is illegal to import, possess, deposit, release, transport, breed/grow, buy, sell, lease or trade prohibited invasive species”. Species listed as prohibited in Ontario are as follows:

Fish:

- Bighead carp (*Hypophthalmichthys nobilis*)
- Black carp (*Mylopharyngodon piceus*)
- Grass carp (*Ctenopharyngodon idella*)
- Silver carp (*Hypophthalmichthys molitrix*)
- [Snakeheads \(All species in the family Channidae\)](#)
- [Stone moroko \(*Pseudorasbora parva*\)](#)
- [Wels catfish \(*Silurus glanis*\)](#)
- [Zander \(*Sander lucioperca*\)](#)
- [Tench \(*Tinca tinca*\)](#)
- [Prussian carp \(*Carassius gibelio*\)](#)
- [Ide \(*Leuciscus idus*\)](#)
- [Red shiner \(*Cyprinella lutrensis*\)](#)
- [Eastern and Western mosquitofish \(*Gambusia holbrooki* and *Gambusia affinis*\)](#)

Insects:

- [Mountain pine beetle \(*Dendroctonus ponderosae*\)](#)

Aquatic invertebrates

- [Common yabby - Crayfish \(*Cherax destructor*\)](#)
- [Golden mussel \(*Limnoperna fortune*\)](#)
- [Killer shrimp \(*Dikerogammarus villosus*\)](#)
- [Marbled crayfish \(*Procambarus virginalis*\)](#)
- [Red swamp crayfish \(*Procambarus clarkii*\)](#)
- [New Zealand mud snail \(*Potamopyrgus antipodarum*\)](#)
- [Pacifastacus crayfish \(*Pacifastacus spp.*\)](#)
- [Procambarus crayfish \(*Procambarus spp.*\)](#)

Plants:

- [Brazilian elodea - Brazilian waterweed \(*Egeria densa*\)](#)
- [European water chestnut \(*Trapa natans*\)](#)
- [Hydrilla \(*Hydrilla verticillate*\)](#)
- [Parrot feather \(*Myriophyllum aquaticum*\)](#)
- [Water soldier \(*Stratiotes aloides*\)](#)
- [Oxygen weed \(*Lagarosiphon major*\)](#)
- [Watermoss \(*Salvinia spp.*\)](#)

Restricted Invasive Species

In Ontario, restricted invasive species are defined as species for which “it is illegal to import, deposit, release, breed/grow, buy, sell, lease or trade restricted invasive species”. While possession of restricted species is permitted, all other activities remain prohibited, including importation and release. The following species are listed as restricted in Ontario:

Plants:

- [Black dog-strangling vine \(*Cynanchum louiseae*\)](#)
- [Dog-strangling vine \(*Cynanchum rossicum*\)](#)
- [Japanese knotweed \(*Reynoutria japonica* var. *japonica*\)](#)
- [Phragmites - European common reed \(*Phragmites australis* subsp. *Australis*\)](#)
- [Tree-of-heaven \(*Ailanthus altissima*\)](#)
- [Carolina fanwort \(*Cabomba caroliniana*\)](#)
- [Yellow floating heart \(*Nymphoides peltate*\)](#)
- [Bohemian knotweed \(*Reynoutria* × *bohemica*\)](#)
- [Giant knotweed \(*Reynoutria sachalinensis*\)](#)
- [Himalayan knotweed \(*Koenigia polystachya*\)](#)
- [European frog-bit \(*Hydrocharis morsus-ranae*\)](#)
- [Waterferns \(*Azolla* spp.\)](#)
- [Floating primrose-willow \(*Ludwigia peploides*\)](#)
- [Flowering-rush \(*Butomus umbellatus*\)](#)
- [Eurasian water-milfoil \(*Myriophyllum spicatum*\)](#)

Mammals

- [Wild Pigs \(*Sus scrofa*\)](#)
- [Nutria \(*Myocastor coypus*\)](#)

These are currently the listed regulated invasive species in Ontario; however, other species have invasive “traits” and new ones are emerging on this list continually with species classification evolving. Please refer to the [Managing Invasive Species in Ontario link](#) for the most updated list and information.

Federal Legislation

Focused on invasive species:

- (2001) Canada Shipping Act
- (1990) Health of Animals Act
- (1990) Plant Protection Act
- (1985) Fisheries Act
- (1985) Great Lakes Fisheries Convention Act

Related to invasive species:

- (2009) Environmental Violations Administrative Monetary Penalties Act
- (2008) Federal Sustainable Development Act
- (2002) Pest Control Products Act
- (2002) Species at Risk Act (SARA)
- (2000) Canada National Parks Act
- (1994) Migratory Birds Convention Act
- (1992) Transportation of Dangerous Goods Act
- (1992) Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act
- (1990) Canada Environmental Protection Act
- (1985) Freshwater Fish Marketing Act
- (1985) Seeds Act

Ontario Legislation

Focused on invasive species:

- (2015) Great Lakes Protection Act
- (2015) Invasive Species Act
- (1990) Forestry Act
- (1990) Pesticides Act
- (1990) Weed Control Act

Related to invasive species:

- (2009) Animal Health Act
- (2008) Lake Simcoe Protection Act
- (2007) Endangered Species Act (Species Conservation Act to come into force at future date)
- (2006) Provincial Parks and Conservation Reserves Act
- (2003) Kawartha Highlands Signature Site Park Act

- (2001) Municipal Act
- (1997) Fish and Wildlife Conservation Act
- (1994) Crown Forest Sustainability Act
- (1990) Conservation Authorities Act
- (1990) Environmental Assessment Act
- (1990) Plant Diseases Act

Additional Partner Agencies

Additional Partners	
Ministry of Natural Resources (MNRF) – forest health & natural heritage	https://www.ontario.ca/page/ministry-natural-resources
Grape Growers of Ontario – vineyard protection	https://grapegrowersofontario.com/resources/
Landscape Ontario Horticultural Trades Association	https://landscapeontario.ca/
Canadian Lumber Standards Accreditation Board – forestry standards	https://www.clsab.ca/
Eastern Ontario Model Forest – forest health collaborative network	https://imfn.net/regional-networks/eastern-ontario-model-forest/

Health Canada Search Product Label Tool

A full list of registered pesticides can be found on the Pest Management Regulatory Agency's (PMRA) website [linked here](#).

Their product search tool ([linked here](#)) can allow viewers to search for products that are registered for use on specific invasive species and other applications.

On this page the viewer will have to agree to the disclaimer. They will then be redirected to see a homepage for the product search. A table with a series of three columns to fill in will be displayed, as shown here:

Government of Canada / Gouvernement du Canada

Search Canada.ca

MENU

Home > Health Canada > Consumer Product Safety > Pesticides and Pest Management > Pesticide Product Information Database

Product search

This search allows you to search for product information available to the public.

Simple search

Group # 1

Rule # 1

Filter	Operator	* Value (required)
Active Ingredient - English	contains	

Buttons: Search, Show query, Reset, Need Help?

It will automatically show one row of available search criteria that the user can choose to filter from and enter selected text. The first column under “Filter” provides a list of options to sort from including active ingredient, current/historical, date first registered, exclusive period start date, expiry date, marketing type, pest, product name, product type, registrant, registration number, registration status, site of use, or use-site category. The most useful options for searches on invasive species products are pest, site use, and registration status. However, anyone could be used at any time.

Under the “Operator” column the user can select either equal, contains, does not equal, does not contain, or empty to match the desired search. This will allow the individual to search for items that include or exclude specific text entered from the last column “Value”. This column allows the user to input the specific item they are seeking to find.

For example, if it is an invasive species the user might enter "phragmites", if needed for an aquatic site they may enter "water", etc. Typically, entering one or two words works best in the search query.

The user can also click the "Add rule" button to add a combination of filters for the search such as registration status, pest, and site of use that would be helpful for determining products to use for invasive species. When listing more than one rule, an additional option at the top left corner will appear to select either "and" vs. "or". Selecting "and" will make sure products listed meet all criteria specified while "or" will list products that contain one or more criteria specified. When all fields have been entered, the user can click "Search" at the bottom left corner and view the list of products available.

An example search entry is illustrated below:

Product search

This search allows you to search for product information available to the public.

The screenshot displays a search interface titled "Simple search". At the top left, there is a "Group # 1" section with radio buttons for "AND" (selected) and "OR". At the top right, there is a green "+ Add rule" button. Below this, there are three rules defined:

- Rule # 1:** Filter: Registration Status, Operator: equal, Value: Full Registration. A yellow "Delete rule # 1" button is on the right.
- Rule # 2:** Filter: Pest, Operator: contains, Value: phragmites. A yellow "Delete rule # 2" button is on the right.
- Rule # 3:** Filter: Site of Use, Operator: contains, Value: water. A yellow "Delete rule # 3" button is on the right.

At the bottom left, there is a blue "Search" button with a magnifying glass icon. To its right are buttons for "Show Query", "Reset", and "Need Help?".

Chemical Control Licenses and Permits

Permits must also be obtained for pesticide use on [land](#) and [water](#), with applications available online.

Licensing Requirements

To apply certain pesticides, a valid [exterminator license](#) is required. Specific license classifications, such as Forestry or Landscape, must be identified and obtained to use in appropriate settings. The application process includes:

1. Submitting an [application form](#) and \$195 fee to the University of Guelph Ridgetown Campus.
2. Studying provided materials: a Core Manual and a License Category Specific Module.
3. Writing and passing a two-part exam (Core: 1-hour, closed book; Category: 1.5-hour, open book) with a minimum **75%** on both parts.
4. Sending your certification letter to the Ministry of Environment Conservation and Parks (MECP) to receive your license.

If failed, you may rewrite the exam (max. two more times in 12 months, \$75 per attempt). The license (\$90) is valid for **five years**.

Contact MECP's Client Services and Permissions Branch at 416-314-8001 | 1-800-461-6290 | enviopermissions@ontario.ca

Aquatic Herbicide Application

Herbicides used in water require a permit from MECP. Licensed exterminators must follow strict guidelines, including timing, dosage, setback distances, and environmental protections. Treatments for aquatic invasive plants can be applied **July 15 to March 14**, after fish spawning has ended. If endangered species are present, approval under the **Endangered Species Act, 2007** may also be required.

Search for approved products using [PMRA's pesticide label database](#). **Always consult the current product label** before use.

Manual Control Permits

For aquatic plants a work permit under the Public Lands Act is not required if **all** of the following rules are met:

1. Applicant is the waterfront property owner or conducting work on behalf of the property owner
2. Minimizes the removal of native aquatic vegetation (e.g., wild rice)
3. Disposes of the plants/material removed on dry land to prevent it from re-entering the water
4. Use, operate or store any wheeled or tracked machinery/equipment on dry land, or on a barge or vessel
5. Only uses mechanical devices (e.g., rake, cutter bar) or your hands to remove plants, and do not dredge the bed of the waterbody
6. Does not carry out work during fish spawning season or during the time of other critical fish life stages, as set out in the In-water Work Timing Window Guidelines

If rules cannot be met, then a work permit will be required. To apply for the permit:

1. Download and complete the [Application for Work Permit Part 1 \(PDF\)](#)
2. Download and complete [Application to do Work on Shore lands Part 3 \(PDF\)](#)
 - Include proof of ownership (i.e. deed)
 - Include sketches/drawings/survey plans indicating your property lines and where the work is taking place
3. Submit complete application by mail or in person to a local ministry office. Southern Ontario Region: 4th Flr S, 300 Water St Peterborough, ON K9J 3C7

Removal methods can begin for aquatic plants after July 15 to March 14, when spawning activities are over for fish species according to the Ontario Ministry of Natural Resources [in-water work timing window guidelines](#).

In addition to the rules above, if you undertake certain activities for research or education, or for the prevention, control or eradication of a regulated **prohibited** invasive species, you will either:

- Require authorization under the *Invasive Species Act*; or must
- Adhere to conditions specified in a prevention and response plan

For invasive plants regulated as **restricted** invasive species, an authorization under the *Invasive Species Act* is not required for specified activities if you take reasonable precautions to prevent the spread of the restricted invasive species outside the immediate

area where the activity is taking place. For more information on Ontario's invasive species regulations, including a list of prohibited and restricted invasive species, visit [Managing invasive species in Ontario](#).

If you have questions about the need for an authorization under the *Invasive Species Act*, please contact invasive.species@ontario.ca.

Invasive Species Management: Priority Species Control Plan

2026

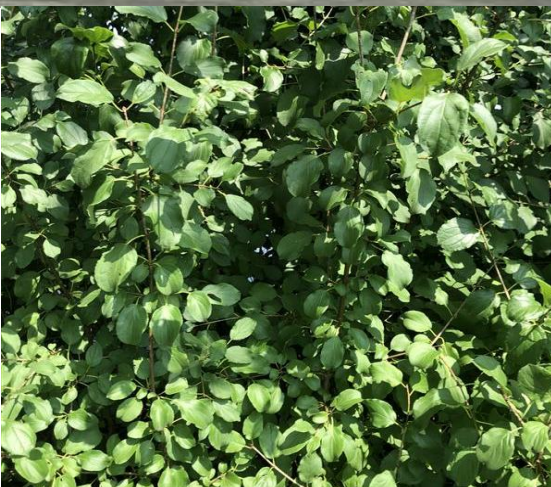


Table of Contents

Introduction	1
Site Prioritization	2
Priority Species	3
Phragmites Control Plan	4
Spotted Lanternfly Control Plan	15
Oak Wilt Control Plan	26
Tree-of-Heaven Control Plan	34
Emerald Ash Borer Control Plan	41
Spongy Moth Control Plan	52
Knotweed Control Plan	62
Purple Loosestrife Control Plan	70
Giant Hogweed Control Plan	78
Buckthorn Control Plan	86
Hemlock Woolly Adelgid Control Plan	94
Flowering Rush Control Plan	105
Connect with the Town	113
References	114
Appendix	118

Introduction

The **Priority Species Control Plan** outlines detailed strategies for the prevention and management of specific invasive species, enabling the Town to respond effectively to both existing and emerging threats. It serves as a supplemental resource to the broader **Invasive Species Management Plan**, translating its overarching strategies into focused actions for individual species. Users should consult this plan alongside the main document and continue to follow the prevention framework, best management practices, and management actions outlined within it.

Each Priority Species Control Plan is informed by **best management practices** developed by the [Invasive Species Centre](#) and [Ontario Invasive Plant Council](#), with guidance from provincial and federal agencies. Niagara-on-the-Lake also aligns its approach with the guiding principles of the **Niagara Invasive Species Strategy Advisory Committee (ISSAC)** and the **Niagara Phragmites Management Area Collaborative (PMAC)**, led by the Niagara Peninsula Conservation Authority (NPCA). The Town will continue to review emerging best practices and innovative control methods to ensure these plans remain current, effective, and adaptable to changing conditions. Updates will be made as needed to reflect new information and approaches.

Safety

Whether implementing prevention measures or carrying out active removal, safety is paramount. All control efforts must be conducted with care to protect workers, volunteers, and the surrounding environment. Adhering to general safety and containment guidelines not only ensures well-being but also helps prevent the further spread of invasive species.

Safety and Containment Guidelines

- Consult with an individual experienced in invasive species management when unsure about any aspect of control.
- Always wear protective gloves when handling invasive biomass.
- Check if additional safety precautions are required specific to the species being removed.
- Thoroughly clean personal gear, clothing, vehicles, and equipment to remove any plant material, including seeds and fragments.
- Avoid parking, unloading, or storing equipment in areas known to be infested.
- Securely bag or tarp all roots, rhizomes, and seeds of plants before transporting off-site to prevent spread.
- Species should be removed before seed production or insect activity to prevent further spread.

Site Prioritization

As highlighted in the primary Invasive Species Management Plan, the extensive presence of invasive species requires strategic use of resources. This can be accomplished through both species and site prioritization. The [Site Prioritization Tool for Control of Invasive Phragmites](#) will provide the Town guidance on the selection of priority locations and be adapted for all invasive species. Site prioritization will be based on the following factors:

- Safety:** Species with human safety concerns such as skin irritation/toxins, blockage to roadside/intersection sightlines, fire prone near buildings/homes, obstruction to flood mitigation infrastructure, etc. will be prioritized first.
- Landownership:** Sites where the Town only owns and manages the area will be given first priority over ones that share landownership or management.
- Population size:** Isolated and smaller populations (less than 50m² with less than 25% density at site) will be given priority over increasingly larger populations, unless deemed a priority for other reasons.
- Technique:** When managing large populations, working from the perimeter of the site towards the middle is the most effective strategy to not disturb and promote further spread.
- Shape:** Linear sites will be preferred over non-linear features.
- Full or partial treatment:** Sites that will be completely treated for removal will be prioritized over ones with partial treatment.
- Paths of Spread:** Areas that function as pathways for invasive species dispersal, such as roadsides, will be given higher priority for management compared to locations with minimal potential for spread.
- Accessibility:** Sites with easy access to the entire population of invasive species will be given priority of management over ones that are difficult to access.
- Habitat Value:** Sites with high habitat quality, significant conservation value, and intact natural features will be given higher priority for management.
- Sensitive Areas:** Sites near provincial or national parks, crown land, provincially Significant Wetland (PSW), Area of Natural and Scientific Importance (ANSI), or similar areas of local natural history importance will be given higher priority for management.
- Recreation:** Species severely impacting recreation activity (i.e. obstruction of boat access, restricted use of trails/parks, etc.) will be given priority.
- Coordination of Sites:** Sites that are neighbouring other confirmed areas to be treated for invasive species will take priority to share resources rather than ones that have neighbouring invasive species with no plan of treatment.
- Aesthetics:** Species entirely affecting scenic views will be considered over ones partially or not affecting aesthetic views.

Priority Species

Given the sheer number, abundance, and diversity of invasive species, Niagara-on-the-Lake will prioritize a select few for active management to ensure control efforts are effective and resources are used efficiently. **Priority species** will be chosen based on their current and potential threats to the Town's economy, public health, safety, and natural environments.

Control plans have been developed for several invasive species to build **preparedness** and understanding of potential threats that may become priorities as environmental conditions, land use, and community needs evolve. Additional control plans may continue to be developed over time to maintain readiness for emerging issues.

While these plans will guide future actions, **active management** will typically focus on a limited number of species (e.g., 1–5) at any given time to ensure resources deployed establish meaningful impact. The selection of priority species can be determined through consultation with Town Council, municipal Staff, and community engagement.

This document outlines **twelve invasive species control plans** that may be prioritized for management by the Town of Niagara-on-the-Lake. Further work will be required to confirm which species will be selected as priorities for active control. The species included range from those that are already well-established to others that have only been observed in isolated instances and require prompt action to prevent their establishment.

1. [Invasive phragmites](#)
2. [Spotted lanternfly](#)
3. [Oak Wilt](#)
4. [Tree-of-Heaven](#)
5. [Emerald Ash Borer](#)
6. [Spongy Moth](#)
7. [Knotweed](#)
8. [Purple loosestrife](#)
9. [Giant hogweed](#)
10. [Buckthorn](#)
11. [Hemlock woolly adelgid](#)
12. [Flowering rush](#)

Each species control plan outlines the activities required to achieve the Town's goals for invasive species management. It provides information on the species prevalence in Niagara-on-the-Lake, characteristics for identification, lifecycle, recommended management and removal methods, disposal techniques, and restoration.

Phragmites Control Plan

Phragmites australis

Overview

Invasive phragmites (European or Common Reed) is a tall, perennial aquatic or subaquatic, grass that can grow up to 6 metres high. It thrives in wet areas, often found in roadside ditches or around water bodies and is classified as a restricted species under the Ontario Invasive Species Act.



Goal: To control existing populations of invasive phragmites and prevent the spread of new populations that will minimize the adverse impacts, while preserving the native variety.

Prevalence: Invasive phragmites are well established in Niagara-on-the-Lake and continue to spread rapidly across Canada. Recognized as one of the country's most damaging invasive species, their expansion costs Ontario municipalities over **\$2.8 million annually** in control efforts ([Invasive Species Centre, 2019](#)). Several issues such as damaging infrastructure, clogging drains and water management systems, increasing fire hazards, inhibiting accessibility, blocking site lines, reducing agricultural production, decreasing property values, altering hydrology and nutrient cycling are common.

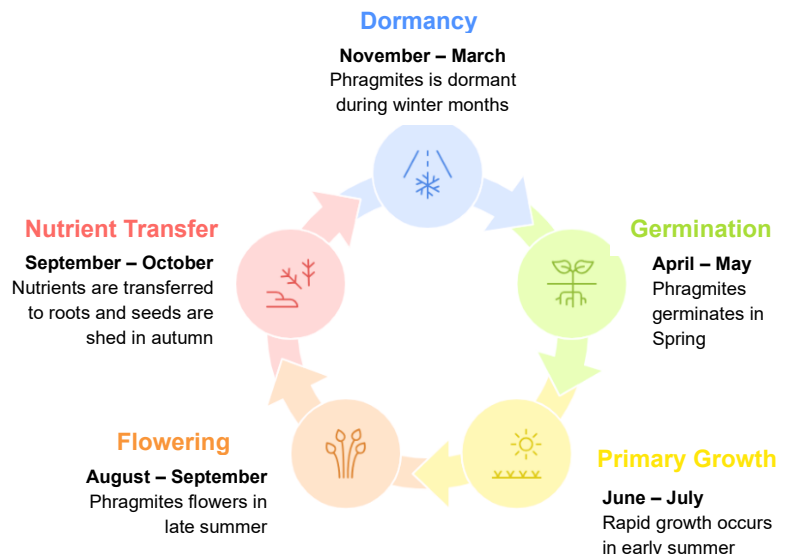
Characteristics:

- **Stem:** rough texture, tan or beige, tall (up to 5 m)
- **Leaves:** thin, long, blue-green leaves
- **Seed head:** large
- **Stands:** high density as a monoculture (living and dead stems)



Invasive Phragmites Life Cycle:

Phragmites is easiest to identify when its germinating in early spring (April–May) as it's one of the first plants to green, or in September–October when stalks begin to die and leaves remain green longer than other vegetation. The best time for herbicide application is during the nutrient transfer stage (September–October), when the plant moves nutrients to its roots, allowing the herbicide to reach the root system.



Surveillance and Priority Monitoring Schedule

Regular mapping and surveillance of Phragmites are critical for identifying priority control areas, tracking spread, and informing timely management actions. In areas with known infestations, routine site visits by the Climate Change Coordinator or Town Staff, as part of regular inspections and maintenance tasks, will ensure continued monitoring and early detection of growth. These efforts can be supported in partnership with the **Niagara Phragmites Management Area Collaborative (PMAC)** that has developed geospatial detection models to support long-term regional monitoring initiatives.

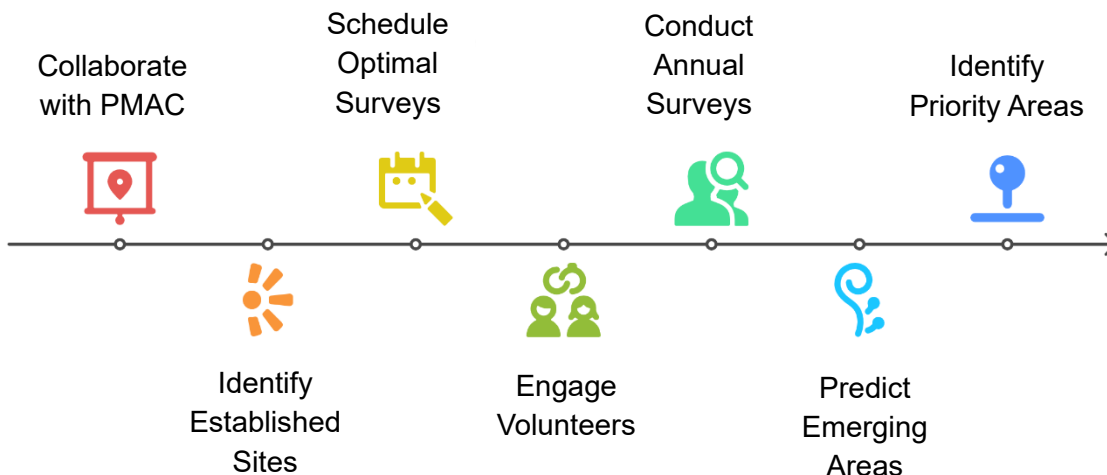
Phragmites are most easily identified during **early spring and late summer**, when they remain green longer than surrounding vegetation. Visual field surveys should be scheduled during these optimal windows to maximize detection accuracy.

Surveys may be carried out by Town Staff, contractors, volunteers, or community members during organized events. To expand geographic coverage and improve efficiency, an **invasive species monitoring program** may be developed to engage trained volunteers in ongoing data collection.

Field surveys should be conducted **annually**, with a focus on both **known established sites** and **predicted emerging areas** where new growth is likely.

Priority surveillance areas can include:

- Roadsides and drainage ditches
- Trails and parks
- Water-retaining areas such as wetlands, stormwater infrastructure, and low-lying disturbed sites
- Previously treated or controlled sites



Removal of Invasive Phragmites

Pesticide application is the most effective and reliable method for managing and removing invasive phragmites. Within the Town, pesticide-based control will typically be carried out by a qualified third-party contractor in accordance with this control plan, with methods implemented and monitored throughout the process. **Removal will be prioritized in areas where phragmites pose safety risks or threaten municipal infrastructure**, such as road ditches, drains, and stormwater management ponds.

When phragmites obstruct infrastructure or present safety concerns, the Divisional Supervisor and Climate Change Coordinator will be notified. The Climate Change Coordinator will conduct a site visit to collect **pre-removal data**, including photographs and measurements. Following this, the Divisional Supervisor will coordinate removal by Town staff or a contractor, using appropriate herbicide or manual methods based on site conditions, access, and biomass levels.

Glyphosate-based herbicides will be the primary control method due to their effectiveness and relatively low environmental impact when used in accordance with product labels. Where glyphosate products are not approved for use in or near water, alternative products may be required for well-established infestations, subject to regulatory approval. All pesticide applications must strictly follow label directions, with treatment typically most effective between **August and October**. Foliar spraying should begin at the perimeter of the infestation and progress inward, and herbicide rotation should be implemented where possible as a best management practice.

In **large, dense monocultures**, herbicide treatment should be staged to avoid cutting live phragmites, which stimulates regrowth and requires repeated treatments over multiple years. Where herbicide use is restricted or impractical, manual cutting may be necessary but is labour intensive and must be repeated throughout the growing season.

Manual removal using Town equipment, such as the Green Machine or phragmites tractor, may be used for immediate access or safety needs but is not considered an ideal long-term management approach, as mechanical cutting can contribute to spread through plant fragmentation. Where required, standing, herbicide-treated stalks that restrict access or pose safety concerns may be cleared using brush cutters or specialized tracked equipment designed to break down dead stems.

Following treatment, the Climate Change Coordinator will document **post-treatment conditions** and collect monitoring data. Treated sites and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database to support ongoing invasive species management and adaptive decision-making.

Phragmites Control Plan

Phragmites australis

Removal of Invasive Phragmites

When planning Phragmites removal, it is important to consider its ecological role, such as stabilizing soil, reducing wave action, or lowering water levels, and the potential impacts of its absence. To mitigate erosion on exposed soils or slopes, deep-rooted native species (e.g., tall-grass prairie species) can be planted where appropriate. While herbicide is considered the most effective management approach to phragmites, there is considerable amount of work and research being done to control the species. Their abundance and adverse impacts have created funding opportunities to be available that can make it an ideal species to **pilot innovative approaches** and expand management or removal operations.

Where appropriate, **prescribed burning and grazing** can be considered. However, these approaches are minimally used. Grazing can be favored in large, open areas where no endangered species are present. Whereas prescribed burning is only recommended to be used when combined with herbicide treatment or cutting to reduce standing dead biomass and support native vegetation recovery. Prescribed burning alone does not impact phragmites' extensive rhizome network underground and can enable rapid regrowth making it not suited as the only control measure to the site. In areas with restrictions on herbicide or other methods, cutting will be the primary control technique.

In **controlled aquatic environments**, flooding may be considered as a potential control method; however, opportunities for its application within the Town are limited, and the level of expertise required would likely restrict its use to a measure of last resort. Where pesticide use is permitted, herbicide application may be considered for infestations on a case-by-case basis at aquatic sites.

Management Timing Summary: The table below outlines management techniques associated with phragmites and when to act based on activity. The darker shading indicates the most optimal timing, lighter shading identifies suboptimal periods, and white cells indicate periods during which action is not recommended.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Field Survey	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	White	White	Light Blue	Dark Blue	Light Blue	Light Blue	Light Blue
Cutting	White	White	White	White	White	Dark Blue	Dark Blue	White	White	White	White	White
Foliar Herbicide	White	White	White	White	White	White	White	Dark Blue	Dark Blue	Dark Blue	Dark Blue	White
Prescribed burns	Dark Blue	Dark Blue	White	White	White	White	White	White	White	White	Dark Blue	Dark Blue
Flooding	White	White	White	White	White	Dark Blue	Dark Blue	White	White	White	White	White
Grazing	White	White	White	White	White	White	Dark Blue	Dark Blue	Dark Blue	White	White	White

Phragmites Control Plan

Phragmites australis

Management Considerations

Phragmites' preference for wet areas can limit herbicide application and may require alternative control methods. Site-specific plans will be developed for each priority location to identify the most appropriate phragmites management practices. The following tables provide more detail on each management technique.

Cutting	
Location:	Terrestrial and aquatic sites
Infestation Size:	Isolated to Medium
Treatment Frequency:	As needed
Timing:	June to July for live stems (primary growth stage) February to March for dead stalks
Comments:	Cutting will occur if the phragmites patch is not accessible to apply herbicides safely or for removing dead stalks. If cutting is used as the only control of untreated living plants all cuts should be made at ground or substrate level and is optimal to have several removal timings throughout the growing season to reduce the stalk density.

Prescribed Burn	
Location:	Open area on dry land
Infestation Size:	Large monoculture or residual biomass
Treatment Frequency:	Once per year (subsequent years as needed)
Timing:	November to March (dormancy stage)
Comments:	Burning is an effective way to remove dead Phragmites biomass before or after other treatments, such as herbicide application, but should not be used alone. If herbicide is applied in the fall, wait at least three weeks before burning to allow full translocation. Cut or roll biomass beforehand for better combustion.

Flooding	
Location:	Flood prone areas or sites that can control water levels
Infestation Size:	Small to large
Treatment Frequency:	Once per year (subsequent years as needed)
Timing:	June to July (primary growth stage)
Comments:	A minimum water depth of 30 cm (ideally more) is needed to limit phragmites' oxygen access. Deeper water increases effectiveness. In natural systems, remove dead stems before flooding or rising water levels (e.g., late winter or early spring) to improve results.

Phragmites Control Plan

Phragmites australis

Chemical Treatment

Currently, nine pesticides are registered in Canada for phragmites control, including six glyphosate-based products. The Town of Niagara-on-the-Lake (NOTL) will continue to update its control plan to ensure treatments remain effective, cost-efficient, and environmentally appropriate.

Currently, the most commonly used products are Roundup WeatherMAX, Vision Max, and Habitat Aqua, with costs ranging from about \$100 per 10 litres for Roundup to \$4,000 per 10 litres for Habitat Aqua. The higher cost reflects site-specific restrictions, particularly the requirement for products approved for use in aquatic environments. At present, **Habitat Aqua is the only pesticide registered for phragmites management in and around Canadian water bodies** and must be used when chemical treatment occurs at these sites. For terrestrial areas away from water, best management practices recommend **rotating products annually** (e.g., Year 1: Roundup; Year 2: Vision Max) to maintain effectiveness and reduce the risk of resistance.

For a full list of pesticides currently registered for use on phragmites under the Pest Control Products Act and regulated by Health Canada's Pest Management Regulatory Agency (PMRA), please refer to the PMRA's online [product label search](#) before selecting or applying any product.

Registration Number	Registrant Name	Product Name
27487	Bayer Cropscience Inc.	Roundup Weathermax with Transorb 2 Technology Liquid Herbicide
27736	Bayer Cropscience Inc.	Visionmax Silviculture Herbicide
32374	BASF Agricultural Solutions Canada Inc.	Habitat Aqua*
29190	G.D.G. Environnement LTEE	Ragweed Off
30203	BASF Agricultural Solutions Canada Inc.	Arsenal Powerline Herbicide
33456	Albaugh LLC	Timberline Herbicide
33653	Bayer Cropscience Inc.	Roundup Weatherpro
34209	Albaugh Llc	Timberline 360
34320	Teragro Inc	Weed-Master Glyphosate 540 Ultra Herbicide

Note: Habitat Aqua labelled with an asterisk () indicates suitability for use in or around specified aquatic sites.*

Phragmites Control Plan

Phragmites australis

Chemical Treatment

Example products commonly used to control phragmites, along with the necessary details for reviewing each [product label](#), are listed below.

Product: Vision Max (Glyphosate)	
Location:	Terrestrial sites
Product Name:	VisionMAX Silviculture Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27736
Application Placement:	Applied directly to leaves (foliage); absorbed systemically to target roots
Application Rate:	0.67 – 1.34 percent solution
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	Late-August to End of September (late summer to early fall)
Comments:	Do not treat directly over water. Targets plant enzymes that are not found in animals and has low toxicity to humans. It is rapidly broken down by soil microorganisms and binds tightly to clay or organic matter in soil. There is low potential for groundwater leaching and affect to human and wildlife.

Chemical: Roundup WeatherMAX (Glyphosate)	
Location:	Terrestrial sites
Product Name:	Roundup WeatherMAX® With Transorb 2 Technology Liquid Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27487, Pest Control Products Act
Application Placement:	Applied directly to leaves (foliage); absorbed systemically to target roots
Application Rate:	2.0 –8.0 L/ha 1.34 percent solution (1.34 litres of this product in 100 litres of water)
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	Mid-August to early November
Comments:	Do not treat directly over water. Visual effects will occur within 7-10 days of application slowly wilting and yellowing the plant.

Phragmites Control Plan

Phragmites australis

Chemical Treatment

Chemical: Habitat Aqua (Imazapyr)	
Location:	Terrestrial and aquatic sites (lakes, ponds, ditches, etc.)
Product Name:	Habitat Aqua
Registrant Name:	BASF Agricultural Solutions Canada Inc.
Active Ingredient:	Imazapyr
Registration Number:	32374, Pest Control Products Act
Application Placement:	Applied directly to leaves (foliage); absorbed systemically to target roots
Application Rate:	3.0–7.0 L/ha Use at least 100 L/ha of water
Treatment Frequency:	Apply once per year (and subsequent years as needed)
Timing:	Mid-August to Mid-October
Comments:	A Restricted Class Aquatic Application may be required for irrigation ditches and irrigation drains should be shut off prior to application. Caution around adjacent trees, as it can cause serious damage or death. Affects emergent plants but not submerged vegetation. Visible results are slow and often only apparent the following year.

Phragmites Control Plan

Phragmites australis

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for invasive phragmites are provided below.

KPI	Description	Target/Benchmark
Species Early Detection Reports	Number of early detections of new phragmites sites submitted through internal or public reporting	≥ 2 verified early detection submissions annually
Rapid Response Time	Time from detection to management action for new phragmites invasions	≤ 2 weeks from verified detection to action plan initiation
Infestation Area (ha or m ²)	Total area affected by phragmites	Annual reduction in total infestation zone
Number of Priority Sites Treated	Total number of identified priority sites where phragmites management occurred	Annual increase; e.g., 1+ sites treated per year
% Reduction in Invasive Cover	Percentage decrease in area cover of phragmites at treated sites	≥ 60% reduction in invasive cover within 1 year
Infrastructure Recovery Rate	Number of sites with impaired infrastructure returning to normal levels of service	≥ 2 sites annually
Restored Area (in hectares or m ²)	Total area restored with native planting, soil rehab, and other actions post-treatment	≥ 500 m ² restored per year
Number of Educational Campaigns on Phragmites	Social media posts, workshops, newsletters, etc. focused on phragmites prevention and ID	≥ 1 campaign annually (seasonal focus)
Volunteer/Community Participation Rate	Number of community members involved in phragmites work (events, monitoring, etc.)	≥ 20 participants annually

Disposal

Uncut phragmites, consisting of standing dead stalks from herbicide, may be left to naturally decompose. However, if plant material needs to be moved or if cut residues are present, solarization is recommended. It is essential to keep seed heads and rhizomes away from moist soil. Store them in bags or place them on an elevated, tarped surface exposed to full sun for 1 to 3 weeks (depending on weather conditions) to ensure complete drying. Once fully dried, the material may be disposed of at a landfill or composted at approved municipal facilities. Burning phragmites biomass is possible, however, rhizomes and root fragments typically remain because they require higher temperatures to be fully incinerated. Dried stems can also be left on site as wildlife habitat or repurposed.



Restoration

Restoration efforts are best begun after at least 85% of phragmites has been effectively removed and regrowth is minimal. This helps prevent unintentional damage to newly introduced native plants during ongoing control efforts and maximizes their chances of establishment. However, consideration needs to be given to soil stability and erosion if on sloped sites and contains bare soil. Restoration timing and activities are dependent on the site and needs of the area that require approaches to be adapted to its conditions.

In general, choosing **fast-growing, moisture-tolerant** native species can help outcompete any remaining phragmites and support long-term ecosystem recovery. Focus on planting a diverse mix of **native wetland and shoreline species** that are adapted to site-specific hydrology and capable of rapidly establishing cover. These native plants help outcompete invasive seedlings, improve biodiversity, and stabilize soils and sediments.

Once phragmites has been effectively removed, active restoration is essential to prevent reinvasion and restore the ecological integrity of wetland and shoreline habitats. Without revegetation, disturbed areas are **highly vulnerable** to recolonization.

Apply a 7–10 cm (3–4 inch) **mulch layer** in accessible areas to suppress remaining phragmites seed banks or rhizome fragments. Avoid compost or soil amendments that may promote invasive regrowth. In large or remote sites, **broadcasting native seed mixes** can support natural regeneration.

Restoration sites should be monitored at least **once annually** for several years to assess native plant establishment, hydrologic function, and any resurgence of Phragmites. Adaptive management, including follow-up planting or spot treatment, may be necessary to ensure long-term success.

Recommended Native Species

- **Visually Similar Plants:**
 - Prairie Cordgrass (*Spartina pectinata*),
 - Little bluestem (*Schizachyrium scoparium*),
 - Riverbank Wild Rye (*Elymus riparius*),
 - Side Oats Grama (*Bouteloua curtipendula*),
 - Hard–Stem Bulrush (*Scirpus acutus*), and
 - Indian Grass (*Sorghastrum nutans*)
- **Emergent & Wetland Plants:**
 - Soft-stem bulrush (*Scirpus cyperinum*),
 - Pickerelweed (*Pontederia cordata*),
 - Arrowhead (*Sagittaria latifolia*),
 - Blue flag iris (*Iris versicolor*)
- **Grasses & Sedges:**
 - Fox sedge (*Carex vulpinoidea*),
 - Tussock sedge (*Carex stricta*),
 - Rice cutgrass (*Leersia oryzoides*)
- **Pollinator Plants:**
 - Swamp milkweed (*Asclepias incarnata*),
 - Joe-Pye weed (*Eutrochium maculatum*),
 - Marsh marigold (*Caltha palustris*),
 - Boneset (*Eupatorium perfoliatum*)

By re-establishing native wetland plant communities, restoration efforts increase ecosystem resilience, improve wildlife habitat, and reduce the long-term risk of phragmites re-establishment.

For guidance on appropriate plant selections, refer to [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Spotted Lanternfly Control Plan

Lycorma delicatula

Overview

Spotted lanternfly is an invasive insect newly detected in Canada and is currently being monitored by the Canadian Food Inspection Agency (CFIA), listed as a **pest** under the Plant Protection Act. It feeds on a variety of trees and plants, weakening them and causing significant damage to agriculture, especially vineyards, fruit trees, and hardwoods.



Photo: Invasive Species Centre

Goal: To prevent spotted lanternfly (SLF) from establishing in NOTL and utilize rapid response methods to immediately notify the Canadian Food Inspection Agency (CFIA) if a sighting occurs.

Prevalence: Spotted lanternfly (SLF) sightings have been reported in Niagara Region (Fort Erie, Lincoln, Pelham, and Welland), though no established populations exist in Canada, per the Canadian Food Inspection Agency. Its presence in Buffalo increases the risk of cross-border spread. If established, SLF could appear in the thousands, threatening NOTL's wine industry, producing 40% of Canada's grapes, along with tourism, agriculture, trees, and trade due to potential transportation restrictions.

Characteristics:

- **Egg masses:** white when new and darken overtime to grey, arranged vertically
- **Nymphs (juvenile insect):** black and white spots, the last nymph stage develops red colouration
- **Adults:** black spotted exterior wing and bright red colouration under wings
- Accumulation of sweet and sticky substance (honeydew) at base of trees
- Dark streaks of sap attracting more stinging insects
- Sooty mold at base of trees and surrounding ground

Lifecycle:

Feeding occurs from April to November, with adults favoring more selective hosts than nymphs. Survey efforts should align with the SLF's life stages. September offers an optimal window, as egg masses, nymphs, and adults may all be present. However, targeted scheduling can help identify and monitor specific life stages.

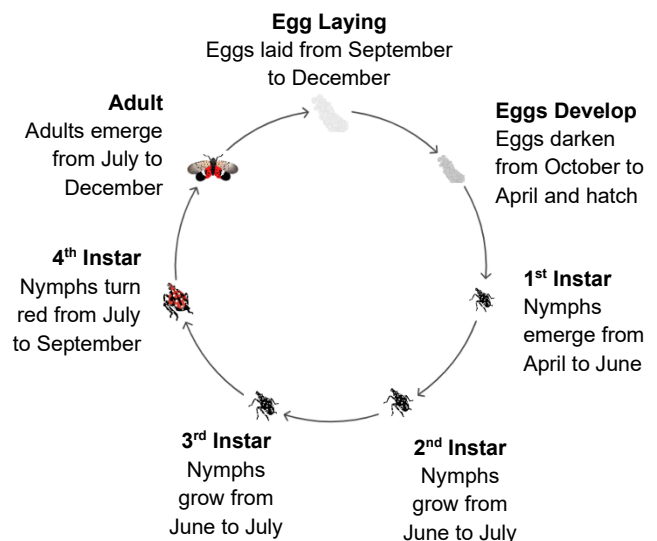


Image drawings: [Invasive Species Centre](#)

Spotted Lanternfly Control Plan

Lycorma delicatula

Detection of Spotted Lanternfly

If you see spotted lanternfly, take the following steps **immediately**:

- 1. Take Clear Photos:** Capture close-up pictures to help confirm identification.
- 2. Collect a Sample:** If safe, catch the insect and seal it in a plastic bag or container.
- 3. Stop and Isolate:** If found on transported goods, seal off the material and pause all shipping activities.
- 4. Report Immediately to CFIA:** Call the St. Catharines office at **905-937-7434** or complete the CFIA [online form](#). Include:
 - a. GPS coordinates or address
 - b. Date spotted
 - c. Life stage (egg mass, nymph, adult) & number seen
 - d. Organization or contact information
 - e. Number of nearby SLF host plants
- 5. Keep Traceability Records:** Documentation must be kept for at least 3 years and contain the following:
 - a. Location with maps or GPS coordinates
 - b. Shipping/receiving information (if applicable)
 - c. Scouting & trapping activities
 - d. Pest control/eradication measures (if applicable)
- 6. Consult with CFIA:** Follow their direction on further action required and disposal of the insect if captured.
- 7. Record Everything:** Track all actions taken for future reference.

Priority Search Areas



Vineyards



Nursery Stock



Trucks and Shipments



Tree-of-heaven and host trees

Surveillance and Priority Monitoring Schedule

To prevent SLF from establishing in NOTL, regular monitoring efforts will be taken. Most activity will occur between **July to December** and represent different life cycle stages.

August is [Tree Check Month](#) that can help support community engagement for monitoring, with nymphs and adults being active. **September** can also be a key time for monitoring, as egg masses, nymphs, and adults may be visible during this period.

- **Adults:** Most visible July to November
- **Egg Masses:** Most visible September to December (newly laid masses will be bright white, most prominent during this timeframe)

Safety: SLF attracts stinging insects by honey dew production. Operators should proceed with caution and have accessible PPE when monitoring or removing SLF.

Spotted Lanternfly Control Plan

Lycorma delicatula

Key Agency Roles

If spotted lanternfly is sighted at any life cycle stage, the Canadian Food Inspection Agency (CFIA) must be notified. However, there several groups working towards controlling spotted lanternfly outlined by the Invasive Species Centre.

- **Canadian Food Inspection Agency (CFIA):** Operates under the authority of the *Plant Protection Act*, leading efforts in surveillance, report investigation, print material distribution, training of Canada Border Services Agency (CBSA) and rail personnel, delivering public presentations, and responding to media inquiries.
- **Ontario Ministry of Agriculture, Food and Agribusiness (OMAFRA):** Conducts monitoring using tree bands, engages in outreach through newsletters, blogs, and social media, delivers educational presentations, and supports insecticide research through the provincial minor use coordinator.
- **Natural Resources Canada (NRCan):** Focuses on research initiatives, particularly in understanding the species' cold tolerance.
- **Agriculture and Agri-Food Canada (AAFC):** Supports surveillance programs, identifies opportunities for research funding, coordinates with provincial ministries and interested parties, and collaborates with international researchers.
- **Collaborative Working Groups:** These agencies and partners are actively involved in several coordinated efforts, including the Technical Advisory Committee, Research Coordination Group, Ontario SLF-Specific Task Force, and the Education and Outreach Committee.
- **Additional Partners:** Other key interested parties include the Ministry of Natural Resources (MNR), Canadian Lumber Standards Accreditation Board, Grape Growers of Ontario, Canadian Nursery and Landscape Association, Landscape Ontario, and the Eastern Ontario Regional Forest Health Network.

Removal of Spotted Lanternfly

The first step to management will involve monitoring sites that contain spotted lanternflies' preferred host species for feeding. Spotted lanternfly prefers certain host species to feed with some differing depending on its lifecycle stage. One of its most preferred hosts is Tree-of-Heaven (TOH), another invasive species that makes removal of the tree more beneficial.

Preferred Host Species

- **Nymph:** TOH, grape vine, black walnut, butternut, perennials, red/silver maple
- **Adult:** TOH, grape vine, black walnut, butternut, roses, river birch, willow, sumac

Spotted Lanternfly Control Plan

Lycorma delicatula

Removal of Spotted Lanternfly

The Town will conduct regular monitoring of Spotted Lanternfly (SLF) preferred host sites at least once a year to support early detection and rapid response. Survey's will follow the [Spotted Lanternfly Survey Protocol](#) developed by the Canadian Food Inspection Agency. Grape growers and ornamental nurseries will be strongly encouraged to include weekly inspections as part of their integrated pest management programs. Scouting in **September and October** is especially important, as adults migrate from wooded areas into crops during this time.

Egg masses are typically laid in sheltered spots, such as under loose bark or on the underside of branches. Females often deposit eggs near others, resulting in clumped distributions on host plants or nearby surfaces.

Based on guidance from relevant authorities, appropriate control measures may include scraping egg masses, setting traps, promoting natural habitats for predators like birds, removing tree-of-heaven, applying pesticides, or using alternative control methods, depending on infestation size.

Management Timing Summary: The table below outlines when to act based on the management activity but are all subject to use or change according to the appropriate agencies. Dark blue squares indicate the optimal timing for implementing control measures, while light blue squares represent suboptimal timeframes.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Monitoring Eggs												
Monitoring early nymphs												
Monitoring late nymphs								Tree Check Month				
Monitoring Adults												
Scrape Eggs												
Tree Band Traps												
TOH Removal												
Chemical Application												

Spotted Lanternfly Control Plan

Lycorma delicatula

Management Considerations

The Town of Niagara-on-the-Lake will follow the direction of the leading agencies and align with the guiding principles established by the inaugural Invasive Species Strategy Working Group, led by the Niagara Peninsula Conservation Authority. The Invasive Species Centre offers a [free-online course](#) to anyone seeking more information. As removal techniques evolve, this plan will be updated accordingly, and site-specific plans will be developed for each priority location to identify the most appropriate management practices. The following tables provide the most current information available.

Scrapping Egg Masses	
Location:	On plants or outdoor surfaces
Infestation Size:	Isolate to Small
Treatment Frequency:	Applied as needed with no max. limit to frequency
Timing:	Mid-October to Mid-April
Comments:	Egg masses can be removed by scraping them off with a hard plastic card and placing them in a container with ethanol, rubbing alcohol, hand sanitizer, or vinegar. These practices align with Best Management Practices from the Canadian Nursery Certification Institute, offering guidance on reducing the risk of spotted lanternfly introduction, which are applicable across production systems. This control method is also suitable for community engagement events and invasive species awareness. Although proactive, SLF tend to go higher into trees where it is out of reach without specialized equipment.

Traps/Adhesive Bands	
Location:	Preferred host species tree trunks
Infestation Size:	Isolated to large
Treatment Frequency:	One set up and dismount on multiple trees annually. Requires regular inspection visits
Timing:	Spring and summer
Comments:	Traps such as BugBarrier Tree Band can be placed on the trunks of host trees in alignment with SLF's life cycle to intercept nymphs and adults as they climb up trunks into the canopy. Bands should be at least 15 cm wide and at heights of approximately 1 to 1.5 m off the ground. Nymphs are particularly susceptible but use metal wiring cages to prevent birds and animals from entering traps.

Spotted Lanternfly Control Plan

Lycorma delicatula

Chemical Treatment

Pesticides should only be used under the guidance of the Canadian Food Inspection Agency (CFIA). Although the spotted lanternfly (SLF) is not currently established in Canada, five pesticide products are registered as proactive control measures in the event of an infestation. These products are approved under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). Full details can be accessed through the PMRA's [product label search](#).

If chemical treatment is to be used on sites it is likely to be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout. Before any pesticide is applied, the product label must be carefully reviewed and followed. Both contact and systemic insecticides are currently registered for SLF suppression; however, they must be used with caution, as research and efficacy testing are still ongoing. Contact sprays may have limited effectiveness due to SLF's tendency to climb high into trees and structures. The two most referenced products for potential spotted lanternfly control are KOPA Insecticidal Soap and ALTUS Insecticide.

Registration Number	Registrant Name	Product Name
31433	W. Neudorff GMBH KG	KOPA Insecticidal Soap
33176	Bayer Cropscience Inc.	ALTUS Insecticide
33817	Valent Canada, Inc.	Danitol Insecticide
34653	Mitsui Chemicals Crop & Life Solutions, Inc.	Starkle 20 SG
31452	Bayer Cropscience Inc.	Sivanto Prime Insecticide

Spotted Lanternfly Control Plan

Lycorma delicatula

Chemical Treatment

Example products commonly referenced to control spotted lanternfly, along with the necessary details for reviewing each [product label](#), are listed below.

Chemical: Kopa Insecticidal Soap	
Product Name:	Kopa Insecticidal Soap
Registrant Name:	W. Neudorff GMBH KG
Active Ingredient:	Potassium salts of fatty acids
Registration Number:	31433
Application Placement:	Applied directly to nymphs
Application Rate:	4 – 8 L of product with 400 L of water
Treatment Frequency:	One application to nymphs (as needed)
Timing:	May to September
Comments:	Insecticidal soap to suppress nymphs only (not adults). Nymphs need to be contacted with spray solution to be effective as this product is not systemic. Can be used around tree fruit, grapes, ornamental and shade trees, and outdoor flowering, foliage and bedding plants.

Chemical: ALTUS Insecticide	
Product Name:	Altus Insecticide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Flupyradifurone
Registration Number:	33176
Application Placement:	Applied to foliage of host species
Application Rate:	500 – 750 mL/ha Must not exceed 2000 mL/ha per year.
Treatment Frequency:	Apply once per year (and subsequent years as needed) Minimum 7-day interval between applications
Timing:	May to September
Comments:	For suppression of SLF nymphs and adults . It can be used on outdoor nursery and landscape ornamental plants, including flowers, foliage plants, shrubs, trees and groundcovers. Systemic insecticide of the plant to be ingested by SLF and can provide control of pests that may be higher in the canopy of trees.

Spotted Lanternfly Control Plan

Lycorma delicatula

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for spotted lanternfly (SLF) are provided below.

KPI	Description	Target/Benchmark
New infestation reports	Number of newly verified SLF sightings	Increase early detection; 100% of reports verified within 5 business days
Egg Mass Surveys Conducted	Total number of surveys targeting egg masses on host trees and objects	≥ 90% of high-risk locations surveyed annually
Survey Coverage	Number of priority sites surveyed (e.g., near nurseries, borders)	≥ 20 sites annually
Visual Inspection Accuracy	% of surveys accurately identifying SLF presence/absence	≥ 95% accuracy through field training programs
Time to Response	Time between confirmed SLF detection and initiation of control	≤ 5 business days
Quarantine Compliance Rate	% of businesses and transport operators adhering to quarantine protocols	≥ 95% compliance rate
Traps placed	Number of traps placed	≥ 50 traps placed annually
Number of Educational Campaigns on Phragmites	Social media posts, workshops, newsletters, etc. focused on SLF	At least 1 campaign annually (seasonal focus)
Volunteer/community participation rate	Number of community members involved in SLF work (events, monitoring, etc.)	≥ 20 participants annually

Spotted Lanternfly Control Plan

Lycorma delicatula

Disposal

Egg masses, nymphs, and adult spotted lanternflies should be placed in a sealable bag or container that has rubbing alcohol or vinegar inside. Once safely secured and the CFIA has been notified of the reported sighting, the vessel can be placed in a garbage bag to be sent to a landfill, unless otherwise specified by CFIA.

As spotted lanternfly has not yet been established in Canada, there are no regulated areas in the country. However, there are several regulated areas in the United States and the CFIA has [phytosanitary requirements](#) for import regulations of logs and nursery stock of deciduous species with bark entering Canada. A [phytosanitary certificate](#) or [permit](#) will be required if logs or nursery stock of deciduous species comes from a regulated area in the U.S. to anywhere in Canada.

To support traceability and compliance, all spotted lanternfly detections and disposal actions should be documented. This includes recording the location, date, volume of material removed, disposal method used, and Staff involved. This documentation should be maintained on file for at least **3 years**. Proper disposal, when conducted consistently and according to provincial and federal guidelines, plays a critical role in limiting the spread of spotted lanternfly and reducing its long-term ecological and economic impacts.

Restoration

Restoration is a key strategy in preventing and controlling spotted lanternfly (SLF), particularly in areas where tree-of-heaven or other preferred host species have been removed. Eliminating these hosts and replanting with other native species helps **disrupt the SLF lifecycle**, for long-term success. Habitat restoration that attracts **natural predators**, such as birds, further reduces the risk of infestation. Collectively, these measures support the recovery of healthy, resilient natural areas while maintaining ecological balance.

Restoration should prioritize **diverse native trees and shrubs** that do not serve as significant spotted lanternfly hosts. Restoration plantings should emphasize pollinator-friendly native species to support local insect and bird populations affected by SLF-related tree stress. This not only helps to suppress SLF populations but also supports pollinators, wildlife, and landscape resilience. In heavily disturbed or urban areas, the re-establishment of canopy and understory cover also helps prevent colonization by other



Photo: Invasive Species Centre

Spotted Lanternfly Control Plan

Lycorma delicatula

invasive species. Native groundcovers and cover crops can stabilize soil, while vegetated buffers protect waterways and help limit SLF migration.

Avoid planting species known to attract SLF and consider spacing and diversity in plantings to avoid creating large monocultures. Mulch may be applied around new plantings to reduce weed pressure and retain soil moisture, but compost should be avoided as it could promote invasive growth.

Restoration areas should be **monitored annually** for SLF egg masses, nymphs, and adults, as well as for the survival and growth of native species. Regular visual inspections and trap use are important for detecting reinfestations early. Trained volunteers and community scientists can play a valuable role in supporting long-term surveillance and control. Public education, signage, and community engagement around SLF awareness and native plant restoration further strengthen these efforts. Consistent monitoring and early detection are essential for the sustained success of SLF management in restored areas.

Recommended Native Species (Non-Host Focus):

- **Trees:**
 - Eastern red cedar (*Juniperus virginiana*),
 - American sycamore (*Platanus occidentalis*),
 - Yellow poplar (*Liriodendron tulipifera*),
 - White oak (*Quercus alba*),
 - Eastern Redbud (*Cercis canadensis*),
 - Serviceberry (*Amelanchier*), and
 - Blackgum (*Nyssa sylvatica*)

- **Shrubs & Understory:**
 - Buttonbush (*Cephalanthus occidentalis*),
 - Ninebark (*Physocarpus opulifolius*),
 - Winterberry (*Ilex verticillata*),
 - Spicebush (*Lindera benzoin*)

- **Groundcovers & Pollinator Plants:**
 - Wild bergamot (*Monarda fistulosa*),
 - New England aster (*Symphyotrichum novae-angliae*),
 - Little bluestem (*Schizachyrium scoparium*),
 - Black-eyed Susan (*Rudbeckia hirta*)

Spotted Lanternfly Control Plan

Lycorma delicatula

By restoring a diverse, non-host native plant community, sites become less attractive to SLF and more resilient to future pest pressures and ecological disturbances.

For guidance on appropriate plant selections, refer to [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Oak Wilt Control Plan

Bretziella fagacearum

Overview:

Oak wilt is an invasive fungal pathogen that spreads through the roots of all types of oak trees and can be transmitted through sap beetles. It is new to Canada and is currently monitored by the Canadian Food Inspection Agency (CFIA) and listed as a **fungus pest** under the Plant Protection Act.



Goal: To prevent oak wilt from establishing in NOTL and utilize rapid response methods to immediately notifying the Canadian Food Inspection Agency (CFIA) if a sighting occurs.

Prevalence: NOTL is one of only three confirmed locations in Canada with oak wilt, along with the City of Niagara Falls and the Township of Springwater. Oak trees are among the most common and valued landscape species, provide essential ecosystem services and include some of the Town's oldest trees. Like the impact of Emerald Ash Borer on ash trees, oak wilt poses a serious threat, capable of killing millions of oaks, especially red oaks, which can die within a single season. The disease endangers property values, the forestry sector, tree canopy cover, aesthetics, and biodiversity, while increasing maintenance costs and safety risks.

Characteristics:

- **Leaves:** turn dull green/yellow to brown, with edge-to-center discoloration; wilting and bronzing starting at the top of the tree and progress downward; premature leaf drop, including green leaves
- **Bark:** vertical crack from fungal mats (pressure pads); white, grey, or black fungal mats under bark
- **Odour:** fruity smell ("juicy fruit" or "fermented wine") from pressure pads

Lifecycle:

Above-ground: During feeding or breeding, nitidulid or sap beetles transport fungal spores from spore mats on infected trees to fresh wounds on healthy ones.

Surveillance is most effective between July and August, when beetle activity peaks.

Below-ground: The fungus spreads through root systems, moving from infected trees to nearby healthy ones via interconnected roots growing in close proximity.

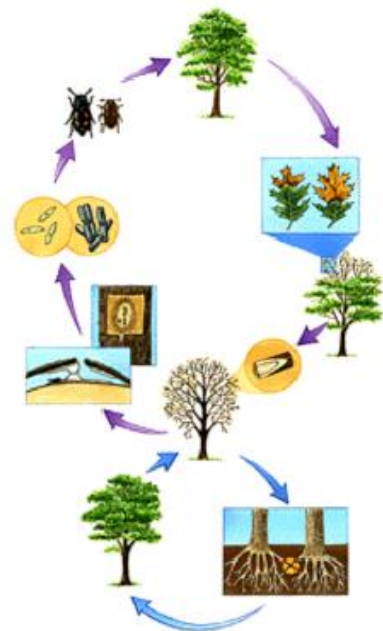


Image: [USDA Forest Service](#)

Oak Wilt Detection

If oak wilt is suspected the following should be implemented **immediately**:

- 1. Stop and Isolate:** If found on transported wood, seal off the material and pause all shipping activities.
- 2. Take Clear Photos:** Capture close-up pictures to help confirm identification.
- 3. Report Immediately to CFIA:** Call the St. Catharines office at **905-937-7434**, email: OakWiltReportingOntario-Fletrissementduchene@inspection.gc.ca or complete the CFIA [online form](#). Include:
 - a. GPS coordinates or address
 - b. Date spotted
 - c. Symptoms
 - d. Organization or contact information
 - e. Number of nearby suspected cases
- 4. Keep Traceability Records:** Documentation must be kept for at least 3 years and contain the following:
 - a. Location with maps or GPS coordinates
 - b. Shipping/receiving information (if applicable)
 - c. Scouting & trapping activities
 - d. Control/eradication measures (if applicable)
- 5. Consult with CFIA:** Follow their direction on further action required and disposal of any tested tree parts.
- 6. Record Everything:** Track all actions taken for future reference.

Priority Search Areas



Forests and sites of densely planted oaks



Border Crossings and Transportation Routes



Campgrounds and Firewood Shipment Areas

Priority Monitoring Schedule

To prevent oak wilt from establishing in NOTL, regular monitoring efforts will be taken. Priority monitoring will occur between **July to August** when symptoms are visible and still within early stages for rapid response and detection. **August** is also [Tree Check Month](#) that can help support community engagement for monitoring efforts. A confirmed case of oak wilt occurred in Queenston and several oak trees are present at Paradise Grove that will be priority spots for annual monitoring in the Town.

Biosecurity Precautions

All equipment (e.g. gloves, chainsaws, etc.) used to collect wood samples should be cleaned between samples with an alcohol-based sanitizer to prevent inadvertent spread of disease. Effort should be made to collect branch samples toward the end or after the high-risk period (April to November) when sap beetles are active. In the event that samples are collected during this period, a thin coat of latex spray paint should be applied to limit potential attraction of sap beetles.

Removal of Oak Wilt

Preventing oak wilt from occurring is the best course of action to avoid and reduce areas where disease can occur. Regular survey inspections at least once a year will be utilized to perform detection and rapid response measures. Survey's will follow the [Oak Wilt Survey Protocol](#) developed by the Canadian Food Inspection Agency and occur between **July and August**. Additional measures that should be taken include, not pruning oak trees from April to October and covering any wounds found during this time with latex spray paint can help not attract beetles. If pruning is required for safety reasons, any wounds or cut ends should also be sealed with paint.

If oak wilt is **suspected**, the Canadian Food Inspection Agency (CFIA) will come and take tree samples to examine eDNA for confirmation of oak wilt. If oak wilt is confirmed, the CFIA will likely direct action for tree removal and potentially of surrounding oak trees or root disruption (soil trenching or root rupture). Lindgren flight traps, a funnel shaped trap, can also be hung off oak tree branches to collect beetles.

Pesticides **should only** be used under the guidance of the Canadian Food Inspection Agency (CFIA). If chemical treatment is to be used on sites it is likely to be completed by a contracted third-party organization within the Town. This control plan outlines the guided process, but site-specific plans will be developed for each suspected location in coordination with the CFIA to identify the most appropriate management practices.

Although oak wilt is not currently established in Canada, there is one pesticide product, Meth-O-Gas, that is registered as a proactive control measure in the event of an infestation. This product is approved under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). Full details can be accessed through the PMRA's [product label search](#). Before any pesticide is applied, the product label must be carefully reviewed and followed.

Registration Number	Registrant Name	Product Name
9564	Lanxess Corporation	Meth-O-Gas Space Fumigant

Oak Wilt Control Plan

Bretziella fagacearum

Management Timing Summary: The table below outlines when to act based on the management activity. Dark blue squares indicate the optimal timing for implementing control measures. If oak wilt is suspected, the CFIA must be **immediately contacted** and follow their guidelines of management. Common practices and timing are listed below but are all subject to use or change according to the CFIA.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Acceptable Pruning												
Paint Wounds												
Beetle Traps												
Tree Removal												
Chemical Application												

Oak Wilt Control Plan

Bretziella fagacearum

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with the Canadian Food Inspection Agency (CFIA), contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for oak wilt are provided below.

KPI	Description	Target/Benchmark
Early Detection Reports	Number of new oak wilt cases identified through monitoring, public reporting, or Staff inspections.	≥ 90% of suspected cases verified and reported within 1 week.
Rapid Response Time	Time between confirmed detection and implementation of containment actions (e.g., tree removal, root trenching).	≤ 2 weeks from lab confirmation to control action.
Infected Tree Removal Rate	Percentage of infected trees removed or treated within the response window.	100% of confirmed cases addressed annually.
Root Graft Disruption Coverage	Proportion of confirmed outbreak sites where root graft severance is completed to prevent spread.	≥ 80% of eligible sites treated.
Public Outreach Engagement	Number of residents reached through education (workshops, signage, newsletters) on oak wilt prevention.	At least 1 campaign per season; ≥ 100 individuals engaged annually.
Volunteer Participation	Number of trained volunteers or community scientists involved in oak wilt monitoring or awareness.	≥ 20 participants annually.
Restoration Area	Total area (m ² or hectares) replanted with non-host native species post-oak wilt removal.	≥ 500 m ² restored per year (site dependent).
Native Species Survival Rate	Percentage of planted trees/shrubs that survive one year after planting.	≥ 70% survival rate.

Disposal

Disposal and removal efforts should be made around the high and low risk periods. Canadian Food Inspection Agency (CFIA) [phytosanitary requirements](#) are currently being revised for high and low risk periods. At present, the highest risk period is from April 1 to July 31 and a low risk period from August 1 to March 31. The Invasive Species Centre specifies a **high risk period from April 1 to October 31** and will be used as the precautionary timeframe for both disposal activities and pruning or maintenance. Currently CFIA only has import regulations to prevent oak wilt spreading further in Canada. Due to the nuance of its arrival in Niagara-on-the-Lake and surrounding area, CFIA should be immediately contacted if oak wilt is suspected and follow directions. Approved disposal methods include **incineration**, **deep burial** (at least 1.8 metres below ground), or **chipping** into pieces no larger than 2.5 cm in two dimensions for use as fuel. Whenever possible, disposal on-site is the preferred method as it is the lowest risk option for spread. Remaining **stumps** should be removed using a backhoe, bulldozer, or equivalent equipment and then flipped, burned, or buried. If oak wilt infected material needs to be transported off-site it must be sealed either in bags, tightly wrapped plastic, containers, or other method to ensure insect vectors cannot escape or access the wood, especially during peak season. Currently there are only regulated areas in the United States but transporting infested oak wilt material will require direction from CFIA, including possible documentation such as a movement certificate or permit. All equipment and tools used in handling infected trees must be disinfected, and logs should be debarked before disposal.



Property owners in affected areas may receive a CFIA-issued **Notice to Dispose** or **Notice of Prohibition of Movement** and are required to submit a disposal plan outlining their method of waste management. No bark, wood waste, or firewood may be reused, sold, or transported unless specifically approved by CFIA. These procedures help ensure that fungal spores are not unintentionally spread through improper handling or firewood movement. Follow-up monitoring and regulatory oversight may be required for several years following tree removal in confirmed infection zones.

To support traceability and compliance, all oak wilt removal and disposal actions should be documented. This includes recording the location, date, volume of material removed, disposal method used, and Staff involved. This documentation should be maintained on file for at least **3 years**. Proper disposal, when conducted consistently and according to provincial and federal guidelines, plays a critical role in limiting the spread of oak wilt and reducing its long-term ecological and economic impacts.

Restoration

Following the removal of infected trees or treatment to contain oak wilt, restoration is an important step in promoting forest and urban canopy recovery and building long-term resilience. Oak wilt can cause significant canopy loss, especially in red oak-dominated stands, leading to increased light or heat, changes in soil moisture, and opportunities for invasive species to establish.

Restoration should focus on **re-establishing a diverse mix of native tree and understory species** to maintain forest structure, reduce the risk of future outbreaks, and restore ecosystem function. Planting new oaks is generally not recommended immediately, as they may still be vulnerable to residual infection in the area.

However, in different planting locations or over time, unaffected oaks can support **natural regeneration**, and the inclusion of compatible companion species is encouraged. In areas with significant canopy loss, planting oak wilt-resistant or less-susceptible native species alongside healthy oaks is important to maintain biodiversity and reduce the overall vulnerability of the ecosystem.

Minimize soil disturbance during planting to avoid stimulating oak wilt spread or encouraging invasive plant growth. Mulching or groundcover planting can suppress unwanted regrowth from infected oaks and stabilize soils. Protective measures like tree shelters or deer fencing may be needed to ensure seedling survival.

Restoration areas should be **monitored twice annually** for tree survival, invasive species encroachment, and signs of new oak wilt infections. Adaptive management, such as supplemental planting or invasive species removal, may be needed to ensure long-term forest health. By restoring native diversity and structure, forests affected by Oak Wilt can recover more quickly and become more resilient to future stressors, pests, and diseases.

Recommended Native Species:

- **Visually Similar Trees to Oak:**
 - Sugar Maple (*Acer saccharum*)
 - Silver Maple (*Acer saccharinum*)
 - Freeman Maple (*Acer x freemanii*)
 - American basswood (*Tilia americana*)
 - Shagbark hickory (*Carya ovata*)
- **Natural Regeneration Trees:**
 - White oak (*Quercus alba*)

- Bur oak (*Quercus macrocarpa*)
- Eastern white pine (*Pinus strobus*)
- Blackgum (*Nyssa sylvatica*)
- **Shrubs & Understory Species:**
 - Witch hazel (*Hamamelis virginiana*)
 - Serviceberry (*Amelanchier spp.*)
 - Wild geranium (*Geranium maculatum*)
 - Fox sedge (*Carex vulpinoidea*)

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Tree-of-Heaven Control Plan

Ailanthus altissima

Overview

Tree-of-Heaven (TOH) is a perennial invasive tree species and considered the fastest-growing tree in North America. Listed as a **restricted species** under the Ontario Invasive Species Act, it is also the preferred host of the spotted lanternfly, another high-priority invasive in NOTL, and is recognizable by its showy foliage.



Goal: To control existing populations of invasive tree-of-heaven (TOH) and prevent the spread of new populations that will minimize the adverse impacts.

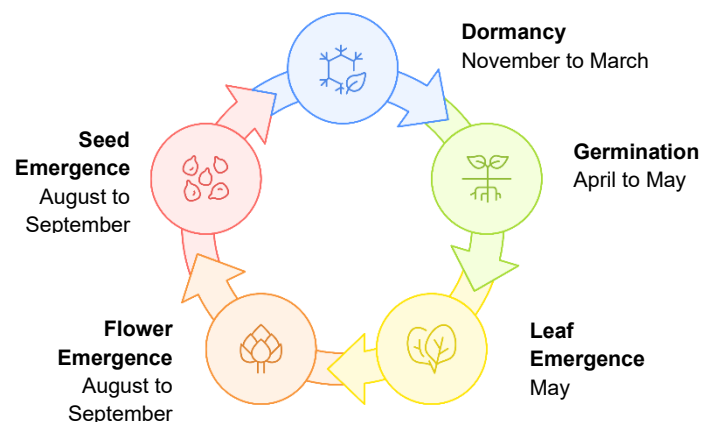
Prevalence: TOH is established in NOTL as with the Niagara Region. Known for its invincibility, it can crack through building foundations, pavement, roads, sewers, and other infrastructure. Its sap can cause skin issues and is a high pollen producer increasing allergies. More so it shifts soil chemistry that can also impact agriculture and biodiversity.

Characteristics:

- **Leaves:** large (30–120 cm), made up of several small leaflets spaced out along a central stem (compound) arranged alternately
- **Leaflets:** smooth edges, a protruding bump at base of each leaflet (glandular lobe)
- **Twigs:** hairless; greenish, pink, reddish, or brown; heart-shaped leaf scars; spongy brown center when broken
- **Bark:** young trees have thin, smooth, white-speckled bark with brownish-green base; mature bark becomes thick, rough, light brown to grey like cantaloupe skin
- **Flowers:** small, pale yellow to green, in large clusters
- **Fruits** (females): clusters of 1–2 inch single seed with papery wing (samaras)
- **Odour:** Emits foul or burnt peanut butter smell when crushed or scratched

Lifecycle:

Leaves emerge in early spring, flowers in late spring, and produces seeds from August to September. Surveillance is best done during spring and summer, while herbicide application should be timed for mid-summer to early fall to avoid when seeds are viable and easily spread.



Tree-of-Heaven Control Plan

Ailanthus altissima

Surveillance and Priority Monitoring Schedule

Tree-of-heaven is highly adaptable and commonly thrives in disturbed areas such as roadsides, park edges, and trails. To manage established populations, regular monitoring will be conducted, with priority inspections occurring annually between **August and September** when foliage is most visible. Monitoring will also include checking for spotted lanternfly, an invasive species that feeds on the tree. If removal measures are taken, the site should be revisited a few weeks later and again in spring to detect and address any regrowth early.

Removal of Tree-of-Heaven:

Removal of invasive tree-of-heaven (TOH) will likely involve contracting a third-party organization within the Town. However, this control plan will guide the process, and recommended methods will be followed and monitored. TOH can regenerate from stump and root fragments, making mechanical removal ineffective. Cutting one stump can result in multiple new shoots, so consistent herbicide use is essential for control.

The method chosen depends on the size and density of the infestation. For young trees with reachable foliage, foliar herbicide can be used. For mature or tall trees, basal bark, hack-and-squirt, or stem injection methods are preferred. Stem injections are costly, so basal bark treatments will be used in dense stands, while hack-and-squirt is reserved for isolated trees. Hack and squirt methods are more labour intensive that can be impractical with larger populations but ideal for a target species approach.

Another commonly used method is cut-stump treatment with herbicide; however, due to its limited effectiveness in controlling root systems, it will be reserved as a last resort. These methods are selected to maximize the efficiency of personnel time and resources while ensuring the most effective control of TOH. Methods to be used can be discussed with Staff and contractors ahead of removal.

Management Timing Summary: The table below outlines management techniques associated with Tree-of-Heaven and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Cut Stump												
Hack & Squirt												
Basal Bark												
Foliar												

Tree-of-Heaven Control Plan

Ailanthus altissima

Management Considerations

A variety of herbicide products are available to treat Tree-of-Heaven (TOH) and use different application techniques. Site-specific plans will be developed for each priority location to identify the most appropriate management practices. The following tables go into more detail about each herbicide product that will be considered to manage TOH in the Town.

Application Type	Description
Foliar Application	A mix of glyphosate and triclopyr provides broad-spectrum control of Tree-of-heaven and other woody species. Though non-selective, it has low soil activity, minimal risk to non-target species, and both herbicides are approved for use near water.
Basal Bark	The chemical is applied to the lower 12–18 inches of stems up to 6 inches in diameter. Ideal for small infestations or follow-up after foliar treatment. For larger stems, use hack-and-squirt. A 25% triclopyr solution can also be used on dormant bark but is best combined with other methods.
Hack-and-Squirt	Apply glyphosate or triclopyr in water to cuts spaced around the stem, leaving intact bark between hacks to allow herbicide movement to the roots. Use one hack per inch of diameter (minimum two). Best for stems over 1 inch in diameter and low stem densities. Must not completely sever trunk or stem with cuts, but rather leave them as wounds for the herbicide to easily enter. A spray bottle is used to squirt the herbicide into cuts.
Cut Stump	Use a 50% glyphosate or triclopyr solution on freshly cut stumps late in the growing season but before leaf drop. This method has limited root control and is used as a last resort.
Stem Injection	Aminocyclopyrachlor and triclopyr are effective. Apply mid-summer or late winter for best results. Follow label instructions for dosage and safety.

**Note: When manual tree removal is necessary for safety concerns, it is best to treat with one of the above-mentioned herbicide applications first, wait for symptoms to develop (generally for 30 days), and then cut.*

Tree-of-Heaven Control Plan

Ailanthus altissima

Chemical Treatment

Five pesticides are available for the control of Tree-of-Heaven, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA).

Registration Number	Registrant Name	Product Name
28945	Corteva Agriscience Canada Company	Garlon XRT Herbicide
29334	Corteva Agriscience Canada Company	Garlon RTU Herbicide
30922	2022 Environmental Science CA Inc.	Navius Flex
31382	2022 Environmental Science CA Inc.	Navius VM Herbicide
33964	2022 Environmental Science CA Inc.	Trurange

As of 2025, the most commonly used product is Garlon and full details of the product can be accessed through the PMRA's [product label search](#).

Chemical: Garlon XRT	
Product Name:	Garlon XRT
Registrant Name:	Corteva Agriscience Canada Company
Active Ingredient:	Triclopyr
Registration Number:	28945
Application Placement:	Basal bark or cut stump
Application Rate:	0.375% solution 375 mL per 100 L of water *Varies between application type – consult label *
Treatment Frequency:	Apply once per year and subsequent years as needed
Timing:	Anytime (except when snow or water prevents spraying at the ground line)
Comments:	Can only be used for basal bark or cut stump applications. Not intended as a foliar spray. For more information, please visit the product label .

Tree-of-Heaven Control Plan

Ailanthus altissima

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for tree-of-heaven (TOH) are provided below.

KPI	Description	Target/Benchmark
Treated trees	Number of trees treated with herbicide	≥ 15 within 12 months
Infestation Reduction	% decrease in size or density of Tree-of-Heaven patches in managed areas.	≥ 75% reduction in cover within 12 months post-treatment
Site Monitoring Frequency	Number of follow-up site inspections after initial removal.	Minimum of 2 follow-ups per year for 3 years.
Regrowth Removal Rate	% of regrowth (suckers, seedlings) after treated sites	10% regrowth during follow-ups.
Native Species Replacement	Number or % of treated sites where native vegetation was re-established.	≥ 70% of sites restored within 1 year of removal.
Volunteer/Public Engagement	Number of community members participating in monitoring, removals, or educational events.	≥ 20 participants annually.
Public Reporting Participation	Number of public submissions through reporting tools (apps, email, hotline).	Annual increase in reporting (e.g., 10% growth).
Disposal Compliance	% of removed material disposed of according to provincial or CFIA regulations.	100% compliance with disposal protocols.

Tree-of-Heaven Control Plan

Ailanthus altissima

Disposal

All removed material, especially root fragments, suckers, and seeds, **must not** be composted, as this risks spreading viable reproductive tissue. Instead, it must be disposed of at a landfill or securely contained on-site. Composting is not recommended due to the tree's allelopathic compounds and persistent regenerative potential. Tools, equipment, and vehicles used during removal should be thoroughly cleaned before leaving the site to prevent inadvertent spread of seeds or fragments.



Restoration

After the removal or treatment of tree-of-heaven, restoration is an important step to prevent re-establishment and support the recovery of healthy native plant communities. Tree-of-heaven is a fast-growing, allelopathic species that suppresses native growth and thrives in disturbed, open environments, especially along roadsides, forest edges, and urban natural areas. Without active restoration, cleared areas are at **high risk** for reinvasion or colonization by other invasive species.

Apply a 7–10 cm (3–4 inch) **mulch layer** to suppress remaining seed banks and root sprouts. Avoid using compost as it can help with tree-of-heaven regrowth. Where herbicide was used, allow appropriate time for residual breakdown before planting to avoid damaging new seedlings. On disturbed slopes or in high-erosion areas, more immediate planting may be needed to stabilize the area.

Restoration should focus on planting a **diverse mix of native trees, shrubs, and herbaceous plants** that are competitive, site-appropriate (e.g. soil, moisture, sunlight conditions, etc.), and capable of quickly establishing canopy cover or ground cover to outcompete tree-of-heaven seedlings and root suckers. Fast-growing and deep-rooted native species are especially useful during early stages of recovery and improve soil structure. Sites should be **monitored at least once annually** for at least 3–5 years to detect and promptly remove any regrowth or new colonization.

Tree-of-Heaven Control Plan

Ailanthus altissima

Recommended Native Species:

- **Visually Similar Plants:**
 - Black walnut (*Juglans nigra*)
 - Staghorn sumac (*Rhus typhina*)

- **Trees:**
 - Eastern poplar/cottonwood (*Populus deltoides*)
 - Silver maple (*Acer saccharinum*)
 - Trembling Aspen (*Populus tremuloides*)
 - American elm (*Ulmus americana*)
 - Large tooth aspen (*Populus grandidentata*)
 - Tulip tree (*Liriodendron tulipifera*)

- **Shrubs:**
 - Serviceberry (*Amelanchier arborea*)
 - Nannyberry (*Viburnum lentago*)
 - Red-osier dogwood (*Cornus stolonifera/sericea*)
 - Silky dogwood (*Cornus amomum/oblique*)

- **Herbaceous Species:**
 - Little bluestem (*Schizachyrium scoparium*)
 - Canada goldenrod (*Solidago canadensis*)
 - Wild bergamot (*Monarda fistulosa*)
 - Black-eyed Susan (*Rudbeckia hirta*)

Restoring native vegetation not only reduces the risk of tree-of-heaven re-establishment but also promotes ecological resilience, wildlife habitat, and long-term landscape stability.

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Emerald Ash Borer Control Plan

Agrilus planipennis

Overview

Emerald ash borer is an invasive, wood boring insect, known for the demolition of ash trees. The beetle burrows through the trunk or branches, leaving distinct waved patterns on the wood. It is listed as a **pest** under the Plant Protection Act.



Photo: Invasive Species Centre

Goal: To control existing populations of emerald ash borer and prevent the spread of new populations that will minimize the adverse impacts.

Prevalence: Emerald ash borer (EAB) is well established in Niagara-on-the-Lake and across Canada, killing up to **99% of ash trees** within 4 to 10 years of infestation. Black ash has been especially affected, leading to its designation as endangered and inclusion on the **Species at Risk in Ontario List** (2022). The severe loss of ash trees has cost Ontario municipalities over **\$22 million annually** ([Invasive Species Centre, 2019](#)) and has significantly impacted local ecosystems. The Niagara Region Tree and Forest Canopy Summary Report (2024) identifies emerald ash borer as a major and ongoing threat to Niagara’s urban forest and overall canopy health.

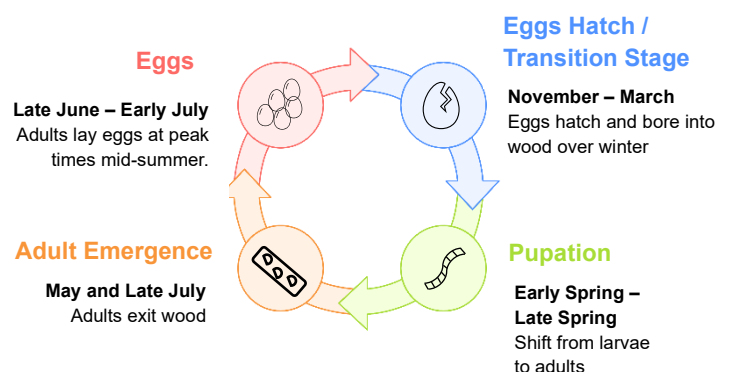
Characteristics:

- **Larve:** creamy white, thin, long body (25-32 mm length), brown head, 10 bell shaped segments
- **Transitional stage (pupae):** thin, long body (10-15 mm), creamy white to start then transitions to adult colouration
- **Adults:** bright metallic green, long body (8-14 mm in length), flat head, bright red underneath wings

Additional Symptoms: Crown die back, yellowing leaves, bark deformities, waved or “S” shaped patterns in wood, exit holes in a half circle or “D” shape

Emerald Ash Borer Life Cycle:

Adults lay eggs in tree bark or under bark that peaks in June and early July. When they hatch, they bore into the wood and stay in a transitional stage over winter. When populations are large enough the bark gridles and eventually leads to tree death. Pupation occurs early spring and adults emerge late spring from “D” shaped exit holes in the bark then feed on leaves.



Surveillance and Priority Monitoring Schedule

Regular mapping and surveillance of emerald ash borer are critical for identifying priority control areas, tracking spread, and informing timely management actions. Survey's will follow the [Emerald Ash Borer Survey Guidelines](#) developed by the Canadian Food Inspection Agency. As instructed, prior to any survey deployment, contact with the local Regional Program Officer to obtain their current survey plan for Niagara-on-the-Lake will be coordinated to combine efforts.

In areas with known infestations, routine **annual** site visits by the Climate Change Coordinator or Town Staff, as part of regular inspections and maintenance tasks, will ensure continued monitoring and early detection. Surveys may also be carried out by contractors, volunteers, or community members during organized events. To expand geographic coverage and improve efficiency, an **invasive species monitoring program** may be developed to engage trained volunteers in ongoing data collection.

Emerald ash borer is most recognizable at its adult stage from May to August, when it is outside of the tree wood and has a metallic green coat. Although it can fly immediately as an adult for approximately 10 kilometres, it does prefer neighbouring and local host trees. Baited traps should be deployed on black ash trees from **June 1st to August 31st** and visual ground surveys in **late August** when signs and symptoms of emerald ash borer are most obvious.

The larvae will create distinctive waved or **“S” shaped markings** under the wood when feeding in April and loss of leaves from adult feeding give the tree decline. Eggs are very difficult to detect in the field and will therefore not be prioritized for monitoring.

Focus on both known established sites and predicted emerging areas where emerald ash borer is likely, will be utilized for monitoring.

Priority surveillance areas can include:

- Areas with ash decline (particularly black ash)
- Trails and parks
- Campgrounds
- Forest and woodlot edges
- Roads and transportation corridors
- Urban centres
- Nurseries
- Previously treated or controlled sites

It is essential that after leaving any site suspected to have emerald ash borer, all vehicles, clothing, and equipment are checked prior to departure of the site to prevent spread.

Emerald Ash Borer Control Plan

Agrilus planipennis

Removal of Emerald Ash Borer

Emerald ash borers have caused such devastation in ash trees that they are commonly not recommended for planting. Often, removal of infested trees is the most common method to prevent further spread and maintain safety. However, there are chemical products that can be used for trees that are not yet infested or recently infested. Unfortunately, there are limitations to it as trees can take several years to recover from infestation and re-treatment is continually required.



Photo: Invasive Species Centre

Tree injections can be given to prevent emerald ash borer infestations but may require strategic approaches if infestations become so abundant and resources limited. In this case, factors such as tree health, proximity to other ash species and pathways of spread, safety, ecological impact, cultural significance, and economic impact should be investigated. If chemical treatment is to be used on sites it is likely to be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout.

Biological control agents also are approved in Canada with three species of wasps that have been released *Tetrastichus planipennisi*, *Spathius galinae*, and *Oobius agrili*. Although the Town of Niagara-on-the-Lake will not be utilizing the method, the wasps will be made aware to identify them and coordinate control methods.

Management Timing Summary: The table below outlines management techniques associated with emerald ash borer and when to act based on activity. The dark blue boxes indicate the most optimal times.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Baited Traps								Tree Check Month				
Visual Survey								Tree Check Month				
Tree Removal								Tree Check Month				
Pesticides												

Emerald Ash Borer Control Plan

Agrilus planipennis

Management Considerations

Emerald ash borer management can include traps, tree removal, or pesticide use. Site-specific plans will be developed for each priority location to identify the most appropriate management practices. The following tables provide more detail on each management technique.

Baited Traps	
Location:	Ash trees
Infestation Size:	Isolated to large
Treatment Frequency:	As needed
Timing:	June 1 st to August 31 st
Comments:	Traps should be installed for June 1 st and remain until August 31 st . Only one trap should be placed at each site. Periodic visits between this time may be needed to dispose of any caught material. Traps must hang at least 5 metres above ground level and ideally sit as high as possible in the canopy. Placement on the south or southwest side of the tree. For more details on where to purchase supplies needed, please see section 9 in the Canadian Food Inspection Agency's Survey Guidelines .

Tree Removal	
Location:	Terrestrial
Infestation Size:	Large monoculture causing tree mortality or decline
Treatment Frequency:	As needed
Timing:	As soon as possible after confirmed infestation (anytime of year)
Comments:	The Town will likely hire a contractor to remove any infested ash trees. However, wood should be properly disposed of either by chipping, burying or burning material.

Chemical Treatment

As of 2025, 6 pesticides are registered in Canada for emerald ash borer control. The Town of Niagara-on-the-Lake (NOTL) will continue to update its control plan as needed to ensure treatments remain effective, cost-efficient, and environmentally appropriate.

Currently, the most used products are Treeazin and Ima-Jet due to their ability to affect other invasive species such as hemlock woolly adelgid, but best management practices recommend **rotating products annually** (e.g., Year 1: Treeazin; Year 2: IMA-Jet) to maintain effectiveness and reduce the risk of resistance.

Emerald Ash Borer Control Plan

Agrilus planipennis

For a full list of current pesticides registered for use on emerald ash borer, please refer to the Health Canada's Pest Management Regulatory (PMRA)'s online [product label search tool](#) (appendix 1) before selecting or applying any product.

Registration Number	Registrant Name	Product Name
21568	UPL Agrosolutions Canada Inc.	Acecap 97 Systemic Insecticide Implants
29703	2022 Environmental Science CA Inc.	Confidor 200 SI Systemic Insecticide
30559	Lallemand, Inc.	Treeazin Systemic Insecticide
31375	Arborjet Inc	IMA-Jet
31479	Arborjet Inc	IMA-Jet 10
34403	G.D.G. Environnement LTEE	Fraxiprotec

Example products commonly used to control emerald ash borer, along with the necessary details for reviewing each [product label](#), are listed below.

Chemical: TreeAzin® (Azadirachtin)	
Product Name:	TreeAzin®
Registrant Name:	Lallemand Inc.
Active Ingredient:	Azadirachtin
Registration Number:	30559, Pest Control Products Act
Application Placement:	Applied as injection at a pre-drilled hole ~ 15 cm to 30 cm above ground level at a 20 to 45 degree downward angle
Application Rate:	2 mL per cm DBH as preventative 5 mL per cm DBH for attacked trees or greater than 30 cm DBH
Treatment Frequency:	One application per tree (bi-annually if needed)
Timing:	Apply in early summer (June to July)
Comments:	To be used when detection occurs in the area or within 24 km and trees appear healthy. When the injection is completed, wait for 1-2 minutes before removing the canister and nozzle to avoid pesticide spillage. Moves rapidly throughout the treated tree (approx. 48 hours) and provides protection for ~2 years where populations are present. Product also suited for hemlock woolly adelgid, spongy moth, tent caterpillars, European elm scale, sawflies, and more at different application rates. For more information visit the product label .

Emerald Ash Borer Control Plan

Agrilus planipennis

Chemical: IMA-jet (Imidacloprid 5%)	
Product Name:	IMA-jet
Registrant Name:	Arborjet Inc.
Active Ingredient:	Imidacloprid
Registration Number:	31375, Pest Control Products Act
Application Placement:	Injections around the base of the tree (the trunk flare or tissue immediately above the trunk flare)
Application Rate:	15 to 30 cm DBH = 1.6 – 3.2 mL/cm DBH Greater than 30 cm DBH = 3.2 mL/cm DBH
Treatment Frequency:	Once annually per tree (with other injections as needed in subsequent years)
Timing:	To be used when detection occurs in the area or within 24 km and trees appear healthy. Optimal times are during active larvae feeding (May)
Comments:	Apply at least 30 days before historical egg hatch or adult flight and to trees whose vascular tissue is not damaged.

Chemical: IMA-jet 10 (Imidacloprid 10%)	
Product Name:	IMA-jet 10
Registrant Name:	Arborjet Inc.
Active Ingredient:	Imidacloprid
Registration Number:	31479, Pest Control Products Act
Application Placement:	Injections around the base of the tree (the trunk flare or tissue immediately above the trunk flare)
Application Rate:	15 to 30 cm DBH = 1.6 – 3.2 mL/cm DBH Greater than 30 cm DBH = 3.2 mL/cm DBH
Treatment Frequency:	Once annually per tree (with other injections as needed in subsequent years)
Timing:	To be used when detection occurs in the area or within 24 km and trees appear healthy. Optimal times are during active larvae feeding (May)
Comments:	Apply at least 30 days before historical egg hatch or adult flight and to trees whose vascular tissue is not damaged.

Emerald Ash Borer Control Plan

Agrilus planipennis

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for emerald ash borer are provided below.

KPI	Description	Target/Benchmark
Rapid Response Time	Time from detection to management action for new emerald ash borer invasions	≤ 2 weeks from verified detection to action plan initiation
Infestation Area (ha or m ²)	Total area affected by emerald ash borer	Annual reduction in total infestation zone
Number of Priority Sites Treated	Total number of identified priority sites where emerald ash borer management occurred	Annual increase; e.g., 1+ sites treated per year
% Reduction in Invasive Cover	Percentage decrease in area cover of emerald ash borer at treated sites	≥ 60% reduction in invasive cover within 1 year
Infested Tree Removal Count	Total number of confirmed infested ash trees removed or safely disposed	≥ 90% of confirmed infested trees removed within 1 year
Restored Area (in hectares or m ²)	Total area restored with native planting, soil rehab, and other actions post-treatment	≥ 500 m ² restored per year, depending on infestation
Native Species Survival Rate	Percentage of planted native trees and shrubs that survive after 1 growing season	≥ 70% survival rate post-planting
Number of Educational Campaigns	Social media posts, workshops, newsletters, etc. focused on emerald ash borer prevention and ID	At least 1 campaign annually (seasonal focus)
Volunteer/Community Participation Rate	Number of community members involved in emerald ash borer work (events, monitoring, etc.)	≥ 20 participants annually

Emerald Ash Borer Control Plan

Agrilus planipennis

Disposal

All life stages of **emerald ash borer (EAB)**, including eggs, larvae, pupae, and adult beetles, must be handled and destroyed using approved methods. For small specimens, such as adult beetles or larvae collected during monitoring or removal, submerging them in a container of soapy water is an effective option. The biomass should remain submerged for at least 48 hours to ensure mortality. Once fully soaked, the material can be sealed in a plastic bag or container and disposed of in regular waste, ensuring no living organisms remain viable.



Photo: Invasive Species Centre

All equipment, tools, clothing, and surfaces that have come into contact with ash wood or EAB material should be thoroughly inspected and cleaned to prevent accidental spread. Washing with water followed by soap is recommended, ideally done on-site to reduce transport risks. For non-porous surfaces such as boots, saws, or tree-removal equipment, wiping with a 70% ethanol solution is strongly encouraged, as it helps break down biological residues and potential egg fragments that may not be visible.

Niagara-on-the-Lake, along with the broader Niagara Region, is designated by the **Canadian Food Inspection Agency (CFIA)** as a regulated area for emerald ash borer. The disposal and movement of infested ash material, including logs, branches, and wood chips, will therefore comply with all applicable [CFIA phytosanitary requirements](#) and Ministerial Orders. Where required, a CFIA Movement Certificate will be obtained prior to transporting any regulated material. Wherever feasible, disposal of infested ash wood should occur on site or as close to the removal location as possible to minimize risk of spread.

CFIA recognized methods for eliminating ash infested tree material include burning, deep burial, and chipping. **Burning** infested ash wood is effective where permitted under Town bylaws and provincial open burn regulations. **Deep burial** to a minimum depth of 2 metres is also an accepted disposal method, as it prevents adult beetles from emerging following pupation. **Chipping** is an effective control measure provided the wood is processed into pieces no larger than 2.5 cm (1 inch) in at least two dimensions, which is necessary to destroy or render non-viable remaining eggs or larvae embedded in the wood. All movement and disposal of infested ash material will follow CFIA guidance to prevent the further spread of emerald ash borer.

Emerald Ash Borer Control Plan

Agrilus planipennis

At present, repurposing infested ash wood as mulch, compost, or other organic products is **not recommended** unless the material has been treated to meet CFIA phytosanitary standards. While research into safe reuse is ongoing, the risk of inadvertently spreading emerald ash borer remains high without sterilization or regulatory approval.

To support traceability and compliance, all emerald ash borer related disposal actions should be documented. This includes recording the location, date, volume of material removed, disposal method used, and Staff involved. The documentation should be maintained on file for at least **2 years**. Proper disposal, when conducted consistently and according to provincial and federal guidelines, plays a critical role in limiting the spread of emerald ash borer and reducing its long-term ecological and economic impacts.

Restoration

Restoration is a critical component of long-term emerald ash borer (EAB) management, especially in areas where large numbers of ash trees have been lost or removed. The death of ash canopy trees can significantly disrupt native ecosystems, altering light regimes, soil moisture, and understory composition. **Active restoration** efforts not only reduce the likelihood of secondary invasions by opportunistic species like buckthorn or honeysuckle but also help accelerate ecological recovery and stabilize affected sites.

Restoration should be prioritized once infested ash trees have been removed or have declined to a point where their ongoing management is minimal. This helps prevent disturbance to newly planted species and ensures a more stable environment for establishing native vegetation. Restoring a diverse and resilient native plant community is key to preventing reinvasion and promoting long-term ecological function.

Efforts should focus on replanting a variety of native trees, shrubs, and groundcovers adapted to the site's post-EAB conditions, such as increased sunlight and altered soil moisture. In wetland or riparian areas previously dominated by green ash or black ash, restoration should emphasize moisture-tolerant trees and native herbaceous species. In upland forests, oak-hickory or mixed hardwood species can help re-establish canopy structure and wildlife habitat.

Avoiding monocultures and selecting a diversity of native, non-host species will help promote resilience and reduce future pest vulnerability. Mulching around young trees and shrubs can assist with moisture retention and weed suppression but should be used with care to avoid promoting invasive seed germination. In remote or larger sites, broadcasting native seed mixes or encouraging natural regeneration may be more feasible.

Annual **monitoring** for several years post-restoration is essential to evaluate native species establishment, identify invasive resurgence, and assess overall site recovery.

Adaptive management, including supplemental planting, spot treatments, or invasive control, may be needed to ensure long-term success. Engaging local communities, volunteers, and landowners in restoration efforts can enhance early detection, build local support, and strengthen stewardship of recovering landscapes.

By restoring native plant communities adapted to local conditions and resilient to future disturbances, ecosystems affected by emerald ash borer can regain biodiversity, ecological function, and resistance to future invasions. Well-planned restoration not only helps fill ecological gaps left by ash mortality but supports pollinators, wildlife, and long-term forest health.

Recommended Native Species

Canopy Tree Replacements (Non-host, Resilient Species):

- Red Maple (*Acer rubrum*)
- Swamp White Oak (*Quercus bicolor*)
- American Sycamore (*Platanus occidentalis*)
- Blackgum (*Nyssa sylvatica*)
- Bur Oak (*Quercus macrocarpa*)
- Hackberry (*Celtis occidentalis*)
- Tulip Tree (*Liriodendron tulipifera*)

Moist Site & Riparian Species:

- River Birch (*Betula nigra*)
- Silver Maple (*Acer saccharinum*)
- Bald Cypress (*Taxodium distichum*, regionally appropriate)
- Shellbark Hickory (*Carya laciniosa*)
- Buttonbush (*Cephalanthus occidentalis*)

Shrubs & Understory Plants:

- Spicebush (*Lindera benzoin*)
- Winterberry (*Ilex verticillata*)
- Ninebark (*Physocarpus opulifolius*)
- Elderberry (*Sambucus canadensis*)
- Red-osier Dogwood (*Cornus sericea*)

Groundcovers & Pollinator Plants:

- Virginia Wildrye (*Elymus virginicus*)
- Tussock Sedge (*Carex stricta*)

Emerald Ash Borer Control Plan

Agrilus planipennis

- Wild Bergamot (*Monarda fistulosa*)
- New England Aster (*Symphotrichum novae-angliae*)
- Black-eyed Susan (*Rudbeckia hirta*)
- Joe-Pye Weed (*Eutrochium maculatum*)

For guidance on appropriate plant selections, refer to [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Spongy Moth Control Plan

Lymantria dispar

Overview

Spongy moth (previously known as gypsy moth) is an invasive insect listed as a **pest** under the Plant Protection Act. It is federally regulated by the Canadian Food Inspection Agency and has caused significant declines in Canada's forestry industry.



Photo: [ottoleu, iNaturalist](#)

Goal: To control existing populations of spongy moths and prevent the spread of new populations that will minimize the adverse impacts.

Prevalence: Spongy moth is well established in NOTL and spans across eastern regions in Canada. There are over 300+ plant species that spongy moth is known to impact, but most concern comes with favoured host tree species such as Oak (*Quercus spp.*), Maple (*Acer spp.*), Birch (*Betula*), Alder (*Alanus spp.*), Hawthorne (*Crataegus spp.*). Managing spongy moth infestations has cost Ontario municipalities nearly **\$4.5 million per year** ([Invasive Species Centre](#)).

Characteristics:

- **Egg mass:** tanned yellow, fuzzy egg masses
- **Caterpillar:** up to 6 cm in length, light grey/brown, with distinctive five pairs of blue dots followed by six pairs of red dots along the back
- **Cocoon/pupal stage:** hard dark brown shell
- **Adult moth males:** brown and feathery antennae
- **Adult moth females:** beige and cannot fly despite wings



Photo: [darkraptormacro, iNaturalist](#)

Spongy Moth Life Cycle:

Spongy moth lays 500–1,000 eggs in tree bark crevices. Eggs hatch in April, and the caterpillars feed on leaves for about 40 days, causing the most damage.

Afterward, they enter a two-week pupal stage before emerging as adult moths, which live only about two weeks. While adult moths do not feed on leaves, bark remains vulnerable due to the egg masses they deposit.

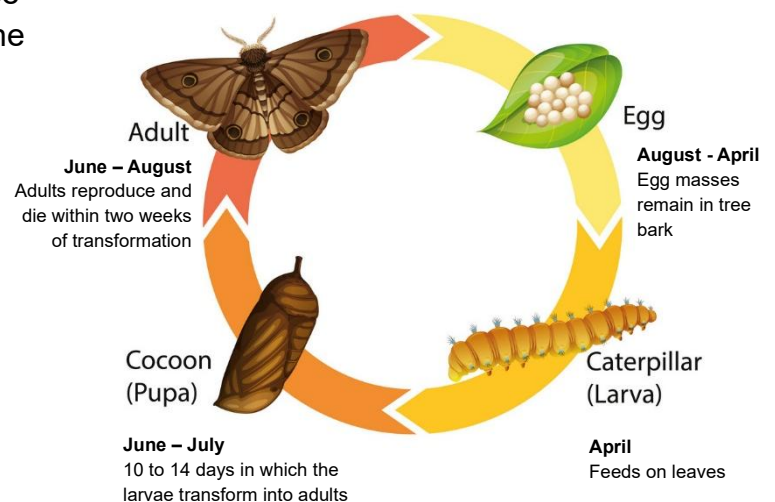


Photo: [VectorStock.com/28466074](#)

Surveillance and Priority Monitoring Schedule

Regular mapping and surveillance of spongy moths are critical for identifying priority control areas, tracking spread, and informing timely management actions. Routine field surveys will be conducted by the Climate Change Coordinator or Town Staff annually, as part of early detection and monitoring. These efforts can be supported with volunteer engagement, and possible **invasive species monitoring program** developed for data collection. Information to be collected is mapped sightings, tree canopy health, and actions taken.

Spongy moth has rather distinctive features throughout its lifecycle, but is known most at its caterpillar stage, with bright blue and red dots, making April to July an ideal time for easier detection. At this stage caterpillars will be actively moving to feed on tree leaves and other host plants. Detecting spongy moth egg masses are also paramount to prevent them from hatching and spreading in abundance. Priority monitoring and field surveys can be conducted in **March to July** to surveillance egg masses, cocoons, and caterpillars, prior to adult moths with flight. **August** can be utilized for monitoring adults in alignment with Tree Check month. Spongy moths can be found on any surface, including backyard furniture or vehicles, and communication pieces in August can help the community become alert of its presence. Pheromone traps can also be used to define the area of occurrence easier on Town property.

Priority surveillance areas for the Town can include:

- Trails and parks
- Woodlots
- Street trees
- Previously controlled sites

Some Preferred Host Trees:

- Oak (*Quercus spp.*)
- Maple (*Acer spp.*)
- Birch (*Betula*)
- Alder (*Alanus spp.*)
- Hawthorne (*Crataegus spp.*)

Removal of Spongy Moth

Removal efforts for spongy moths will be primarily immediate responses and occur at the same time of detection during surveys. The Invasive Species Centre advises to kill these insects on site to prevent spread. If spongy moth is in any stage other than an egg mass, squishing them or placing them in a container of ethanol or soapy water are recommended for control. If egg masses are detected, they should be scrapped and either crushed or submerged into a bucket of ethanol, vinegar, or soapy water for at least 2 days. Afterwards they can be placed in a sealed bag or container and disposed of at landfill.

Spongy Moth Control Plan

Lymantria dispar

Pesticide application is also an alternative treatment for spongy moth. This treatment is to be used only if populations of spongy moths are so great at the site, manual removal is not practical.

Management Timing Summary: The table below outlines management techniques associated with spongy moth and when to act based on activity. The dark blue boxes indicate the most optimal times.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Field Survey			■	■	■	■	■	Tree Check Month				
Traps				■	■	■	■					
Egg Removal	■	■	■	■	■				■	■	■	■
Caterpillar Removal				■	■	■						
Adult Removal						■	■	■				
Pesticide									■	■		

Safety: Spongy moth caterpillars have long hairs that can cause people to have allergic reactions or skin irritation. When handling spongy moth always wear gloves.

Spongy Moth Control Plan

Lymantria dispar

Management Considerations

Although spongy moths are established in the Town of Niagara-on-the-Lake, sightings typically do not occur in clusters, making manual removal an appropriate control response. Adults are short lived (approximately 2 weeks) and are not seen as a priority compared to other life stages for management. However, larger populations can warrant chemical application. Site-specific plans will be developed for each priority location to identify the most appropriate management practices, where the following tables provide more detail on technique.

Scrapping Egg Masses	
Location:	Terrestrial
Infestation Size:	Isolated to Medium
Treatment Frequency:	As needed
Timing:	August to April (when egg masses are present)
Comments:	The operator will use a paint scrapper, hard plastic card, butter knife, or similar object to scrap egg masses from the tree bark. Insert the tool to get behind the egg mass and remove its entire composition. The scrapped material should be submerged immediately into a bucket of soapy water and left for two days prior to disposal at landfill. Wearing gloves and eye protection at minimum is required to ensure safe biomaterial handling.

Squishing or Submerging Non-Egg Mass	
Location:	Terrestrial
Infestation Size:	Isolated to Medium
Treatment Frequency:	As needed
Timing:	April to August
Comments:	After eggs hatch either caterpillars, cocoons, or adult moths can be squished or directly submerged into a bucket of ethanol, vinegar, or soapy water for at least two days. Female moths are unable to fly and can be picked up, whereas male moths may be able to escape more readily requiring traps. Wearing gloves at minimum is required to ensure safe handling of biomaterial.

Spongy Moth Control Plan

Lymantria dispar

Chemical Treatment

Although manual removal of spongy moths will be the primary mechanism of removal, heavily infested areas can be treated chemically. If chemical treatment is to be used on sites it is likely to be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout.

Currently, there are currently 45 pesticides registered for use on spongy moth, with the most common product being Treeazin due to its versatility with other species use. For the most updated and complete list of pesticides currently registered for use on spongy moth under the Pest Control Products Act and regulated by Health Canada's Pest Management Regulatory Agency (PMRA), please refer to the PMRA's online [product label search](#) before selecting or applying any product.

Registration Number	Registrant Name	Product Name
24175	2022 Environmental Science CA Inc.	Dagnet Ft Emulsifiable Concentrate Insecticide
24778	Natural Resources Canada	Disparvirus Technical
30559	Lallemand, Inc.	Treeazin Systemic Insecticide
31943	Neogen Corporation	Prozap Annihilator-Xp
34427	Andermatt Canada Incorporated	Bovir

Spongy Moth Control Plan

Lymantria dispar

The following table provides key [product label](#) information for TreeAzin, serving as an example of some details that must be reviewed prior to use.

Product: Treeazin Systemic Insecticide	
Location:	Terrestrial sites
Product Name:	Treeazin Systemic Insecticide
Registrant Name:	Lallemand Inc./Bioforest
Active Ingredient:	Azadirachtin
Registration Number:	30559
Application Placement:	Applied at a pre-drilled hole ~ 15 cm to 30 cm above ground level at a 20 to 45 degree downward angle
Application Rate:	3 mL per cm DBH
Treatment Frequency:	One application per tree (bi-annually if needed)
Timing:	Fall (after nesting season)
Comments:	To be used when detection occurs in the area or within 24 km and trees appear healthy. When the injection is completed, wait for 1-2 minutes before removing the canister and nozzle to avoid pesticide spillage. Moves rapidly throughout the treated tree (approx. 48 hours) and provides protection for ~2 years. Products are also suited for emerald ash borer, hemlock woolly adelgid, tent caterpillars, European elm scale, sawflies, and more at different application rates. For more information visit the product label .

Spongy Moth Control Plan

Lymantria dispar

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for spongy moth are provided below.

KPI	Description	Target/Benchmark
Species Early Detection Reports	Number of early detections of new spongy moth sites submitted through internal or public reporting	≥ 5 verified early detection annually
Rapid Response Time	Time from detection to management action for new spongy moth invasions	≤ 1 week from verified detection to action plan initiation
Infestation Area (ha or m ²)	Total area affected by spongy moth	Annual reduction in total infestation zone
Number of Priority Sites Treated	Total number of identified priority sites where spongy moth management occurred	Annual increase; e.g., 1+ sites treated per year
% Reduction in Invasive Cover	Percentage decrease in area cover of spongy moth at treated sites	≥ 60% reduction in invasive cover within 1 year
Native Species Establishment Rate	Percentage of planted native species that survive after 1 growing season	≥ 70% survival rate of planted native species
Restored Area (in hectares or m ²)	Total area restored with native planting, soil rehab, and other actions post-treatment	≥ 500 m ² restored per year, depending on scale
Number of Educational Campaigns	Social media posts, workshops, newsletters, etc. focused on spongy moth prevention and ID	At least 1 campaign annually (seasonal focus)
Volunteer/Community Participation Rate	Number of community members involved in spongy moth work (events, monitoring, etc.)	≥ 20 participants annually

Disposal

Spongy moth can be safely and effectively disposed of at any life stage. Egg masses, caterpillars, and adult moths should be placed directly into a bucket or container filled with soapy water (approximately 2 tablespoons of dish soap per litre). The biomass must remain fully submerged for **at least 48 hours** to ensure complete mortality. After soaking, the material should be sealed in a plastic bag or container and placed in the regular garbage. Spongy moth material must not be composted or included with yard waste, unless specified by the facility to treat, as this increases the risk of accidental spread.

All tools, equipment, and clothing that have come into contact with spongy moths should be carefully inspected for any residual biomass, such as egg masses or body fragments. Whenever possible, cleaning should take place **on-site**, starting with a water rinse followed by soap. For non-porous items such as boots or hand tools, wiping with ethanol is preferred to ensure disinfection.

Tree removal associated with spongy moth infestation can result in a significant volume of wood waste. Niagara Region is a regulated area for spongy moth under the Canadian Food Inspection Agency (CFIA), and all movement or disposal activities must follow their [movement requirements policy](#). A Movement Certificate will be required if transporting wood material with bark attached. Additional [phytosanitary requirements for marine vessels](#) entering Canada are also provided by CFIA. High risk season for flighted spongy moth in Eastern Canada begins March 15 and ends September 15 for all Canadian ports.

The recommended methods for disposing of wood infested with spongy moth include burning, burying, and chipping, each of which is effective in eliminating all life stages of the insect when performed correctly. **Burning** the material on site, where permitted, is a reliable way to completely destroy eggs, larvae, pupae, and adults. **Burying** infested wood to a depth of at least 1.8 metres prevents the emergence of any surviving insects and minimizes the risk of reinfestation. **Chipping** wood into pieces smaller than 2.5 cm (1 inch) physically destroys any hidden life stages within the material, making it another effective disposal method.

These activities should be carried out on site or as close as possible to the area of infestation to reduce the risk of transporting spongy moths to new locations. Documentation for all removal and disposal activities are required to be on file for a **minimum of 2 years**.

Restoration

Restoration plays a critical role in mitigating the long-term ecological impacts of spongy moth (*Lymantria dispar*), especially in areas where repeated defoliation has caused significant canopy loss and understory degradation. Although outbreaks are cyclical, repeated infestations can alter forest composition, create openings for invasive species, and reduce native biodiversity. Active restoration helps re-establish resilient plant communities, improve forest structure, and support long-term ecosystem stability.

Efforts should begin once spongy moth populations have declined and defoliation has subsided, allowing new plantings to establish without additional stress. Restoration should prioritize increasing **species diversity and site resilience**, rather than directly replacing lost host trees. While oaks, particularly white and chestnut oak, are preferred by spongy moth, many individuals can survive moderate defoliation. Retaining healthy survivors supports natural regeneration, wildlife habitat, and acorn dispersal.

In stands with high tree mortality, planting a diverse mix of native tree and shrub species, especially those less preferred by spongy moth, such as maples, hickories, and conifers, can reduce vulnerability to future infestations. **Avoid replanting large monocultures** of highly susceptible species (e.g., oaks, aspens, birches) without incorporating more resilient companions.

Restoration strategies should be tailored to site conditions, which may shift significantly due to defoliation-related changes in light, soil, and moisture. On slopes or disturbed areas, native groundcovers and erosion-control species can help stabilize soil and reduce runoff. Applying a 5–7 cm (2–3 inch) mulch layer around new plantings helps retain soil moisture and suppress weeds, but compost or amendments that may favor invasive growth should be avoided. In remote or larger areas, natural regeneration or broadcast seeding with native species may offer practical alternatives to full-scale planting.

Monitoring is essential to track the success of restoration efforts, including native plant survival, potential resurgence of spongy moth populations, and encroachment by other invasive species. Annual site assessments should guide adaptive management actions such as replanting, selective thinning, or targeted pest control. Community engagement, volunteer monitoring, and collaboration with local forest agencies can further strengthen long-term outcomes.

By re-establishing diverse, resilient native plant communities, restored areas become better equipped to resist future pest pressures, support native wildlife and pollinators, and recover ecological function. Early, strategic, and sustained restoration improves the long-term health of forested landscapes impacted by spongy moth.

Recommended Native Species

Canopy Tree Species:

- Red Maple (*Acer rubrum*)
- Sugar Maple (*Acer saccharum*)
- American Beech (*Fagus grandifolia*)
- Eastern Hemlock (*Tsuga canadensis*) – susceptible to hemlock woolly adelgid
- Eastern White Pine (*Pinus strobus*)
- Black Cherry (*Prunus serotina*)
- Shagbark Hickory (*Carya ovata*)
- Tulip Tree (*Liriodendron tulipifera*)

Species to Retain Where Possible:

- White Oak (*Quercus alba*)
- Chestnut Oak (*Quercus montana*)
- Northern Red Oak (*Quercus rubra*) – replant only with diverse buffer species

Shrubs & Understory Plants:

- Witch Hazel (*Hamamelis virginiana*)
- Spicebush (*Lindera benzoin*)
- Silverberry (*Elaeagnus commutata*)
- Red-osier Dogwood (*Cornus sericea*)
- Native Viburnums (*Viburnum lentago*, *V. lantanoides*, and others)

Groundcovers & Pollinator Plants:

- Big Bluestem (*Andropogon gerardii*)
- Ivory Sedge (*Carex eburnea*)
- Golden Alexander (*Zizia aurea*)
- Wild Geranium (*Geranium maculatum*)
- Foamflower (*Tiarella cordifolia*)
- Large leaved aster (*Eurybia macrophylla*)

For guidance on appropriate plant selections, refer to [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Knotweed Control Plan

Fallopia

Overview

Knotweed is a terrestrial, perennial plant with four invasive varieties: Japanese knotweed, giant knotweed, bohemian knotweed, and Himalayan knotweed (not yet established). Each one is listed as a restricted species under the Ontario Invasive Species Act. These plants resemble bamboo vegetation and prefer areas with water but rapidly grow in a variety of places including concrete cracks.



Goal: To control existing populations of invasive knotweeds (Japanese, giant, bohemian, and Himalayan), while preventing the spread of new populations that will minimize the adverse impacts.

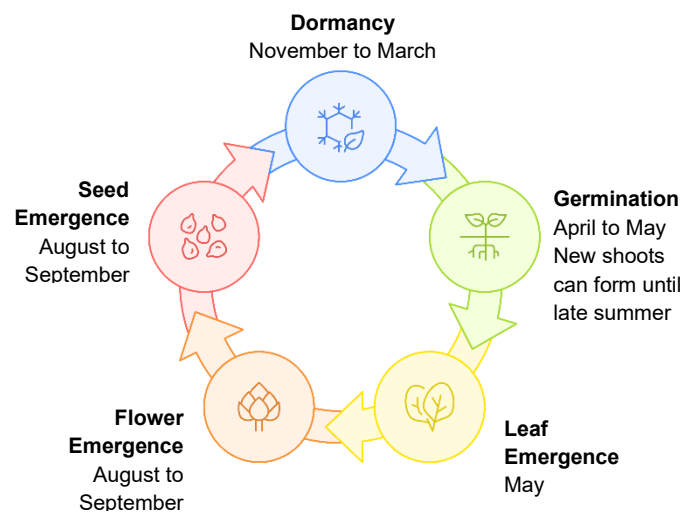
Prevalence: Knotweed is well established in NOTL and spreads rapidly, outcompeting native species and destroying biodiversity. Its aggressive roots can penetrate concrete and asphalt up to 8 cm thick, causing costly infrastructure damage. In places like the United Kingdom, soil with fragments of knotweed must be treated as hazardous waste. Favoring stream banks, knotweed weakens soil stability, increasing erosion and flood risk. It also obstructs access to waterways, disrupting recreation like canoeing, boating, angling, and swimming.

Characteristics:

- **Leaves:** large, spade to triangular-shaped; giant knotweed has heart-shaped leaves twice the size of other species.
- **Stems:** thick, smooth, hollow, with jointed red-brown nodes. Mature stems are green; juvenile stems are slightly purple and resemble asparagus.
- **Flowers:** small white to green flowers bloom in clusters from July to August.
- **Seeds:** small, shiny, winged, and triangular, easily dispersed by wind or water.

Lifecycle:

Knotweed begins growing in April and spreads rapidly, primarily through rhizomes and root fragments, though it can also reproduce by seed. While seeds may stay viable for up to 15 years, seedlings are rare, with most reproduction occurring vegetatively. After the first hard frost, the plant goes dormant in winter, though dead canes often remain until spring. Rhizomes are the main source of spread, dispersed by floods, erosion, or human activities like roadside clearing and contaminated fill dirt.



Surveillance and Priority Monitoring Schedule

Knotweed thrives along stream banks and sloped areas with a lot of water. To control established populations regular monitoring efforts will be taken. Priority monitoring will occur at least once a year by the Climate Change Coordinator or other Staff during asset inspections between **April and May** when stalks and leaves are visible and still before nesting occurs for other desired wildlife. If any control management occurs the site should be revisited 2 weeks after to monitor efficacy.

Removal of Knotweed

Removal of knotweed will likely be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout. **Removal efforts will focus on areas where safety concerns exist or infrastructure may be at risk**, such as road ditches, irrigation channels, or stormwater management ponds identified during regular inspections.

When knotweed is found to obstruct infrastructure or pose safety issues, the Divisional Supervisor and Climate Change Coordinator will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements of the area affected. The Divisional Supervisor will arrange for removal by a contractor or Staff using appropriate herbicide or manual methods.

Following treatment, the Climate Change Coordinator will revisit the site to document post-treatment conditions and record data for invasive species management. Treated locations and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database.

Knotweed can regenerate from cut stems, making mechanical removal ineffective. Cutting one stem may produce several new shoots, so consistent herbicide use is essential. For tall stands, stems should be cut and then treated with herbicide to reduce spray drift, leaving one to two leaves to ensure effective transfer to the roots. Cutting to ground level should be avoided when using chemical treatment. Shorter stands can be treated directly with herbicide from **August to October**, when control is most effective. Habitat Aqua is the only pesticide currently registered in Canada for knotweed control in aquatic sites and must be used in those areas.

Where feasible, grazing can provide an effective alternative control method, particularly where other invasive species are present. However, grazing is not permitted at sites treated with herbicides within the past three years. A new manual method being tested in the United Kingdom uses a metal mesh to suppress growth. As knotweed grows through the mesh, repeated abrasion weakens the plant and can eventually kill it.

Knotweed Control Plan

Fallopia

Management Timing Summary: The table below outlines management techniques associated with knotweed and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Cutting												
Metal Mesh Pilot												
Herbicide Foliar												
Grazing												

Management Considerations

Due to the height of knotweed, it can sometimes limit spraying herbicides and require cutting plant material prior to chemical application. Site-specific plans will be developed for each priority location to identify the most appropriate management practices. The following tables go into more detail about each management technique.

Cutting	
Location:	Aquatic sites and terrestrial sites occasionally if stands are too high to spray or creates access barriers to spray
Infestation Size:	Small to large
Treatment Frequency:	Multiple times annually or as needed
Timing:	May through August (dependent on nesting sites)
Comments:	Cutting will occur if the knotweed stems are too high to apply herbicides safely or for removing dead stalks. If cutting is used as the only control of untreated living plants all cuts should be made at ground or substrate level and is optimal to have several removal timings throughout the growing season to reduce the stem density.

Pilot: Metal Mesh	
Location:	Aquatic sites
Infestation Size:	Small to medium
Treatment Frequency:	Only for aquatic sites
Timing:	May (after cut stems) to October
Comments:	This control measure is novel to the United Kingdom and has not been heavily researched in North America. Therefore, this method should be utilized as a pilot project to determine effectiveness and best practices.

Knotweed Control Plan

Chemical Treatment

Currently, there are 226 pesticides registered for the control of knotweed, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). The first five products listed are exemplified below.

Registration Number	Registrant Name	Product Name
5931	Loveland Products Canada Inc.	2,4-D Amine 600 Herbicide
9516	Loveland Products Canada Inc.	MCPA Amine 500 Herbicide
14545	Gowan Company, L.L.C.	Treflan QR5 Granular Herbicide
14726	Nufarm Agriculture Inc.	Nufarm 2,4-D Amine 600 Liquid Herbicide
16279	Tessengerlo Kerley, Inc.	Lorox L Herbicide

Chemical Treatment

Currently, the most commonly used products are Roundup and Vision Max, with preference given to glyphosate-based pesticides. However, full details of each product can be accessed through the PMRA's [product label search](#).

Chemical: Roundup WeatherMAX (Glyphosate)	
Location:	Terrestrial sites
Product Name:	Roundup WeatherMAX® With Transorb 2 Technology Liquid Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27487, Pest Control Products Act
Application Placement:	Applied directly to foliage (absorbed systemically to target roots) or as injection between the second and third internode.
Application Rate:	Foliar: 1.2-1.5 L/ha with 80-100 L/ha water Injection: 5mL per stem
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	Mid-August to early November
Comments:	Visual effects will occur within 7-10 days of application slowly wilting and darkening the plant. For more information visit the chemical label

Knotweed Control Plan

Fallopia

Product: Vision Max (Glyphosate)	
Location:	Terrestrial sites
Product Name:	VisionMAX Silviculture Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27736
Application Placement:	Applied directly to foliage; absorbed systemically to target roots.
Application Rate:	0.67 – 1.34 percent solution
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	Late-August to End of September (late summer to early fall)
Comments:	Do not treat directly over water. Targets plant enzymes that are not found in animals and has low toxicity to humans. It is rapidly broken down by soil microorganisms and binds tightly to clay or organic matter in soil. There is low potential for groundwater leaching and affect to human and wildlife.

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for knotweed are provided below.

KPI	Description	Target/Benchmark
Reduction in Aboveground Biomass	% reduction in stem count per m ² or % cover over time	Baseline stem density or canopy cover is compared annually post-treatment (e.g., 50%+ in year 1)
Herbicide Treatment Effectiveness	% of treated stems showing no regrowth after 1–2 growing seasons	Visual inspection post-application; target is >90% mortality where appropriate
Containment of Spread	No new satellite patches within a defined buffer zone	0% increase in patch size; no new satellite patches within 10 m buffer zone annually
Native Vegetation Recovery	Increase in native species richness and cover (%) in treated areas	At least 30–50% native vegetation cover within treated areas by year 2
Soil Disturbance Minimization	No increase in erosion or bare soil following treatment	<10% increase in bare soil area or erosion indicators post-treatment
Community / Partner Engagement	# of local landowners, volunteers, or municipal partners involved	Involve 5 interested parties per year (e.g., landowners, NGOs, municipal representatives)
Post-Treatment Monitoring Frequency	# of follow-up surveys or treatments per season/year	Minimum 2 follow-up monitoring visits per growing season (spring & late summer)
Reduction in Management Cost Over Time	Decrease in cost per m ² treated after year 2–3	≥25% reduction in cost per m ² by year 3

Disposal

Any residual plant parts of knotweed that have not been treated with herbicides must not be left on moist soil or in water (intentionally or indirectly with animals) as they will resprout. All plant parts, including the stem, must therefore be left either in bags or on elevated platforms to be solarized prior to being sent to landfill, composted at municipal facility, or burned. Pesticide killed material can be left on site to decompose, if appropriate, or disposed elsewhere. Tools, equipment, and vehicles used during removal should be thoroughly cleaned before leaving the site to prevent inadvertent spread of seeds or fragments.

Restoration

Following the removal of knotweed (e.g., Japanese, Giant, or Bohemian), active restoration is essential to prevent regrowth and reestablish healthy, competitive native vegetation. Knotweed aggressively colonizes disturbed soils, riverbanks, roadsides, and other open areas, forming dense monocultures that exclude native species and alter ecosystem processes.

Once removal is complete restoration should focus on **replanting with fast-growing, deep-rooted, native species** that can stabilize soils, shade out knotweed regrowth, and support biodiversity. In riparian zones, restoring vegetation is especially important to reduce erosion and maintain bank integrity.

Apply a 7–10 cm (3–4 inch) **mulch layer** in treated areas to suppress any remaining root fragments or seedlings and to give native plantings a competitive advantage. Avoid using compost or topsoil that may be contaminated with knotweed fragments.

Sites should be monitored at least **twice annually** for 3 – 5 years to detect any resprouting or new growth. Repeat treatments and follow-up planting may be needed to ensure long-term control and successful restoration.

Recommended Native Species:

- **Visually Similar Plants:**
 - Nannyberry (*Viburnum lentago*)
 - Common elderberry (*Sambucus canadensis*)

- **Riparian Trees & Shrubs:**
 - Eastern cottonwood (*Populus deltoides*)
 - Red-osier dogwood (*Cornus sericea*)

- **Herbaceous & Groundcover Plants:**
 - Canada goldenrod (*Solidago canadensis*)
 - Blue vervain (*Verbena hastata*)
 - Virginia wild rye (*Elymus virginicus*)
 - Switchgrass (*Panicum virgatum*)
 - Boneset (*Eupatorium perfoliatum*)

- **Pollinator Species:**
 - Wild bergamot (*Monarda fistulosa*)
 - Black-eyed Susan (*Rudbeckia hirta*)
 - New England aster (*Symphyotrichum novae-angliae*)

By restoring native plant communities, the risk of knotweed re-invasion is significantly reduced, while improving habitat quality and ecosystem function.

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Purple Loosestrife Control Plan

Lythrum salicaria

Overview

Purple loosestrife is a hardy perennial of freshwater habitats such as wetlands, marshes, water-filled ditches, natural waterways, and irrigation canals. It is found in every province in Canada and across North America.



Photo: Lauren Bell

Goal: To control existing populations of invasive purple loosestrife and prevent the spread of new populations that will minimize the adverse impacts.

Prevalence

Purple loosestrife is abundant in NOTL, capable of producing up to two million seeds per growing season. It forms dense stands that clog irrigation canals, degrade farmland, and reduce water flow in ditches, while its thick growth can also impede boat travel. The plant decreases recreational use of wetlands, crowds out native vegetation, and degrades habitats for birds, insects, and other wildlife. The release of *Galerucella* beetles as biological control agents has helped control efforts.



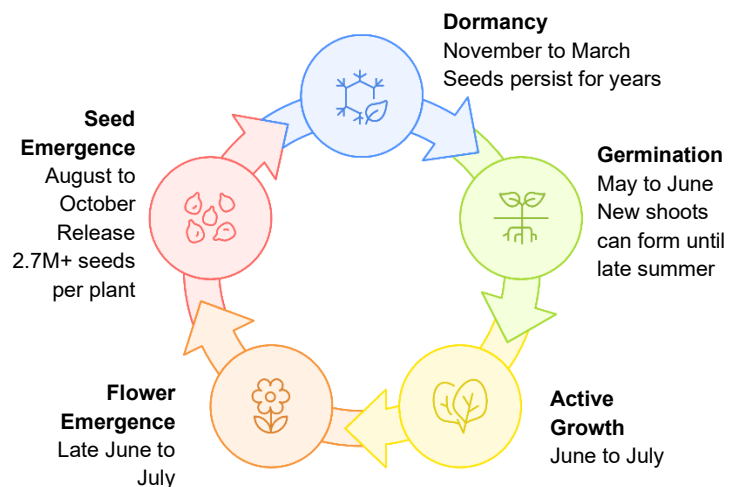
Photo: Lauren Bell

Characteristics:

- **Stems:** Square, woody, 60–120 cm tall; new growth is green, older stems red-brown or purple.
- **Leaves:** Narrow, long, triangular, smooth-edged with fine hairs; green in summer, turning bright red in fall.
- **Flowers:** Showy, deep pink to purple (occasional light pink or white), in dense cone-shaped clusters; 5–7 wrinkled petals with a small yellow center.

Lifecycle:

Purple loosestrife seeds remain dormant through winter and can stay viable for years. In its first season, the plant develops a deep taproot and root system, allowing it to resprout annually. Active growth occurs from June to mid-September, with flowering starting in mid to late June and seed production beginning by early August. After the first hard frost (September–October), the above-ground parts die back, and seeds are released throughout winter.



Surveillance and Priority Monitoring Schedule

To manage established purple loosestrife populations, regular monitoring will be conducted. Priority monitoring will occur at least once annually between **mid-July and early August**, when the plants are in bloom. Look for spikes of **pink-purple flowers** and **square woody stems**, up to 2 m tall. To avoid encountering seed production and risk of spread, monitoring will stop prior to mid-August. If control measures are implemented, the site should be revisited two weeks later to assess effectiveness and monitored twice annually, in spring or fall, in addition to summer.

Removal of Purple Loosestrife

Purple loosestrife removal will likely be completed by a contracted third-party organization authorized to apply herbicides within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout. **Removal efforts will focus on areas where safety concerns exist or infrastructure may be at risk**, such as road ditches, irrigation channels, or stormwater management ponds identified during regular inspections.

When purple loosestrife is found to obstruct infrastructure or pose safety issues, the Divisional Supervisor and Climate Change Coordinator will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements of the area affected. The Divisional Supervisor will arrange for removal by a contractor or Staff using appropriate herbicide or manual methods.

Following treatment, the Climate Change Coordinator will revisit the site to document post-treatment conditions and record data for invasive species management. Treated locations and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database.

Purple loosestrife spreads through root and stem fragments, making control difficult and requiring different approaches based on population size. For isolated or small infestations, **hand-pulling or digging** is the most effective manual method, ensuring complete root removal and careful disposal to prevent spread. Mowing or brush cutting are discouraged, as they leave the root system intact and risk spreading plant fragments.

Purple Loosestrife Control Plan

Lythrum salicaria

For medium to large populations, **herbicide** may be used at terrestrial locations and should be applied to the leaves for foliar application. **Currently there is no herbicide registered for use in Canada that can be applied in aquatic sites for purple loosestrife.** Where herbicide use is limited, cutting within three weeks of flowering can prevent seed production and reduce spread, with all cutting occurring before seed set.

The deployment of ***Neogalerucella* beetles as a biological control agent** in Ontario has proven highly effective in reducing purple loosestrife populations. Although the Town will not be applying this control method directly, it is recommended to recognize and not harm *Neogalerucella* beetle populations encountered in natural areas. Avoid disturbing or removing these beetles, as they serve as valuable natural allies in the long-term control of purple loosestrife.

Grazing may be considered to help suppress loosestrife and promote native species, especially in large or mixed invasive species infestations. ***Flooding and prescribed burns should be avoided, as loosestrife thrives in wet conditions and its deep roots are protected from fire in moist soil.***



Mating black-margined loosestrife beetle
Photo: Donna MacKenzie, Ontario Beetles



Golden loosestrife beetle
Photo: Central Lake Ontario Conservation

Management Timing Summary: The table below outlines management techniques associated with purple loosestrife and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Hand pulling/ digging												
Herbicide Foliar												
Grazing												

Purple Loosestrife Control Plan

Lythrum salicaria

Management Considerations

Due to easy spread of purple loosestrife by stem fragments, roots, and seeds hand pulling is considered the best control measure whenever feasible at smaller densities or sites. Herbicide will be used for larger populations at terrestrial sites and evaluated in the future for aquatic use, if products become available. Site-specific plans will be developed for each priority location to identify the most appropriate management practices.

Hand Pulling/Digging	
Location:	Terrestrial or shallow aquatic sites
Infestation Size:	Isolated to small
Treatment Frequency:	As often as needed
Timing:	Mid-June to July
Comments:	Must be completed prior to flowers go into seed (mid-August). If pulling, it must be done gently to not break the taproot that can re-sprout and prevent seeds from coming to the surface where they can germinate. When digging the perimeter needs to be large enough to not break the roots for the same reason.

Chemical Treatment

As of 2025, there are 114 pesticides registered for the control of purple loosestrife, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). The first five products listed are exemplified below.

Registration Number	Registrant Name	Product Name
27487	Bayer Cropscience Inc.	Roundup Weathermax with Transorb 2 Technology Liquid Herbicide
27615	Albaugh LLC	Vantage Plus Max Herbicide Solution
27736	Bayer Cropscience Inc.	Visionmax Silviculture Herbicide
27946	Bayer Cropscience Inc.	Renegade HC Liquid Herbicide
27988	Interprovincial Cooperative Limited	IPCO Factor 540 Liquid Herbicide

Purple Loosestrife Control Plan

Lythrum salicaria

Currently, the most commonly used products are Roundup and Vision Max, with preference given to glyphosate-based pesticides. However, full details of each product can be accessed through the PMRA's [product label search](#). More details of these two commonly used products are outlined below.

Chemical: Roundup Weathermax (Glyphosate)	
Product Name:	Roundup WeatherMAX® With Transorb 2 Technology Liquid Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27487
Application Placement:	Applied directly to leaves (foliage); absorbed systemically to target roots.
Application Rate:	0.67-1.34 solution (higher rate for heavier infestations)
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	June to early August (active growth)
Comments:	Terrestrial sites only – do not directly apply over waterbodies. When feasible, remove the flower heads to before application to prevent spread of seeds. Extreme care needs to be taken for spray drift when adjacent to agricultural lands and avoid crop damage or untargeted species.

Chemical: Vision Max (Glyphosate)	
Product Name:	VisionMAX™ Silviculture Herbicide
Registrant Name:	Bayer Cropscience Inc.
Active Ingredient:	Glyphosate
Registration Number:	27736
Application Placement:	Bayer Cropscience Inc
Application Rate:	0.67 – 1.34% solution (higher rate for heavier infestations)
Treatment Frequency:	Apply maximum of 2 treatments per year as needed annually
Timing:	August to September (late summer)
Comments:	Do NOT use over open water, the product is not registered for direct application to bodies of water. Treat when plants are actively growing at or beyond the bloom stage.

Purple Loosestrife Control Plan

Lythrum salicaria

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for purple loosestrife are provided below.

KPI	Description	Target/Benchmark
Percentage Cover or Density	% cover or number of stems per square meter in standardized plots over time	Reduce density to ≤ 5 stems/m ² within 2–3 years of intervention
Infested Area Treated	Total square metres of loosestrife-infested habitat surveyed versus treated	Treat ≥ 90 percent of identified infested area
Change In Stem Count or Density	Track reduction in flowering stems per plot; % decrease in flower length or count can reflect reproductive decline	80% reduction in flowering stems
Biocontrol Damage Indicators	Proportion of leaves or buds showing <i>Galerucella</i> beetle feeding damage (e.g. round feeding holes); Number of beetles or larvae in monitored areas	60% of leaves or buds show feeding damage
Monitoring Frequency	Number of surveys conducted per year (e.g. early summer for flowering, mid-summer for feeding)	≥ 1 survey annually
Response Time	Days between detection of new outbreak and initiation of treatment or prevention actions	Initiate control within 30 days of new report
Native Species Cover	Number of native species planted in area; % established	Increase in native cover by 30%

Disposal

Any residual plant parts of purple loosestrife that have not been treated with herbicides must not be left on moist soil or in water (intentionally or indirectly with animals) as they will resprout. **All plant parts**, including the **stem**, must therefore be left either in bags or securely tarped on elevated platforms to be solarized prior to being sent to landfill, composted at municipal facility, or burned. Pesticide killed material can be left on site to decompose, if appropriate, or disposed elsewhere. Tools, equipment, and vehicles used during removal should be thoroughly cleaned before leaving the site to prevent inadvertent spread of seeds or fragments.

Restoration

Once purple loosestrife has been effectively removed, it is recommended to support native wetland vegetation to prevent reinvasion and restore ecological function. Restoration efforts should include planting a diverse mix of native species well-adapted to **moist to wet soils**. These species support pollinators, stabilize soil, and help reestablish diverse native communities, while helping suppress loosestrife regrowth.

Restoration should focus on planting a **diverse mix of native, wetland species** that are well-adapted to the site's moisture levels and soil type. These plants help suppress loosestrife regrowth, stabilize soils, and support healthy wetland food webs, including pollinators, amphibians, and waterfowl.

Apply a 7–10 cm (3–4 inch) **layer of mulch** in bare areas to suppress any remaining loosestrife seeds and reduce early competition as native species become established. Avoid the use of compost, as it can promote invasive growth. In larger areas or where replanting is not feasible, encouraging **natural regeneration** of native wetland plants may be effective if the loosestrife seed bank has been depleted.

Restored areas should be **monitored annually** to assess native plant establishment, coverage, and any signs of Purple Loosestrife resurgence. Follow-up planting or spot removal may be required to ensure long-term restoration success.

Recommended Native Species:

- **Visually Similar Plants:**
 - Hoary vervain (*Verbena stricta*)
 - Blue vervain (*Verbena hastata*)
 - Tall ironweed (*Vernonia altissima*)
 -
- **Emergent & Moist Soil Plants:**
 - Swamp milkweed (*Asclepias incarnata*)
 - Arrowhead (*Sagittaria latifolia*)
 - Marsh marigold (*Caltha palustris*)
 - Pickerel weed (*Pontederia cordata*)
- **Shrubs:**
 - Meadowsweet (*Spiraea alba*)
 - Buttonbush (*Cephalanthus occidentalis*)
 - Red-osier dogwood (*Cornus sericea*)
- **Pollinator-Supporting Species:**
 - Dense blazing star (*Liatris spicata*) *Listed as Threatened in Ontario and Canada*
 - Cardinal flower (*Lobelia cardinalis*)
 - Joe-Pye weed (*Eutrochium maculatum*)
 - Great blue lobelia (*Lobelia siphilitica*)
 - Star-flowered Solomon's seal (*Smilacina stellata*)

A well-planned restoration approach not only discourages purple loosestrife from returning but also strengthens the ecological integrity of the wetland for years to come.

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Giant Hogweed Control Plan

Heracleum

Overview:

Giant hogweed is a terrestrial perennial plant listed as a **noxious weed** under the Ontario Weed Control Act. It is the common name of four species of large hogweeds that are invasive outside of their native range (*Heracleum mantegazzianum* – the most common, *H. persicum*, *H. sosnowski*, and *H. sphondylium*). All species are very similar in appearance with only minor differences but can cause **serious human health risks**.



Photo: Invasive Species Centre

Goal: To prevent populations of invasive giant hogweed from occurring in NOTL and utilize rapid response actions to newly established populations to eradicate the species.

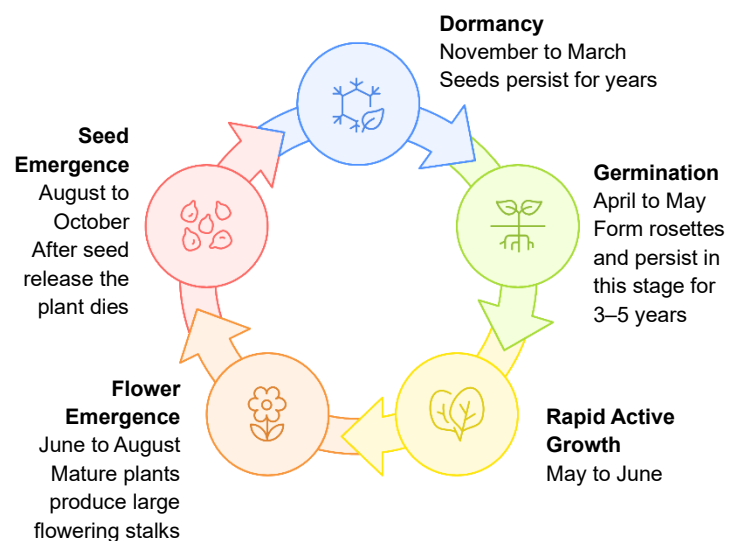
Prevalence: Invasive giant hogweed has not yet been confirmed in NOTL but is present in other parts of Ontario and can spread rapidly. Contact with its **sap can cause second-degree burns, painful blisters, and temporary or permanent blindness**. It typically invades roadsides, ditches, riverbanks, fields, and open woodlands, and less commonly, agricultural land. Ontario municipalities spend an average of over **\$200,000 annually** on management and control efforts ([Invasive Species Centre, 2019](#)).

Characteristics:

- **Leaves:** Shiny, large with coarse, jagged edges, cut into 3 large segments, and height 8-14 ft.
- **Stems:** Thick bright green stem with purple blotches and bristly hairs
- **Flowers:** White flowers in large umbrella shape cluster (12-36 in) containing smaller clusters

Lifecycle:

Giant hogweed seeds germinate in April to May. The plant stays in this vegetative stage for 3–5 years. In its final year, a flowering stalk emerges in early to mid-June, with full bloom from mid-June to August. Flowers turning from white to green signal seed production. By late summer (August–September), the plant produces thousands of seeds and then dies, completing its monocarpic life cycle.



Surveillance and Priority Monitoring Schedule

Giant hogweed is among the first plants to emerge in spring and bloom in summer, making it ideal for monitoring efforts from **late April to August**. Treated sites should be monitored every six weeks for up to three years, or until no regrowth or new seedlings appear, as the seed bank can remain viable for several years.

Safety Warning:

Giant hogweed poses a **serious health risk**. Its sap contains toxins that, when exposed to sunlight, can cause **severe skin burns**, blistering, long-term scarring, and temporary or permanent **blindness** if it contacts the eyes.

Always wear full protective gear when handling or working near the plant: waterproof gloves, long sleeves, pants, eye protection, and ideally a disposable spray suit over clothing. Tape sleeves and pant legs to reduce exposure.

After removal: Carefully take off protective gear to avoid sap contact. Wash gloved hands, then remove and clean eye protection, followed by gloves.

Exposure or Contact: If sap contact has been made with skin, immediately wash the area with soap and water. Keep it out of the sun and see a doctor if inflammation occurs. If contact has been made with eyes, immediately flush them with water and seek medical attention.

DO NOT attempt removal without proper protection.

Due to the health risks that are present with giant hogweed, it is advised not to conduct on-site community events where giant hogweed is known to be growing or for monitoring efforts. Instead, digital communications (i.e. social media, newsletter, etc.) can be used to spread awareness and methods available for the community to be involved with early response and rapid detection.

Removal of Invasive Giant Hogweed

If giant hogweed is detected in Niagara-on-the-Lake removal should occur immediately to limit populations from growing and ensure the safety of others. When found, the Divisional Supervisor and Climate Change Coordinator will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements of the area affected. The Divisional Supervisor will arrange for removal by a contractor or Staff using appropriate herbicide or manual methods.

Following treatment, the Climate Change Coordinator will revisit the site to document post-treatment conditions and record data for invasive species management. Treated locations and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database.

Due to the toxins released by giant hogweed, chemical control is recommended to minimize direct contact. The most effective time for treatment is in **early spring, (April to May)** when plants are under 30 cm tall and more susceptible to herbicide. During this stage, foliar applications of glyphosate are most effective, and cooler temperatures make protective gear easier to wear. As the season progresses, plants become larger and more hazardous, making control increasingly difficult. To further suppress regrowth, treated areas should be mulched 10–14 days after application.

If herbicide application occurs, it will likely be completed by a contracted third-party organization, following the methods and monitoring procedures outlined in this control plan. Environmental assessments should also be completed before treatment, as nesting activity occurs in May.

Manual methods such as digging are suitable for isolated or small populations but must be done with caution due to the toxic sap. Digging widely around the plant helps remove the entire taproot, while keeping safer distances. Hand pulling is not recommended to limit safety hazards. Tarping the area after removal can smother regrowth, with repeated efforts as needed. **Flowering umbels should not be removed**, especially if flower heads have turned green, as this indicates seed production. Attempting removal at this stage poses high health risks and increases the chance of spreading seeds. Mechanical cutting (e.g., with brush cutters) is not recommended unless required to access plants for herbicide application in large populations and should only be done with extreme caution. ***Giant hogweed must not be burned and its effects on grazers digestion are unknown, limiting control measures.***

Giant Hogweed Control Plan

Heracleum

Management Timing Summary: The table below outlines management techniques associated with phragmites and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Digging												
Foliar Herbicide												

Management Considerations

Due to giant hogweed sap toxicity, herbicide applications are recommended as the first control measure to prevent handholding of the plant and contact. However, with small, isolated populations digging can be an effective approach to removal. Site-specific plans will be developed for each priority location to identify the most appropriate management practices.

Digging	
Location:	Terrestrial
Infestation Size:	Isolated to small
Treatment Frequency:	As needed
Timing:	April to May
Comments:	When digging, create enough space around the plant to remove it fully without leaving fragments or roots behind. Be careful not to brush skin against the plant. Always wear gloves, safety glasses, long sleeves, and pants during removal.

Chemical Treatment

Currently, there are nine pesticides registered for the control of giant hogweed, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). The first five are listed below.

Registration Number	Registrant Name	Product Name
29190	G.D.G. Environnement LTEE	Ragweed Off
30917	2022 Environmental Science CA Inc.	Method 50SG
30920	2022 Environmental Science CA Inc.	Truvist Herbicide
30922	2022 Environmental Science CA Inc.	Navius Flex
31382	2022 Environmental Science CA Inc.	Navius VM Herbicide

Giant Hogweed Control Plan

Heracleum

Chemical Treatment

Registered pesticide products to control giant hogweed involve a non-target application that makes other plant species susceptible to damage. Ensuring there is a buffer area is important when applying pesticide. Currently, the most commonly used product is Ragweed and additional details from the product label are outlined below as an example. More information on each product can be accessed through the PMRA's [product label search](#).

Chemical: RagWeed Off	
Location:	Terrestrial sites
Product Name:	RagWeed Off
Registrant Name:	GDG Environnement Ltée
Active Ingredient:	Sodium Chloride
Registration Number:	29190
Application Placement:	Contact spray (apply an even coat without causing it to drip. Untreated areas will remain unaffected.)
Application Rate:	150 g/L and 350 g/L
Treatment Frequency:	2 to 4 applications per year
Timing:	July to August
Comments:	Ideal for areas of high density such as roadsides, highways, pathways, in vacant lots and industrial areas. This product will cause the loss of water from cells within the plant leaves. It also affects phragmites, poison ivy, and ragweed.

Giant Hogweed Control Plan

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for giant hogweed are provided below.

KPI	Description	Target/Benchmark
Survey Monitoring	Number of surveys conducted	≥ 1 survey conducted annually for new sightings
Public Education & Outreach	Number of educational events or materials distributed (e.g., posters, flyers, talks)	≥ 3 public outreach initiatives per year, targeting high-risk zones
Response Time	Number of days it takes to respond to a reported sighting	Initiation of removal or treatment within 30 days of confirmed new infestation
Reporting Accessibility	Number of platforms viewers can access reporting information	≥ 3 platforms for reporting sightings of giant hogweed
Sightings	Number of reported confirmed cases of giant hogweed	0 confirmed cases of giant hogweed
Infestation Reduction	% of stems or area reduced in size	≥ 75% reduction in density of flowering hogweed (stems/m ² or patch size) within 1 year
Health Hazard Incidents Reported	Number of reported sap exposure incidents or injuries to humans/pets	0 incidents in managed sites; any incident investigated and documented
Area Treated	% area treated 1 year after detection	≥ 90% of mapped giant hogweed patches treated within 1 year of detection
Regrowth Removal Rate	% of giant hogweed that has regrown after being treated	≤ 10% regrowth (new seedlings or root sprouts) detected and removed during follow-up visits

Disposal

Dead, uncut giant hogweed stalks from herbicide treatment may be left to decompose naturally. However, if the material is cut or needs to be moved, it must be solarized for safe disposal. Carefully place all plant material in sealed plastic bags to prevent accidental contact and leave them in full sun near the original site, out of public access, for 1 to 3 weeks (weather dependent) until fully dried. Label the bags to identify the material such as *Invasive Plant: Giant Hogweed*, so people know its contents. Once dried, material can be taken to a landfill. Giant hogweed **must not** be burned or composted, and its effects on grazers digestion are unknown.

It is crucial that all equipment used be fully cleaned of all plant parts before moving on to prevent inadvertent spread.

Restoration

Ideally, native plants from the soil seed bank will recolonize the area once giant hogweed is removed. As of 2025, there are no known occurrences of giant hogweed in Niagara-on-the-Lake that should allow the seed bank to **naturally recover**. However, active restoration through seeding or planting may be necessary to promote biodiversity and can support the succession.

Restoration efforts can focus on planting **fast-growing, native species** that tolerate full sun to partial shade and thrive in moist, nutrient-rich soils. These species will help outcompete invasive seedlings, stabilize soil, and support pollinators and native wildlife. In high-risk areas (e.g., riparian slopes or flood-prone zones), consider using erosion control fabric or native seed mixes to quickly re-establish cover and protect bare soil.

Apply a 5–10 cm (2–4 inch) **layer of mulch** in bare areas to suppress any remaining seed bank and reduce competition from non-native regrowth. Avoid using compost or untreated topsoil, as these can introduce or support invasive species. Restoration sites should be **monitored annually** for native plant establishment and any resurgence of Giant Hogweed.

Recommended Native Species:

- **Visually Similar Plant:**
 - Tall meadow rue (*Thalictrum pubescens*)

- **Tall Forbs & Grasses:**
 - Canada goldenrod (*Solidago canadensis*)
 - Switchgrass (*Panicum virgatum*)
 - Big bluestem (*Andropogon gerardii*)

- **Riparian Species:**
 - Meadowsweet (*Spiraea alba*)
 - Red-osier dogwood (*Cornus sericea*)
 - Blue vervain (*Verbena hastata*)
 - Wild rye (*Elymus canadensis*)
 - Common elderberry (*Sambucus canadensis*)
 - Silky dogwood *Cornus amomum/oblique*
 - Highbush Cranberry (*Viburnum trilobum*)

- **Pollinator-Supporting Plants:**
 - New England aster (*Symphyotrichum novae-angliae*)
 - Black-eyed Susan (*Rudbeckia hirta*)
 - Common milkweed (*Asclepias syriaca*)
 - Boneset (*Eupatorium perfoliatum*)

Restoring a diverse native plant community not only discourages Giant Hogweed re-establishment but also improves habitat quality and increases ecosystem resilience.

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Buckthorn Control Plan

Rhamnus

Overview:

Common buckthorn is a terrestrial perennial woody shrub or tree that spreads aggressively, outcompeting native vegetation and degrading natural habitats. Common buckthorn is classified as a **noxious weed** under the Ontario Weed Control Act and is listed as a **pest** under the Plant Protection Act. Glossy buckthorn (*Rhamnus frangula* or *Frangula alnus*) is commonly integrated into management as it is also invasive.



Goal: To control existing populations of invasive buckthorn (common and glossy), while preventing the spread of new populations that will minimize the adverse impacts.

Prevalence: Buckthorn is moderately present in NOTL but grows rapidly when left on treated quickly taking over the area. It is of concern to the agricultural community because it can host oat crown rust and soybean aphid, both of which reduce crop yields. It obstructs trails, park access points, and natural areas with thick shrubbery stands reducing visibility. On average, Ontario municipalities spend over **\$830,000 annually** on management and control initiatives ([Invasive Species Centre, 2019](#)).

Characteristics:

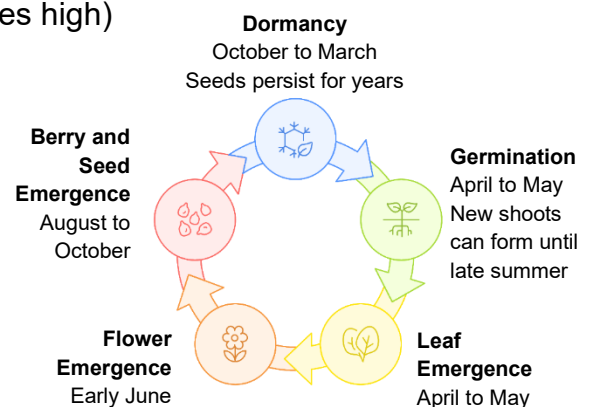
- **Leaves:** Green, egg shaped, with parallel veins (common buckthorn has rounder leaves with glossy buckthorn having more oval shaped leaves both that come to a point)
- **Thorns:** Small thorns on common buckthorn with absent thorns on glossy buckthorn
- **Flowers:** White, yellow, or green in June
- **Fruit:** Small black berries when mature and green when immature
- **Bark:** brown with white horizontal specs/pores (lenticels), smooth, shiny when young, rough when mature, and contains orange heartwood (when cut the centre is orange)
- Can form small trees when mature (6-7 metres high)

Parallel veins



Lifecycle:

Leaves emerge early in spring and stay until late fall. It flowers in early June, produces berries by late summer, and allow bird-dispersed seeds that remain viable for years. The best time for monitoring is early spring when it's most visible, while removal efforts are most effective in late fall (mid-October) or during the dormancy in winter.



Surveillance and Priority Monitoring Schedule

Buckthorn's leaves emerge early in the spring as one of the first plants to show greenery, making April an ideal time to begin monitoring efforts. Sites where removal has occurred should be monitored at least twice annually for three years, or until no regrowth or new seedlings are observed. Since seeds can be dispersed so easily and remain viable in the soil for several years, ongoing monitoring is essential to detect and remove regrowth early, preventing further spread.

Safety: Buckthorn contains sharp thorns, wear gloves, safety glasses, long sleeved shirts and pants. When using power equipment, woody debris may move unpredictably; stay alert, especially with larger shrubs, to anticipate their fall direction.

Removal of Buckthorn

Removal of buckthorn will likely be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout. **Removal efforts will focus on areas where safety concerns exist or infrastructure may be at risk**, such as trails, parks, or roadsides identified during regular inspections.

When buckthorn is found to obstruct infrastructure or pose safety issues, the Divisional Supervisor and Climate Change Coordinator will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements of the area affected. The Divisional Supervisor will arrange for removal by a contractor or Staff using appropriate herbicide or manual methods.

Following treatment, the Climate Change Coordinator will revisit the site to document post-treatment conditions and record data for invasive species management. Treated locations and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database.

Buckthorn produces abundant seeds that can remain viable in the soil for several years and they readily resprout from cut stumps. Brush-cutting can provide temporary canopy reduction but to achieve long-term control, these treatments must be followed by herbicide application or many repeated follow-up cuts.

Buckthorn Control Plan

Rhamnus

For large or **mature buckthorn**, cut-stump treatment with herbicide will be the primary approach. Stems should be cut as close to the ground as possible and immediately treated with herbicide to prevent resprouting. When population sizes are **small or young**, foliar spray applications can be used while basal bark application can be left for larger size stems covering a larger area.

When using herbicides the product label must always be followed but in general buckthorn should be treated in **late summer through fall**, when energy is moving to the roots, maximizing herbicide effectiveness. Where feasible, shading through reforestation or native shrub planting can suppress buckthorn regrowth over time by reducing available light. Innovative non-chemical methods, such as grazing and repeated cutting combined with heavy mulching, may be piloted in sensitive sites. Long-term monitoring and follow-up removals will be required for at least 5 years, given the seed bank persistence and buckthorn’s aggressive growth.

Management Timing Summary: The table below outlines management techniques associated with buckthorn and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Cutting												
Foliar Spray												
Cut Stump												
Basal Bark Spray												
Grazing												

Management Considerations

Due to buckthorn being able to quickly regrow sprouts from cut stumps, herbicide applications are recommended as a first control measure to intensive labour. However, with isolated or small populations cutting can be an effective approach of removal if repeatedly done. Site-specific plans will be developed for each priority location to identify the most appropriate management practices. The following tables go into more detail about each management technique.

Buckthorn Control Plan

Rhamnus

Cutting	
Location:	Terrestrial sites, commonly along trails and shoreline
Infestation Size:	Small to Large
Treatment Frequency:	Multiple cuts annually for several years
Timing:	Start around early July, when plants are beginning to reach maturity, and continue throughout the summer.
Comments:	Apply to cut as low to the ground as possible unless using herbicide afterwards and the product label specifies other instructions

Grazing	
Location:	Terrestrial sites
Infestation Size:	Medium to Large
Treatment Frequency:	2-3 treatments annually for at least three years
Timing:	Start around early July, when plants are beginning to reach maturity, and continue throughout the summer.
Comments:	Apply to cut as low to the ground as possible unless using herbicide afterwards and the product label specifies other instructions

Chemical Treatment

Application Type	Description
Foliar Application	Spray the solution onto leaves or foliage of smaller buckthorn plants to prevent potential spray drift of larger ones. This method is not species specific and requires planning to not impact surrounding species.
Basal Bark	The chemical is applied to the lower 12–18 inches of stems up to 6 inches in diameter. Ideal for small infestations or follow-up after foliar treatment. For larger stems, use hack-and-squirt.
Hack-and-Squirt	Create cuts are spaced around the stem, leaving intact bark between hacks to allow herbicide movement to the roots. Use one hack per inch diameter (minimum two). Best for stems over 1 inch in diameter and low stem densities. Must not completely sever trunk or stem with cuts but rather leave them as wounds for the herbicide to easily enter. A spray bottle is used to squirt the herbicide into cuts.
Cut Stump	Use a solution on freshly cut stumps late in the growing season but before leaf drop. This method has limited root control and is used as a last resort.

Buckthorn Control Plan

Rhamnus

Currently, there are 23 pesticides registered for the control of buckthorn, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). The first five products listed are exemplified below.

Registration Number	Registrant Name	Product Name
21053	Corteva Agriscience	Garlon 4 Herbicide
26420	Corteva Agriscience	Remedy EC Herbicide
28430	Corteva Agriscience	Remedy MSO Herbicide
28433	Corteva Agriscience	Fencerow EC Herbicide
28942	Corteva Agriscience	Remedy XRT Herbicide

The most commonly used product to control buckthorn is Garlon and more details on this product are exemplified below. Full details of each product can be accessed through the PMRA's [product label search](#).

Chemical: Garlon 4 Herbicide (Triclopyr)	
Product Name:	Garlon 4 Herbicide
Registrant Name:	Corteva Agriscience Canada Company
Active Ingredient:	Triclopyr
Registration Number:	21053
Application Placement:	Cut stump: Can be applied to stumps days to weeks after cutting all year Foliar: apply to leaves (foliage) Cut stump: apply to stump of main trunk Basal bark: apply around the stem in a 30 cm high strip. On stems <8 cm, it can be applied to one side
Application Rate:	Low volume foliar: 1 to 5 L in 100 L solution Cut stump: 20 to 30 L in oil to make 100 L solution Basal bark: add diluent (e.g. mineral/vegetable oil)
Treatment Frequency:	Apply once per year and subsequent years as needed
Timing:	July to early August
Comments:	Do not use as broadcast foliar spray in residential areas.

Buckthorn Control Plan

Rhamnus cathartica

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for buckthorn are provided below.

KPI	Description	Target/Benchmark
Treated Areas	Number of distinct sites or plots where buckthorn removal was conducted.	≥ 10 treatment sites annually
Stem Density Reduction	% reduction in buckthorn stem density in treated areas.	≥ 75% reduction within 1 year post-treatment
Individual size	Proportion of shrubs/trees that are mature	Mature individuals make up ≤ 25% of the population within 5 years
Site Monitoring Frequency	Number of follow-up inspections after initial removal.	Minimum of 2 inspections per site per year for 3 years
Regrowth Removal Rate	% of buckthorn regrowth (seedlings or resprouts) addressed in follow-up visits.	≤ 15% regrowth per site annually
Native Species Re-establishment	% of treated areas replanted or naturally recolonized by native vegetation.	≥ 70% of treated sites within 1 year
Public Engagement	Number of volunteers or community members involved in monitoring events.	≥ 25 participants per year
Education & Outreach	Number of outreach materials distributed (e.g., flyers, signage, workshops).	≥ 100 materials distributed annually

Disposal

Buckthorn plant material must be managed carefully to prevent further spread. Shrubs cut during removal, especially larger individuals, may require chipping using heavy machinery. All brush, including smaller stems and root fragments, should be piled and **solarized prior to seed development** to ensure seeds or viable parts do not spread. Place the material under clear plastic sheeting in direct sunlight, securing the edges to trap heat and moisture. Solarization should occur for **1 to 3 weeks**, depending on weather conditions, until the material is fully dried and non-viable.

For large volumes of material or chipped debris, label the piles clearly (e.g., *Invasive Plant – Buckthorn*) and keep them **away from public access and water sources where regrowth can occur**. Once solarized and dried, the material may be taken to a landfill or composted at an approved municipal facility.

The Plant Protection Regulation prohibits the importation and domestic movement of buckthorn (all *Rhamnus* spp.) due to being an alternate host to crown rust of oats, *Puccinia coronata*. This is noted in the Barberry [phytosanitary requirements](#) and can be used for reference with buckthorn. If specific buckthorn requirements come into effect, that would take precedence. When moving buckthorn, it should be labeled with its botanical name but currently no other requirements are requested.

All equipment used during removal, such as saws, vehicles, and chippers, must be **cleaned** of seeds, twigs, and root fragments before leaving the site to prevent accidental spread to unaffected areas. **Documentation** to support any disposal or removal efforts should be maintained on file for at least two years.

Restoration

A 5–10 cm (2–4 inch) **layer of mulch** should be applied immediately after treated areas to suppress buckthorn seed banks and reduce competition while native plants establish. Avoid using compost, as it may unintentionally promote buckthorn or other invasive regrowth. In areas with extensive removal, consider temporary shading or ground cover plantings to minimize soil exposure or erosion on slopes.

Once buckthorn has been effectively removed (20% or less regrowth), it is crucial to restore native plant communities to prevent reinvasion and promote long-term ecological health. Restoration should focus on planting a **diverse mix** of regionally appropriate native trees, shrubs, and herbaceous species that are well-suited to the site's light, soil, and moisture conditions. Native species will help reestablish natural structure, outcompete invasive seedlings, and support local wildlife, including birds and pollinators.

Restoration sites should be **monitored annually** to assess native plant survival, coverage, and signs of buckthorn regrowth. Adaptive management, such as additional planting or spot treatment, may be required for successful long-term restoration. Restoring native biodiversity not only discourages future buckthorn growth but also contributes to a more resilient and functional ecosystem.

Recommended Native Species:

- **Visually Similar Plants:**
 - Nannyberry (*Viburnum lentago*)
 - Chokeberry (*Aronia melanocarpa*)
 - Bayberry (*Morella (syn. Myrica) pensylvanica*)

- **Trees and shrubs:**
 - Shagbark hickory (*Carya ovata*)
 - Red-osier dogwood (*Cornus sericea*),
 - Serviceberry (*Amelanchier spp.*),
 - Eastern white cedar (*Thuja occidentalis*),

- **Herbaceous Plants:**
 - Wild bergamot (*Monarda fistulosa*),
 - Black-eyed Susan (*Rudbeckia hirta*),
 - Big bluestem (*Andropogon gerardii*),
 - New England aster (*Symphotrichum novae-angliae*)

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Hemlock Woolly Adelgid

Adelges tsugae

Overview

Hemlock Woolly Adelgid is an invasive insect that attacks and kills hemlock trees by feeding on their sap. It causes needle loss, branch dieback, and eventual tree death. This pest poses a serious threat to forest ecosystems and is currently listed as a **pest** under the Plant Protection Act.



Goal: To prevent populations of hemlock woolly adelgid from occurring in NOTL and utilize rapid response actions to newly established populations to eradicate the species.

Prevalence: Niagara-on-the-Lake, along with the broader Niagara Region, is designated by the Canadian Food Inspection Agency (CFIA) as a regulated area for hemlock woolly adelgid. The insect reproduces asexually, allowing a single individual to trigger a rapid infestation that can devastate hemlock stands. Hemlock woolly adelgid places significant strain on the forestry and lumber industries, transportation corridors, property values, and causes extensive ecological damage, including habitat destruction, biodiversity loss, and increased erosion and sedimentation.

Characteristics:

- Adult: white wool-like sacs at the base of needles on twigs or branches
- Nymphs: flat, black, oval shape with halo of white woolly wax
- Infested hemlock trees:
 - Premature bud and shoot dieback
 - Premature needle loss
 - Thinner, greyish-green crown
 - Dieback of twigs and branches
 - Discolouration of foliage
 - Tree death within 4-15 years

Lifecycle:

Hemlock woolly adelgid (HWA) has two generations each year: the overwintering **sistens** (June–March) and the spring **progreiens** (March–June). Both progress through six stages: eggs, four nymphal stages (including crawlers), and adults. The **crawler** stage is most concerning, as crawlers can attach to humans or wildlife and spread over long distances.

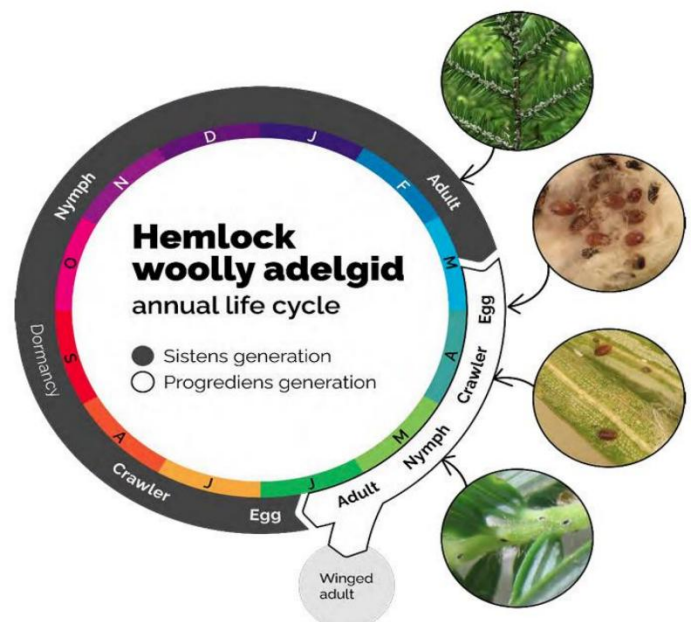


Photo: [Parker et al. 2023](#)

Hemlock Woolly Adelgid

Adelges tsugae

Detection of Hemlock Woolly Adelgid

If you see hemlock woolly adelgid, take the following steps **immediately**:

- 1. Take Clear Photos:** Capture close-up pictures to help confirm identification.
- 2. Collect a Sample:** If safe, catch the insect and seal it in a plastic bag or container.
- 3. Stop and Isolate:** If found on transported goods, seal off the material and pause all shipping activities.
- 4. Report Immediately to CFIA:** Call the St. Catharines office at **905-937-7434** or complete the CFIA [online form](#). Include:
 - a. GPS coordinates or address
 - b. Date spotted
 - c. Organization or contact information
 - d. Number of nearby hemlock trees
- 5. Keep Traceability Records:** Documentation must be kept for at least 3 years and contain the following:
 - a. Location with maps or GPS coordinates
 - b. Shipping/receiving information (if applicable)
 - c. Scouting & trapping activities
 - d. Pest control/eradication measures (if applicable)
- 6. Consult with CFIA:** Follow their direction on further action required and disposal of the insect if captured.
- 7. Record Everything:** Track all actions taken for future reference.

Priority Search Areas



Forests and sites of densely planted hemlock



Lakes and Streams



Bird Feeders



Nursery Stock



Border Crossings and Transportation Routes

Biosecurity: Extra care is needed from **April to July**, when **crawlers are active**. Use a lint roller on clothing until it can be washed, clean equipment with ethanol, and rinse boots and gloves with water on site until they can be properly washed with soap later.

Hemlock Woolly Adelgid

Adelges tsugae

Surveillance and Priority Monitoring Schedule

To prevent hemlock woolly adelgid from establishing in NOTL, regular monitoring efforts will be taken. To detect hemlock woolly adelgid (HWA), examine the underside of branches near the base of needles for white woolly sacs, which are visible from November to May and become more prominent from March to May as ovisacs develop. Inspectors will follow the Canadian Food Inspection Agency's [Hemlock Woolly Adelgid Detection Survey Protocol](#), that states surveys should be complete in **April or May**.

The woolly sacs are waxy and firmly attached to the twig at the base of the needle, not on the needle itself. **Fallen branches** are critical to examine as they can reveal infestations higher in the canopy, and after spring rainstorms, the bark should be checked for wool. Monitoring is especially important for trees near lakes, streams, bird feeders, or planted nursery stock. When branches are within reach, direct inspection is ideal, but tools such as a pole pruner or ladder can be used. Binoculars can also help to inspect branches that are higher from the ground.

For taller trees, where drones cannot easily access the top of a canopy, creative methods have been employed like **ball sampling**. This approach utilizes a slingshot with a Velcro-wrapped ball that can leave traces of HWA. When this survey method is used the Invasive Species Centre tutorial video [How TO: Ball Sampling for HWA](#) will be followed. Another option is the use of ground-installed **sticky traps** placed beside hemlock trees to detect HWA. This method will also follow the Invasive Species Centre tutorial video [HOW TO: Sticky Trap Sampling for HWA](#). Both techniques provide practical monitoring alternatives that, with proper training and program support, could be well-suited for volunteer involvement.



Photo: Natural Resources Canada, Canadian Forest Service researcher Chris MacQuarrie

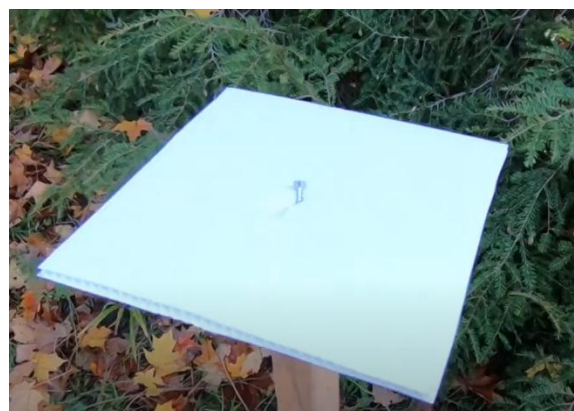


Photo: Invasive Species Centre, HOW TO: Sticky Trap Sampling for HWA

Removal of Invasive Hemlock Woolly Adelgid

Hemlock woolly adelgid (HWA) can cause severe damage to hemlock trees, making **removal of infested trees** the most common method to prevent further spread and maintain safety. If hemlock woolly adelgid is detected, the Divisional Supervisor, Climate Change Coordinator, and Canadian Food Inspection Agency will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements, while the Divisional Supervisor will arrange for a contractor to remove any infested trees as directed from the Canadian Food Inspection Agency.

For healthy or recently infested trees, chemical treatments can be applied as a preventative measure. **Stem injections**, delivered by drilling at a downward angle (20–45°), 15–30 cm above ground, 1.5–2 cm into the sapwood, are currently the primary treatment option in Ontario. Registered products include TreeAzin® (Azadirachtin 5%), IMA-jet (Imidacloprid 5%), and IMA-jet 10 (Imidacloprid 10%). Treatments must be repeated every two years, which can make this approach costly and limit the number of trees that can be maintained.

Where chemical treatment is applied, a contracted third-party organization will likely perform the work under the guidance of this control plan, ensuring recommended methods are followed and monitored. Post-treatment, the Climate Change Coordinator will revisit sites to document conditions and record data for invasive species management. Treated areas and other points of concern will be mapped, with management actions and key performance indicators tracked in the Town's GIS database.

In situations where infestations are extensive or resources are limited, site-specific control plans will prioritize interventions based on factors such as tree health, ecological function, proximity to other hemlocks, safety, recreational and cultural significance, and potential pathways of spread. A cost-effective alternative in these cases is to remove infested or high-risk trees and replant with site-appropriate species. While this strategy helps contain hemlock woolly adelgid, it results in the **loss of mature hemlocks** and their ecological contributions.

Effective hemlock woolly adelgid management requires **coordination** among municipal Staff, contracted specialists, and regulatory agencies, combining direct treatment with strict measures to prevent further spread. Following best practices from the Ontario Invasive Plant Council, stem injections remain the recommended preventative approach for healthy trees, while removal and replanting may be necessary where infestation is severe.

Hemlock Woolly Adelgid

Adelges tsugae

Management Timing Summary: The table below outlines management techniques associated with hemlock woolly adelgid and when to act based on activity. Darker shades represent optimal windows of management while lighter shades are suboptimal timing.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring								Tree Check Month				
Surveys												
Traps												
Injections												

Management Considerations

The Town of Niagara-on-the-Lake will follow the direction of the Canadian Food Inspection Agency (CFIA) and align with the guiding principles established by the inaugural Invasive Species Strategy Advisory Committee, led by the Niagara Peninsula Conservation Authority. As control techniques evolve, this plan will be updated accordingly and site-specific plans will be developed for each priority location to identify the most appropriate management practices.

Currently, there are seven pesticides registered for the control of hemlock woolly adelgid, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA).

Registration Number	Registrant Name	Product Name
30559	Lallemand, Inc.	Treeazin Systemic Insecticide
31375	Arborjet Inc.	IMA-Jet
31479	Arborjet Inc.	ImMA-Jet 10
34596	Rainbow Ecoscience	XYTECT 2F
34653	Mitsui Chemicals Crop & Life Solutions, Inc.	Starkle 20 SG
28124	Plant Products Inc.	Landscape Oil Spray
29703	2022 Environmental Science CA Inc.	Confidor 200 SL Systemic Insecticide

Chemical Treatment

The most commonly used products for hemlock woolly adelgid are TreeAzin and IMA-jet. However, full details of each product can be accessed through the PMRA's [product label search](#). More details of these two commonly used products are outlined below.

Hemlock Woolly Adelgid

Adelges tsugae

Chemical: TreeAzin® (Azadirachtin)	
Product Name:	TreeAzin®
Registrant Name:	Lallemand Inc.
Active Ingredient:	Azadirachtin
Registration Number:	30559, Pest Control Products Act
Application Placement:	Applied at a pre-drilled hole ~ 15 cm to 30 cm above ground level at a 20 to 45 degree downward angle
Application Rate:	3 mL per cm DBH
Treatment Frequency:	One application per tree (bi-annually if needed)
Timing:	Apply in early spring (April), prior to bud break; alternatively, apply in late summer (August) when adelgids resume feeding activity (crawler stages).
Comments:	To be used when detection occurs in the area or within 24 km and trees appear healthy. When the injection is completed, wait for 1-2 minutes before removing the canister and nozzle to avoid pesticide spillage. Moves rapidly throughout the treated tree (approx. 48 hours) and provides protection for ~2 years. Product also is suited for emerald ash borer, spongy moth, tent caterpillars, European elm scale, sawflies, and more at different application rates. For more information visit the product label .

Chemical: IMA-jet (Imidacloprid 5%)	
Product Name:	IMA-jet
Registrant Name:	Arborjet Inc.
Active Ingredient:	Imidacloprid
Registration Number:	31375, Pest Control Products Act
Application Placement:	Around the base of the tree (the trunk flare or tissue immediately above the trunk flare)
Application Rate:	0.8 to 1.6 mL per cm DBH for trees with DBH = 15 to 30 OR 1.6 to 2.4 mL per cm for trees with DBH greater than 30 cm
Treatment Frequency:	Max. once annually per tree (with other injections as needed in subsequent years)
Timing:	Apply in early spring (April), prior to bud break; alternatively, apply in late summer (August) when adelgids resume feeding activity. To be used when detection occurs in the area or within 24 km and trees appear healthy.
Comments:	Takes approximately 6-9 months to show reductions in HWA abundance on treated trees but provide approximately 4-7 years of protection against HWA

Hemlock Woolly Adelgid

Adelges tsugae

Chemical: IMA-jet 10 (Imidacloprid 10%)	
Product Name:	IMA-jet 10
Registrant Name:	Arborjet Inc.
Active Ingredient:	Imidacloprid
Registration Number:	31479, Pest Control Products Act
Application Placement:	Around the base of the tree (the trunk flare or tissue immediately above the trunk flare)
Treatment Frequency:	Max. once annually per tree (with other injections as needed in subsequent years)
Timing:	Apply in early spring (April), prior to bud break; alternatively, apply in late summer (August) when adelgids resume feeding activity. To be used when detection occurs in the area or within 24 km and trees appear healthy.
Comments:	Takes approximately 6-9 months to show reductions in HWA abundance on treated trees but provide approximately 4-7 years of protection against HWA

Hemlock Woolly Adelgid

Adelges tsugae

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for hemlock woolly adelgid (HWA) are provided below.

KPI	Description	Target/Benchmark
Survey Coverage	Number of high-risk hemlock stands surveyed for HWA annually.	≥ 90% of known hemlock stands surveyed per year
Detection Accuracy	Number of confirmed detections verified from public or Staff reports.	≥ 95% verification rate of suspected reports
Public Reporting Participation	Number of HWA reports submitted via apps, email, or hotline.	10% annual increase in engagement
Response Time	Average time between confirmed detection and initiation of response action.	≤ 30 days from detection to response
Treatment Implementation	Number of infested trees treated with insecticide or other control measures.	75% of treatable trees within 1 month of detection
Outreach Events	Number of public education or training sessions held on HWA identification and reporting.	≥ 1 events annually
Outreach Material Distribution	Number of materials (flyers, signs, digital content) shared with the public or interested parties.	≥ 100 materials distributed annually
Staff/Volunteer Training	Number of individuals trained in HWA detection and sampling protocols.	≥ 2 trained personnel per year
Follow-up Monitoring	Frequency of monitoring previously infested or treated sites.	Minimum of 2 follow-ups per site per year
Interagency Coordination	Number of coordinated response actions with regional/provincial/federal partners.	≥ 2 coordinated actions or meetings annually

Disposal

Proper disposal of infested hemlock material is essential to prevent the spread of Hemlock Woolly Adelgid (HWA), which can be easily transferred on branches, needles, or bark. If infested branches or trees must be removed, do so between **August 1 to the last day of February (low risk period)** and avoid the **high risk period from March 1 to July 31**, to reduce the risk of dispersal. Disposal strategies must be in compliance with any directives given by the Canadian Food Inspection Agency (CFIA).

Niagara-on-the-Lake, along with the broader Niagara Region, is designated by the **Canadian Food Inspection Agency (CFIA)** as a regulated area for hemlock woolly adelgid. The disposal and movement of infested hemlock material with bark, including logs, branches, and wood chips, will therefore comply with all applicable [CFIA phytosanitary requirements](#) and Ministerial Orders. Where required, a **CFIA Movement Certificate** will be obtained prior to transporting any regulated material. Wherever feasible, disposal of infested hemlock wood should occur on site or as close to the removal location as possible to minimize risk of spread.

CFIA recognized methods for eliminating hemlock woolly adelgid **with tree bark** include burning, deep burial, and chipping. **Burning** infested hemlock wood is effective where permitted under Town bylaws and provincial open burn regulations. **Deep burial** to a minimum depth of 1.8 metres is also an accepted disposal method, provided the site has been approved by a CFIA inspector and re-excavation of the material will not occur for 2 years. Alternatively, **chipping** is an effective control measure when either approved CFIA sanitation processes have been completed or the chips will be used for a secondary process such as paper finish mulch or recycled fiber board. All movement and disposal of infested hemlock material will follow CFIA guidance to prevent the further spread of hemlock woolly adelgid.

All removed material for transport is recommended to be securely tarped and solarized in full sun for a minimum of 2 to 4 weeks. **Solarization** involves piling the material into sealed bags or covering the material tightly with a clear or black plastic tarp to heat and dehydrate any remaining adelgids. Keep solarization areas away from public access and label it clearly (e.g., *Invasive Pest – HWA Infested Hemlock*). Once dried, material can be chipped on-site, burned, transported to landfill or an approved municipal compost facility in secured bags or containers. **Do not** transport undried infested material off-site. All tools, clothing, and machinery used in infested areas must be thoroughly cleaned before leaving the site to avoid spreading adelgids to uninfested trees or locations.

Hemlock Woolly Adelgid

Adelges tsugae

At present, repurposing infested hemlock wood as mulch, compost, or other organic products is not recommended unless the material has been treated to meet CFIA phytosanitary standards. While research into safe reuse is ongoing, the risk of inadvertently spreading hemlock woolly adelgid remains high without sterilization or regulatory approval.

To support traceability and compliance, all hemlock woolly adelgid related disposal actions should be documented and maintained on file for at least **3 years**. This includes recording the location, date, volume of material removed, disposal method used, and Staff involved. Proper disposal, when conducted consistently and according to provincial and federal guidelines, plays a critical role in limiting the spread of hemlock woolly adelgid and reducing its long-term ecological and economic impacts.

Restoration

Following the treatment or removal of infested hemlock trees due to Hemlock Woolly Adelgid (HWA), it is essential to restore forest structure and ecological function to prevent erosion, protect biodiversity, and support long-term forest resilience. Since eastern hemlock often creates cool, shaded understories critical for moisture-sensitive species, restoration should prioritize **native conifer and shade-tolerant hardwood species** that can fill similar ecological roles.

Where possible, encourage **natural regeneration** of unaffected hemlocks or nearby native species. In heavily impacted areas, **replant with a diverse mix of native trees and understory plants** that support soil stabilization, wildlife habitat, and canopy recovery. Restoration should also consider microclimate conditions, especially in riparian zones where hemlock loss can cause temperature increases and streambank instability.

To support replanting success, minimize soil disturbance, protect seedlings from browsing (e.g., with tree guards or fencing), and avoid introducing non-native species during restoration activities. **Mulching** around new plantings can help retain moisture and reduce competition from invasive plants.

Restoration sites should be **monitored annually** to track plant survival, canopy recovery, and signs of reinfestation. Adaptive measures may be necessary to respond to changes in site conditions or forest dynamics. Restoring native forest composition helps mitigate the ecological impacts of HWA and supports long-term forest health in the face of future stressors.

Recommended Native Species:

- **Visually Similar Plants:**
 - Eastern white cedar (*Thuja occidentali*)
 - Eastern white pine (*Pinus strobus*)
 - White spruce (*Picea glauca*)
 - Balsam fir (*Abies balsamea*)
- **Shade-Tolerant Hardwoods:**
 - Sugar maple (*Acer saccharum*)
 - American beech (*Fagus grandifolia*)
 - Yellow birch (*Betula alleghaniensis*)
- **Understory Species:**
 - Striped maple (*Acer pensylvanicum*)
 - Wild ginger (*Asarum canadense*)
 - Pawpaw (*Asimina triloba*)
 - Bladdernut (*Staphylea trifolia*)

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.

Flowering Rush Control Plan

Butomus umbellatus

Overview:

Flowering rush is an invasive aquatic, submergent, plant that spreads rapidly in lakes, rivers, and wetlands. It crowds out native vegetation, disrupts habitats, and can interfere with recreational activities like boating and swimming. It is listed as a restricted species under the Ontario Invasive Species Act.



Photo: Invasive Species Centre

Goal: To control existing populations of invasive flowering rush, while preventing the spread of new populations that will minimize the adverse impacts.

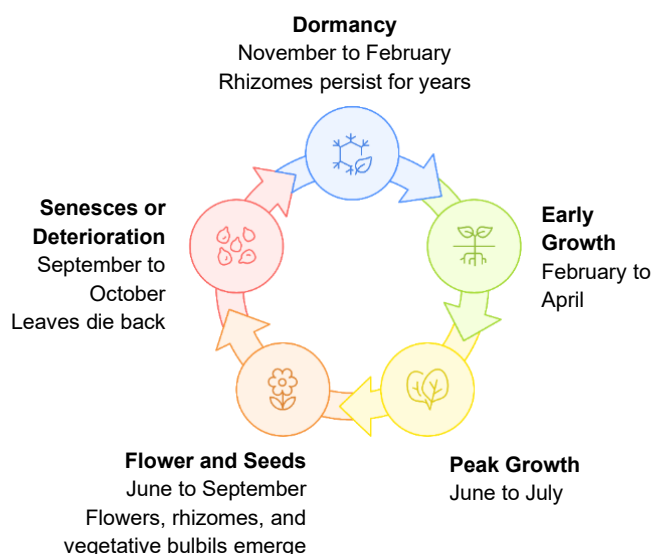
Prevalence: Flowering rush is commonly found in shallow waters throughout NOTL, spreads rapidly and can overtake aquatic areas. It damages irrigation and drainage systems, reduces water quality, and negative impacts recreation and tourism. The plant outcompetes native vegetation, disrupts nutrient cycling, contributes to algal blooms, and degrades fish and wildlife habitat.

Characteristics:

- **Leaves and Stems:** triangular, parallel veined, twist at the tip, and are 1 to 3 metres long
- **Flowers:** not always present, but they are white, pink, or purple, umbrella shaped clusters, 3 petals, 3 sepals, 9 stamens, 6 pistils per flower
- **Fruit:** not always present but are dry crown shaped capsule

Lifecycle:

Germination and early growth occur in spring, while peak growth occurs mid-summer. At this stage flowering rush reaches its full size. Not all plants will flower, but the ones that do occur in late summer, making **June to September** the best time for visual surveys. Another prominent visual is leaf dieback in fall that is unlike similar looking cattails that remain standing. The rhizomes contribute to reproduction the most, making fragments the largest concern for spread.



Flowering Rush Control Plan

Butomus umbellatus

Surveillance and Priority Monitoring Schedule

To manage established flowering rush populations, regular monitoring will be conducted. Priority monitoring will occur at least once annually between **June and early August**, when the plants are in bloom. If control measures are implemented, the site should be revisited two weeks later to assess effectiveness.

Removal of Flowering Rush

Removal of flowering rush will likely be completed by a contracted third-party organization within the Town. This control plan will guide the process, with recommended methods followed and monitored throughout. **Removal efforts will focus on areas where safety concerns exist or infrastructure may be at risk**, such as stormwater management ponds and wetlands identified during regular inspections.

When flowering rush is found to obstruct infrastructure or pose safety issues, the Divisional Supervisor and Climate Change Coordinator will be notified. The Coordinator will visit the site to collect pre-removal data, including photographs and measurements of the area affected. The Divisional Supervisor will arrange for removal by a contractor or Staff using appropriate herbicide or manual methods.

Following treatment, the Climate Change Coordinator will revisit the site to document post-treatment conditions and record data for invasive species management. Treated locations and areas of concern will be mapped, with management actions and key performance indicators tracked in the Town’s GIS database.

Removal of flowering rush will follow Ontario Invasive Plant Council best practices which currently consist of manual removal and herbicide application when appropriate **aquatic** licenses and permits have been obtained. Eradication is possible with chemical treatment, whereas manual removal will prevent the spread and prevent new populations from forming but has had less success with eradication of established areas. There are two common aquatic herbicide products that are registered to use in Canada Reward Aquatic Herbicide and Habitat Aqua.

Management Timing Summary: The table below outlines management techniques associated with flowering rush and when to act based on activity.

Practice	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Priority Monitoring												
Hand pulling												
Herbicide												

Flowering Rush Control Plan

Butomus umbellatus

Management Considerations

Herbicide control is considered the most effective approach; however, because flowering rush is an aquatic species, permitting requirements can present challenges. Due to the species' ability to spread readily through stem fragments and root material, hand pulling is considered the preferred manual method, as it allows for the complete removal of plant biomass. Pulling should be conducted slowly and carefully to ensure intact root removal. Herbicide application may be considered for the management of larger or more established populations. Site-specific plans will be developed for each priority location to identify the most appropriate management practices.

Hand Pulling/Digging	
Location:	Terrestrial or shallow aquatic sites
Infestation Size:	Isolated to small
Treatment Frequency:	As often as needed
Timing:	Mid-June to July
Comments:	Must be completed prior to reproductive parts emerge (August). If pulling, it must be done gently to not break the roots that can re-sprout. Once removed, observe the surrounding area for any fragments and collect them if present.

Cutting	
Growth Form:	Apply to submerged or emergent growth
Infestation Size:	Small to Medium
Treatment Frequency:	Multiple cuts annually for several years
Timing:	Start around early July, when plants are beginning to reach maturity, and continue throughout the summer.
Comments:	Cut plants below the water line with a raspberry cane cutter or other appropriate tool. Best for emergent plants in shallower areas (at water depth less than 1.3 m). Effective for controlling the spread in dryer, shallower areas, very challenging in greater water depths (greater than 1.3 m). Cutting multiple times in a season over several years is required.

Flowering Rush Control Plan

Butomus umbellatus

Currently, there are two pesticides registered for the control of flowering rush, under the Pest Control Products Act and listed by Health Canada's Pest Management Regulatory Agency (PMRA). For use in and around water bodies, appropriate permits and licenses are required.

Registration Number	Registrant Name	Product Name
32374	BASF Agricultural Solutions Canada Inc.	Habitat Aqua
26271	Syngenta Canada Inc.	Reward Aquatic Herbicide

Chemical Treatment

The two registered products to use in Canada are Habitat Aqua and Reward Aquatic Herbicide. More products may become registered for aquatic use and full details of each product can be accessed through Health Canada's Pest Management Regulatory Agency (PMRA) [product label search](#). More details of these two commonly used products are outlined below.

Chemical: Habitat Aqua (Imazapyr)	
Product Name:	Habitat Aqua
Registrant Name:	BASF Agricultural Solutions Canada Inc.
Active Ingredient:	Imazapyr
Registration Number:	32374
Application Placement:	Applied directly to emergent foliage; absorbed systemically to target roots
Application Rate:	3.0 L/ha
Treatment Frequency:	Once per year as needed annually
Timing:	After July 1 (post fish spawning season)
Comments:	Extreme care needs to be taken for spray drift when adjacent to agricultural lands and avoid crop damage or untargeted species.

Flowering Rush Control Plan

Butomus umbellatus

Chemical: Reward Aquatic Herbicide (Glyphosate)	
Product Name:	Reward
Registrant Name:	Syngenta Canada Inc.
Active Ingredient:	Diquat
Registration Number:	26271
Application Placement:	Applied direct
Application Rate:	18.3 L/ha
Treatment Frequency:	Apply maximum of 2 treatments per year as needed Must wait at least 2 weeks after application to reapply
Timing:	Late May through June (active growth)
Comments:	Priority application should be given prior to flowering rush becoming thickly populated, as dense growth of mature weeds will make application difficult and less effective.

Flowering Rush Control Plan

Butomus umbellatus

Key Performance Indicators

All mapping, surveys, and control measure data should be recorded in a centralized system and integrated with site-specific data collection, including:

- Updated records from previous mapping efforts
- Documentation of any control measures taken
- Before-and-after photographs
- Key Performance Indicators (KPIs) tailored to each site

Development of key performance indicators should be coordinated with contractors and relevant Town Staff to ensure consistency and alignment with broader management goals. These should be specific to the site location, but some example KPIs for flowering rush are provided below.

KPI	Description	Target/Benchmark
Survey Coverage	Number of high-risk waterbodies or shoreline areas surveyed annually	≥ 90% of known or potential infestation sites surveyed per year
Infestation Mapping	% of flowering rush infestations mapped with GPS coordinates	100% of infestations mapped and recorded in database
Rapid Response Initiation	Average time between new detection and initial management action	≤ 60 days from confirmed detection
Biomass Reduction	% reduction in flowering rush biomass or cover at treated sites	≥ 75% reduction within 1 year of treatment
Public Reporting Participation	Number of public reports of flowering rush through apps or hotline	≥ 10 reports annually; 10% increase per year
Outreach Events	Number of educational events, community meetings, or training sessions	≥ 1 event per year
Outreach Material Distribution	Number of materials (brochures, signage, digital content) shared with interested parties and public	≥ 100 materials distributed annually
Aquatic monitoring and removal	Number of in-water surveys and removal efforts conducted annually	≥ 1 scheduled survey and/or removal per year
Post-Treatment Monitoring	Number of follow-up site visits to assess regrowth and native species return	Minimum of 2 follow-ups per treated site per year

Flowering Rush Control Plan

Butomus umbellatus

Disposal

Proper disposal of flowering rush is critical to prevent fragmentation and spread. Fragments of flowering rush are very hardy and can survive out of water for several weeks that allows it to spread easily with minor disturbance such as moving water, ice movement, or boats. However, due to its aquatic nature, floating vessels such as canoes are often used to transport biomass onto land for solarization. All plant material including rhizomes, roots, and above-ground parts must be carefully contained immediately upon removal.



Once on land, it can be shoveled or wheel barreled out of the aquatic vessel and onto the designated solarization zone, away from waterbodies and public access. To solarize, pile the material on a dry surface off any soil and cover it tightly with a clear plastic tarp, securing the edges to trap heat and moisture. If able, biomass can be placed in bags and set aside to solarize. Allow it to solarize in full sun for 2 to 4 weeks, or until fully dried and non-viable. Label piles clearly (e.g., *Invasive Aquatic Plant – Flowering Rush*).

Do not leave plant material near any waterbody, as even small fragments can lead to new infestations. After solarization biomass can be sent to landfill or disposed at an approved municipal compost facility.

All equipment, boats, paddles, boots, gloves, and nets must be cleaned, drained, and dried thoroughly after use to prevent the spread of plant fragments to unimpacted areas.

Restoration

After removal of flowering rush, it is recommended to restore native aquatic and shoreline vegetation to prevent reinfestation and support the recovery of healthy wetland and riparian ecosystems. This invasive species often outcompetes native plants in shallow water and wetland edges, so re-establishing native cover is critical to stabilizing sediments, improving water quality, and enhancing habitat for fish, birds, and pollinators.

Flowering Rush Control Plan

Butomus umbellatus

Restoration should include planting a **diverse mix of native emergent and shoreline species** suited to the site's water depth, substrate, and hydrology. Avoid using compost or nutrient-rich soil amendments, as they may favor invasive regrowth. In sensitive areas, allowing native vegetation to **naturally regenerate** may be effective, provided flowering rush is fully removed.

Sites should be **monitored annually** to assess native species establishment, plant cover, erosion control, and any resurgence of Flowering Rush. Follow-up plantings or spot removals may be necessary to ensure long-term success.

Recommended Native Species:

- **Visually Similar Plants:**
 - White turtlehead (*Chelone glabra*)
 - Blue vervain (*Verbena hastata*)
 - Joe-pye weed (*Eupatorium maculatum*)

- **Emergent & Aquatic Plants:**
 - Pickerelweed (*Pontederia cordata*),
 - Arrowhead (*Sagittaria latifolia*),
 - Hard-stem bulrush (*Scirpus acutus*),
 - Soft-stem bulrush (*Schoenoplectus validus*),
 - Cattail (*Typha latifolia*)

- **Shoreline Species:**
 - Blue flag iris (*Iris versicolor*),
 - Swamp milkweed (*Asclepias incarnata*),
 - Joe-Pye weed (*Eutrochium maculatum*),
 - Boneset (*Eupatorium perfoliatum*),
 - Marsh marigold (*Caltha palustris*)

By restoring native plant communities, the site becomes more resilient to future invasions and continues to support the ecological functions of healthy aquatic ecosystems.

For guidance on appropriate plant selections, refer to the [Grow Me Instead: Southern Ontario Guide](#) by the Ontario Invasive Plant Council, [A Guide to Celebrate Niagara Peninsula's Native Plants](#) by the Niagara Peninsula Conservation Authority, [Tree Atlas](#) by the Government of Ontario, or the [Tree Species Selector Tool](#) developed by Vineland Research and Innovation Centre.


Connect to the Town

For more information on invasive species, please visit the Town's website at: <https://www.notl.com/town-services/environmental-stewardship/biodiversity-and-nature/invasive-species>


Spot an invasive species? Report it at:

- [EDDMaps](#),
- [Canadian Food Inspection Agency](#),
- [iNaturalist](#), or
- Call the Invading Species Hotline at **1-800-563-7711**

Contact the Town:


 905-468-3266


 info@notl.com


 1593 Four Mile Creek Road, Virgil, L0S 1T0


 www.notl.com

Follow the Town on Social Media:

 @Town of Niagara-on-the-Lake

 @niagara.on.the.lake

 @Town_of_NOTL

 @Town of Niagara-on-the-Lake



References

- Anderson, Hayley. 2012. Invasive Japanese Knotweed (*Fallopia japonica* (Houtt.)) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.invasivespeciescentre.ca/wp-content/uploads/2019/12/OIPC_BMP_JapaneseKnotweed.pdf
- Canadian Food Inspection Agency. 2025. Emerald Ash Borer. <https://inspection.canada.ca/en/plant-health/invasive-pests-and-plants/insects/emerald-ash-borer>
- Canadian Food Inspection Agency. 2024. Oak Wilt. <https://inspection.canada.ca/en/plant-health/invasive-species/plant-diseases/oak-wilt>
- Canadian Food Inspection Agency. 2024. Oak Wilt Response Framework for Canada. <https://inspection.canada.ca/en/plant-health/invasive-species/plant-diseases/oak-wilt/response-framework>
- Canadian Food Inspection Agency. 2024. Spotted Lanternfly. <https://inspection.canada.ca/en/plant-health/invasive-pests-and-plants/insects/spotted-lanternfly>
- Canadian Food Inspection Agency. 2024. Spotted Lanternfly Survey Protocol. https://www.invasivespeciescentre.ca/wp-content/uploads/2024/07/Lycdel_EN_External_WEB.pdf
- Canadian Food Inspection Agency. 2025. Spotted Lanternfly Observations in Canada. <https://inspection.canada.ca/en/plant-health/invasive-pests-and-plants/insects/spotted-lanternfly/observations-canada>
- Canadian Food Inspection Agency. 2025. Tree Check Month. <https://inspection.canada.ca/en/plant-health/invasive-pests-and-plants/tree-check-month>
- Canadian Nursery Certification Institute. 2024. Spotted Lanternfly Best Management Practices. [32913d228a9fb5326b411074dae9ae](https://www.invasivespeciescentre.ca/wp-content/uploads/2024/06/32913d228a9fb5326b411074dae9ae)
- Derry, V., DiGasparro, M., MacQuarrie, C. J., & Sturba, M. 2024. Guide for Managing Hemlock Woolly Adelgid (*Adelges tsugae*): An Invasive Insect Threatening Eastern Hemlock (*Tsuga canadensis*) in Canada. Sault Ste. Marie; Invasive Species Centre. https://www.invasivespeciescentre.ca/wp-content/uploads/2025/06/HWAManagementGuide_June2025_WEB.pdf
- Francine MacDonald and Hayley Anderson. 2012. Giant Hogweed (*Heracleum mantegazzianum*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/06/OIPC_BMP_Hogweed.pdf

References

- Gover, A., Johnson, J., & Lloyd, K. 2019. Invasive Plant Species Management, Tree-of-Heaven (*Ailanthus altissima*). Penn State College of Agricultural Science. Wildland Weed Management. <https://plantscience.psu.edu/research/projects/wildland-weed-management/publications/invasive-species-worksheets/ailanthus/view>
- Health Canada. 2021. Product Search. <https://pest-control.canada.ca/pesticide-registry/en/product-search.html>
- Invasive Species Centre. 2025. Common Buckthorn. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/buckthorn/>
- Invasive Species Centre. 2025. Emerald Ash Borer. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-insects/emerald-ash-borer-duplicate-471/>
- Invasive Species Centre. 2025. Flowering Rush. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-aquatic-plants/flowering-rush/>
- Invasive Species Centre. 2025. Giant Hogweed. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/giant-hogweed/>
- Invasive Species Centre. 2025. Hemlock Woolly Adelgid. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-insects/hemlock-woolly-adelgid/>
- Invasive Species Centre. 2025. Invasive Phragmites. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-aquatic-plants/phragmites/>
- Invasive Species Centre. 2025. Japanese Knotweed. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/japanese-knotweed/>
- Invasive Species Centre. 2025. Oak Wilt. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-pathogens/oak-wilt/>
- Invasive Species Centre. 2025. Purple Loosestrife. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/purple-loosestrife/>

References

- Invasive Species Centre. 2025. Spongy Moth. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-insects/spongy-moth/>
- Invasive Species Centre. 2025. Spotted Lanternfly. <https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-insects/spotted-lanternfly/>
- Invasive Species Centre. 2025. Tree-of-Heaven. <https://www.invasivespeciescentre.ca/tree-of-heaven/>
- Invasive Species Management Lower Hudson. N/A. Tree of Heaven (*Ailanthus altissima*). <https://www.lhprism.org/tree-of-heaven-ailanthus-altissim/>
- Nichols, Gabby. 2020. Invasive Phragmites (*Phragmites australis*) Best Management Practices in Ontario: Improving species at risk habitat through the management of Invasive Phragmites. Ontario Invasive Plant Council. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2024/02/OIPC_BMP_Phragmites_Feb212024_D13_WEB.pdf
- Ontario Invasive Plant Council. 2025. Buckthorn. <https://www.ontarioinvasiveplants.ca/invasive-plants/species/buckthorn/>
- Ontario Invasive Plant Council. 2025. Site Prioritization Tool for Control of Invasive Phragmites. <https://www.ontarioinvasiveplants.ca/resources/technical-documents/phragmites-site-prioritization-tool/>
- Ontario Ministry of Agriculture, Food and Agribusiness. 2024. Spotted Lanternfly Prevention Practices for Producers. <https://www.ontario.ca/page/spotted-lanternfly-prevention-practices-producers>
- Ontario Ministry of Natural Resources. 2013. In-water Work Timing Window Guidelines. <https://docs.ontario.ca/documents/2579/stdprod-109170.pdf>
- Ontario Ministry of Natural Resources. 2023. Oak Wilt. <https://www.ontario.ca/page/oak-wilt>
- Ontario Ministry of Natural Resources. 2024. Remove Invasive Aquatic Plants. <https://www.ontario.ca/page/remove-invasive-aquatic-plants>
- RIPARIAS. Invasive Alien Aquatic and Riparian Plant Species Best Management Practice Guide. <https://www.riparias.be/>

References

- Parker, W., Derry, V., Elliott, K., MacQuarrie, C., & Reed, S. Hemlock woolly adelgid: Management guidelines to increase the resilience of Ontario's eastern hemlock resource to an exotic, invasive insect. *Science and Research Branch Ministry of Natural Resources and Forestry Technical Note*. https://www.researchgate.net/figure/The-life-cycle-of-hemlock-woolly-adelgid-by-season-in-eastern-Canada-Parker-et-al-2023_fig5_374867922
- Simkovic, Vicki. 2020. Flowering Rush (*Butomus umbellatus*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. https://www.ontarioinvasiveplants.ca/wp-content/uploads/2021/01/FloweringRush_Edn1.0_March2020.pdf
- Warne, Amanda. 2016. Purple Loosestrife (*Lythrum salicaria*) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON. <https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Purple-Loosestrife-BMP-April-2016-final.pdf>
- West Vancouver. 2014. Best Management Practices and Target Plant Profiles: Excerpt from Invasive Plants Strategy. <https://westvancouver.ca/sites/default/files/dwv/assets/home-building-property/docs/pets-wildlife-environment/Invasive-Plants/Invasive%20Plant%20Strategy%20-%20District%20of%20West%20Vancouver%20-%20Schedule%20A%20-%20Dec%2017%202014-web.pdf>

Appendix

Permits and Licensing

Permits must be obtained for pesticide use on [land](#) and [water](#), with applications available online.

Licensing Requirements

To apply certain pesticides, a valid [exterminator license](#) is required. Specific license classifications, such as Forestry or Landscape, must be identified and obtained to use in appropriate settings. The application process includes:

1. Submitting an [application form](#) and \$195 fee to the University of Guelph Ridgetown Campus.
2. Studying provided materials: a Core Manual and a License Category Specific Module.
3. Writing and passing a two-part exam (Core: 1-hour, closed book; Category: 1.5-hour, open book) with a minimum 75% on both parts.
4. Sending your certification letter to the MECP to receive your license.

If failed, you may rewrite the exam (max. two more times in 12 months, \$75 per attempt). The license (\$90) is valid for five years.

Contact MECP's Client Services and Permissions Branch at 416-314-8001 | 1-800-461-6290 or | enviroperrmissions@ontario.ca

Aquatic Herbicide Application

Herbicides used in water may require a permit from the Ministry of Environment, Conservation and Parks (MECP). Licensed exterminators must follow strict guidelines, including timing, dosage, setback distances, and environmental protections. Treatments for aquatic invasive plants can be applied July 15 to March 14, after fish spawning has ended. If endangered species are present, approval under the Endangered Species Act, 2007 may also be required.

Search for approved products using [PMRA's pesticide label database](#) and always consult the current product label before use.

Appendix

Health Canada Search Product Label Tool

A full list of registered pesticides can be found on the Pest Management Regulatory Agency's (PMRA) website [linked here](#).

Their product search tool ([linked here](#)) can allow viewers to search for products that are registered for use on specific invasive species and other applications.

On this page the viewer will see a series of three columns to fill in, as shown here:

Government of Canada / Gouvernement du Canada

Search Canada.ca

MENU

Home > Health Canada > Consumer Product Safety > Pesticides and Pest Management > Pesticide Product Information Database

Product search

This search allows you to search for product information available to the public.

Simple search

Group # 1

Rule # 1

Filter	Operator	* Value (required)
Active Ingredient - English	contains	

+ Add rule

Delete rule # 1

Search Show query Reset Need Help?

It will automatically show one row of available search criteria that the user can choose to filter from and enter selected text. The first column under “Filter” provides a list of options to sort from including active ingredient, current/historical, date first registered, exclusive period start date, expiry date, marketing type, pest, product name, product type, registrant, registration number, registration status, site of use, or use-site category. The most useful options for searches on invasive species products are pest, site use, and registration status. However, anyone could be used at any time.

Under the “Operator” column the user can select either equal, contains, does not equal, does not contain, or empty to match the desired search. This will allow the individual to search for items that include or exclude specific text entered from the last column “Value”. This column allows the user to input the specific item they are seeking to find. For example, if it is an invasive species the user might enter phragmites, if needed for

Appendix

an aquatic site they may enter “water”, etc. Typically, entering one or two words works best in the search query.

The user can also click the “Add rule” button to add a combination of filters for the search such as registration status, pest, and site of use that would be helpful for determining products to use for invasive species. When listing more than one rule, an additional option at the top left corner will appear to select either “and” vs. “or”. Selecting “and” will make sure all criteria listed are included in the product label search whereas “or” will search for one or more of these criteria in the label. When all fields have been entered, the user can click “Search” at the bottom left corner and view the list of products available.

An example search entry is illustrated below:

Product search

This search allows you to search for product information available to the public.

The screenshot displays a search interface titled "Simple search". It features a "Group # 1" section with a selector for "AND" (selected) and "OR". A green "+ Add rule" button is located in the top right corner. Below this, three search rules are defined:

- Rule # 1:** Filter: Registration Status, Operator: equal, Value: Full Registration. Includes a "Delete rule # 1" button.
- Rule # 2:** Filter: Pest, Operator: contains, Value: phragmites. Includes a "Delete rule # 2" button.
- Rule # 3:** Filter: Site of Use, Operator: contains, Value: water. Includes a "Delete rule # 3" button.

At the bottom, there are four buttons: "Search" (with a magnifying glass icon), "Show Query", "Reset", and "Need Help?".

Appendix

Key Legislation

Both federal and provincial legislation exists that regulates invasive species to prevent and control populations.

Legislation	Purpose
Plant Protection Act (Federal)	“To protect plant life and the agricultural and forestry sectors of the Canadian economy by preventing the importation, exportation and spread of pests and by controlling or eradicating pests in Canada”.
Invasive Species Act (Provincial)	“Sets out a legislative framework that provides for the identification of invasive species that threaten Ontario’s natural environment, including mechanisms for detecting the appearance of invasive species and bringing them within the legislative framework as quickly as possible after they first appear”.
Weed Control Act (Provincial)	Regulates the designation and management of noxious (harmful, destructive) weeds in Ontario.

Key Agency Roles

Agency / Partner	Role / Mandate	Legislation / Framework	Contact
Canadian Food Inspection Agency (CFIA)	Federal lead for detection, surveillance, and response to invasive pests or diseases (e.g., oak wilt, spotted lanternfly, hemlock woolly adelgid).	Plant Protection Act	Phone: 905-937-7434 Address: 10-350 Ontario Street, St. Catharines, ON L2R5L8 Online Contact Form
Pest Management Regulatory Agency’s (PMRA)	Registers and re-evaluates pesticide products on the market in Canada, while promoting sustainable pest management.	Pest Control Products Act	Phone: 613-996-9231 Address: 2 Constellation Drive Ottawa, ON K1A0K9 Email: pmra.info-arla@hc-sc.gc.ca
Ministry of Environment, Conservation and Parks (MECP)	Get, renew, replace or update information on an exterminator or operator licence and permits to apply pesticides in Ontario.	Pesticides Act; O. Reg. 63/09	Phone: 416-314-8001 Address: 135 St. Clair Avenue West, Toronto, ON M4V 1P5

Appendix

Agency / Partner	Role / Mandate	Legislation / Framework	Contact
Ministry of Agriculture, Food, and Agribusiness (OMAFRA)	Monitors agricultural invasive species; outreach via tree bands, newsletters, blogs, and presentations; supports insecticide research.	Provincial ministry mandate	Phone: 519-826-3100 Email: ag.info.omafra@ontario.ca
Ministry of Natural Resources	Lists prohibited and restricted invasive species, provides educational material and resources	Invasive Species Act; Invasive Species Strategic Plan	Phone: 1-800-563-7711
Natural Resources Canada (NRCan)	Researches invasive species biology and cold tolerance to inform management strategies.	Federal department mandate	Phone: 1-343-292-6098
Agriculture and Agri-Food Canada (AAFC)	Supports surveillance, funds research, coordinates with provinces and international partners.	Federal department mandate	Phone: 1-855-773-0241
Invasive Species Centre (ISC)	Provides resources, training, and support for invasive species prevention and management across Ontario/Canada.	Non-profit, collaborative with governments	Phone: 705-541-5790 Email: info@invasivespeciescentre.ca Website: invasivespeciescentre.ca
Ontario Invasive Plant Council (OIPC)	Promotes awareness and best practices for managing invasive plants through training, guides, and collaboration.	Non-profit, provincial network	Email: info@oninvasivespecies.ca Website: ontarioinvasiveplants.ca
Niagara Phragmites Management Area Collaborative (PMAC)	Regional initiative (launched Feb 2025) coordinating phragmites control efforts among municipalities and local groups.	Regional collaborative	Contact via NPCA and Town of Niagara-on-the-Lake
Niagara Invasive Species Strategy Working Group	Developing a coordinated invasive species strategy for Niagara Region (first meeting Fall/Winter 2025).	Regional initiative (in development)	Contact via NPCA and Town of Niagara-on-the-Lake



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: OPS-26-011 **COMMITTEE DATE:** 2026-04-21
REPORT TO: COTW-General **DUE IN COUNCIL:** 2026-04-28
SUBJECT: Encroachment Agreement for 61 Melville Street

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 Council approves the attached encroachment agreement for the property known as 61 Melville Street to permit the installation of items such as landscaping features, planting beds, pedestrian walkways and other building appurtenances which are proposed within the municipal road allowance, and that the agreement be forwarded to the Owner(s) for signature; and
- 1.2 The draft by-law attached as **Appendix I** hereto be forwarded to Council for adoption; and
- 1.3 Council requests the Lord Mayor and Town Clerk to sign the agreement.

2. EXECUTIVE SUMMARY

- The property was subject to a site plan application to permit the development of a three-story twelve (12) unit residential apartment building.
- The proposed development includes the installation of items such as landscaping features, planting beds, pedestrian walkways and other building appurtenances which are proposed within the municipal road allowance as attached as **Appendix III**.
- The Owner(s) is required to enter into an Encroachment Agreement with the Town of Niagara-on-the-Lake to address the future utilization and maintenance of the proposed encroachments.
- Encroachment agreements permit regulated occupancy without requiring the removal of landscape features or renovation of heritage buildings, irrigation systems and other structures while indemnifying the Town against liability and outlining clear expectations.
- This report is seeking Council approval to permit the proposed encroachments into the municipal right-of-way as part of a site plan approval for the property by entering into a permanent encroachment agreement with the property Owner(s) to permit the use of the proposed encroachments and protect the Town's interests.
- All costs for the preparation and registration of the encroachment agreement will be borne by the Owner(s) of 61 Melville Street.

3. PURPOSE

The purpose of this report is to request Council's approval to permit encroachments through an agreement concerning a property located at 61 Melville Street.

4. BACKGROUND

The subject lands are located at 61 Melville Street, in the urban area of Old Town, in what is known as the Dock Area.

The need to enter into an encroachment agreement arose from a site plan application (SP-06-2024) for a property located at 61 Melville Street and is necessary to govern the proposed installation of items such as landscaping features, planting beds, pedestrian walkways, and other building appurtenances which are proposed within the municipal road allowance. This section of Melville Street has a 60-foot wide (18.288m) road allowance with a curb and gutter profile which includes an existing 1.25 metre sidewalk fronting the property along Melville Street. Proposed modifications and reconfiguration of the frontage will result in additional street parking spaces and a 1.5-metre sidewalk that meets the Town's current minimum standards.

The proposed site plan was granted conditional site plan approval with the following condition:

That the Owner(s) enter into a permanent Encroachment Agreement with the Town, subject to review and approval by the Town's Public Works and Infrastructure Services Department (formerly Operation Department), to address the future installation and maintenance requirements of the proposed encroachments and acknowledge that their continued use will be permitted until such time as the Town deems that it requires the lands for its own purposes.

The encroachments are to be located within Parts 1-5 on 30R-16502, attached as **Appendix II**. Specific details regarding the type of landscape features contained within those parts of the reference plan are shown in **Appendix III**. There are currently no anticipated additional improvements expected on Melville Street beyond the necessary servicing requirements to facilitate the development. The Town has no planned improvements in the near future, and the proposed encroachments do not interfere with current Town operations.

5. DISCUSSION / ANALYSIS

An encroachment agreement protects the Town's interest by:

- Providing indemnification against harm should anything untoward occur on the portion of the road allowance being occupied by the encroachments;
- Providing a mechanism to recover the use of the occupied portion of the road allowance for Town purposes upon 90 days' notice to the Owner(s); and
- Asserting the Town's Owner(s)hip of the occupied portion of the road allowance to prevent a claim of adverse possession.

It should be noted that a claim of adverse possession arises primarily where historic buildings were erected before the implementation of rigorous site control. A draft agreement for the subject property has been prepared and is attached as **Appendix I**.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

3. Enrich Community Assets, Environment, & Infrastructure

Priority

3.3 Infrastructure

7. OPTIONS

- 7.1 **Option 1:** Regulate the encroachments through the attached draft agreement.
(Recommended)

- 7.2 **Option 2:** Do not permit the regulation of the encroachments through an agreement and request the applicant to submit a revised overall site and landscape plan that removes those features from the municipal right-of-way. *(Not Recommended)*

8. FINANCIAL IMPLICATIONS

The Owner(s) of 61 Melville Street will bear all costs associated with the preparation and registration of the encroachment agreement. No costs to the Town are anticipated.

9. ENVIRONMENTAL IMPLICATIONS

There is no environmental impact associated with this report.

10. COMMUNICATIONS

Upon Council passing a resolution, Staff will advise the property Owner(s) of Council's decision and execute and register the encroachment agreement attached hereto as a draft.

11. CONCLUSION

It is in the interest of both the Town and the Owner(s) that the proposed occupancy of any portion of the road allowance be subject to an encroachment agreement. Such agreements permit regulated occupancy without requiring the removal of landscape features or the renovation of heritage buildings, irrigation systems, and other structures, while indemnifying the Town against liability and outlining clear expectations should the Town require the use of the occupied portion of the road allowance for its own purposes.

Planning-related applications continue to provide an opportunity to identify and appropriately regulate encroachments.

12. PREVIOUS REPORTS

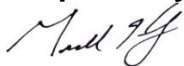
- N/A.

13. APPENDICES

- **Appendix I** – Draft Encroachment Agreement - 61 Melville Street
- **Appendix II** – 30R-16502
- **Appendix III** – Landscape Plan for 61 Melville Street

Respectfully submitted:

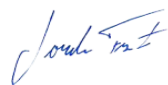
Prepared by:



Mike Komljenovic

Engineering Supervisor, Public Works & Infrastructure Services

Recommended by:



Jordan Frost

Director, Public Works & Infrastructure Services

Submitted by:



Nick Ruller, M.A.

Chief Administrative Officer

**CORPORATION
OF THE
TOWN OF NIAGARA-ON-THE-LAKE
BY-LAW NO. XX-26**

**A BY-LAW TO AUTHORIZE AN ENCROACHMENT
AGREEMENT BETWEEN THE CORPORATION OF
THE TOWN OF NIAGARA-ON-THE-LAKE AND
BLYTHWOOD HOMES MELVILLE INCORPORATED
(61 MELVILLE STREET)
(ROLL NO. 262701000122400)**

**BE IT ENACTED AS A BY-LAW OF THE CORPORATION OF THE TOWN
OF NIAGARA-ON-THE-LAKE as follows:**

1. That the encroachment agreement dated the 28th day of April 2026 attached hereto and forming part of this by-law, between the Town of Niagara-on-the-Lake and the Owner be and same is approved; and,
2. That the Lord Mayor and Clerk be authorized to affix their hands and the Corporate Seal; and,
3. This by-law shall come into force and take effect immediately upon the passing thereof.

**READ A FIRST, SECOND AND THIRD TIME AND PASSED THIS 28th DAY
OF APRIL 2026**

LORD MAYOR GARY ZALEPA

TOWN CLERK GRANT BIVOL

THIS AGREEMENT made in triplicate this 28th day of April 2026

B E T W E E N:

**THE CORPORATION OF THE TOWN OF
NIAGARA-ON-THE-LAKE**
hereinafter called the "**TOWN**"

OF THE FIRST PART

- and -

**BLYTHWOOD HOMES MELVILLE
INCORPORATED**
hereinafter called the "**OWNER**"

OF THE SECOND PART

WHEREAS the Owner is the registered Owner of lands known as Lot 19, Plan M16, known as 61 Melville Street in the Town of Niagara-on-the-Lake, in the Regional Municipality of Niagara, as described in Schedule 'A' attached hereto, (hereinafter referred to as "The Lands");

AND WHEREAS portions of landscape features, planting beds, pedestrian walkways and other building appurtenances will encroach on Melville Street, Delater Street, and Lockhart Street municipal road allowances to the extent shown as Parts 1-5 of 30R-16502 (hereinafter referred to as "the Encroachment");

AND WHEREAS the Council of the Corporation of the Town of Niagara-on-the-Lake at its April 21, 2026, meeting approved Report OPS-26-011, which authorized an agreement with the Owner with respect to the Encroachment.

AND WHEREAS the Council of the Town agrees to allow the Owner to maintain and use the Encroachment on Melville Street, Delater Street and Lockhart Street until such time as the Encroachment is demolished, removed or destroyed;

NOW THEREFORE in consideration of the premises and the covenants and agreements hereinafter to be performed, the parties hereto mutually covenant and agree with each other as follows:

1. The Town shall and it does hereby allow the Owner, its successor and assigns in title, as the registered Owner(s) of the Lands the privilege of maintaining and using the Encroachment in its proposed position until such time as the Encroachment is demolished, removed, destroyed.
2. The Owner accepts all risk and responsibility for the Encroachment and will at all times keep the Town effectively indemnified against all manner of actions, causes of action, claims, demands, losses, costs, damages,

and expenses of whatsoever nature and kind as may be suffered by or occasioned to the Town in any manner howsoever by reason of the existence of the Encroachment, and agrees to remove the Encroachment upon ninety (90) days' written notice from the Town that those lands owned by the Town which are affected by the Encroachment are required for municipal purposes.

3. The Owner will be responsible for the installation and construction of landscape features, planting beds, pedestrian walkways and other building appurtenances to standards approved by the Town, as shown on the site plan and landscape plan attached hereto as Schedule "B" and Schedule "C" to the satisfaction of the Director of Public Works and Infrastructure Services.
4. The Owner agrees that the Encroachment shall be maintained at the total expense of the Owner.
5. The Owner will identify all areas that will be impacted by the installation and construction of such landscaping features/planting beds, retaining walls and pedestrian walkways and keep such areas in a safe and clean condition during construction and installation phases.
6. This Agreement shall enure to the benefit of and be binding upon the successors and assigns of the parties hereto.
7. Any notice given to the Owner hereunder shall be sufficiently given and addressed to:

Attention: Rob Mills
Blythwood Homes Melville Inc.
7058 Ridewood Crescent
Niagara Falls, Ontario
L2J 3H1

IN WITNESS WHEREOF the Owners have hereunto set their hands and the Town has caused its Corporate Seal to be hereunto affixed under the hands of its proper signing officers.

SIGNED, SEALED, AND DELIVERED IN THE PRESENCE OF:

**THE CORPORATION OF THE TOWN OF NIAGARA-ON-THE-LAKE
PER:**

LORD MAYOR GARY ZALEPA

TOWN CLERK GRANT BIVOL

BLYTHWOOD HOMES MELVILLE INCORPORATED
per:

(Rob Mills) Owner

SCHEDULE "A"

LEGAL DESCRIPTION OF THE LANDS

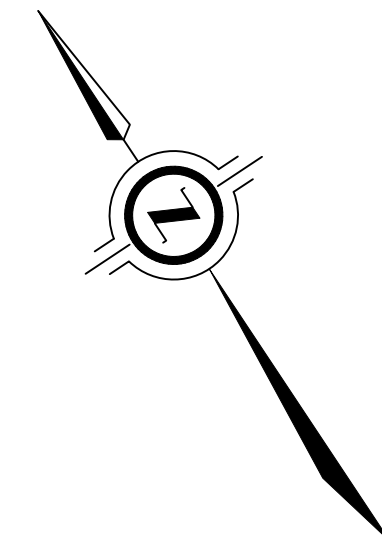
Plan M16, Lot 19, Town of Niagara-on-the-Lake

SCHEDULE "B"

Site Plan Drawing

SCHEDULE "C"

Landscape Plan



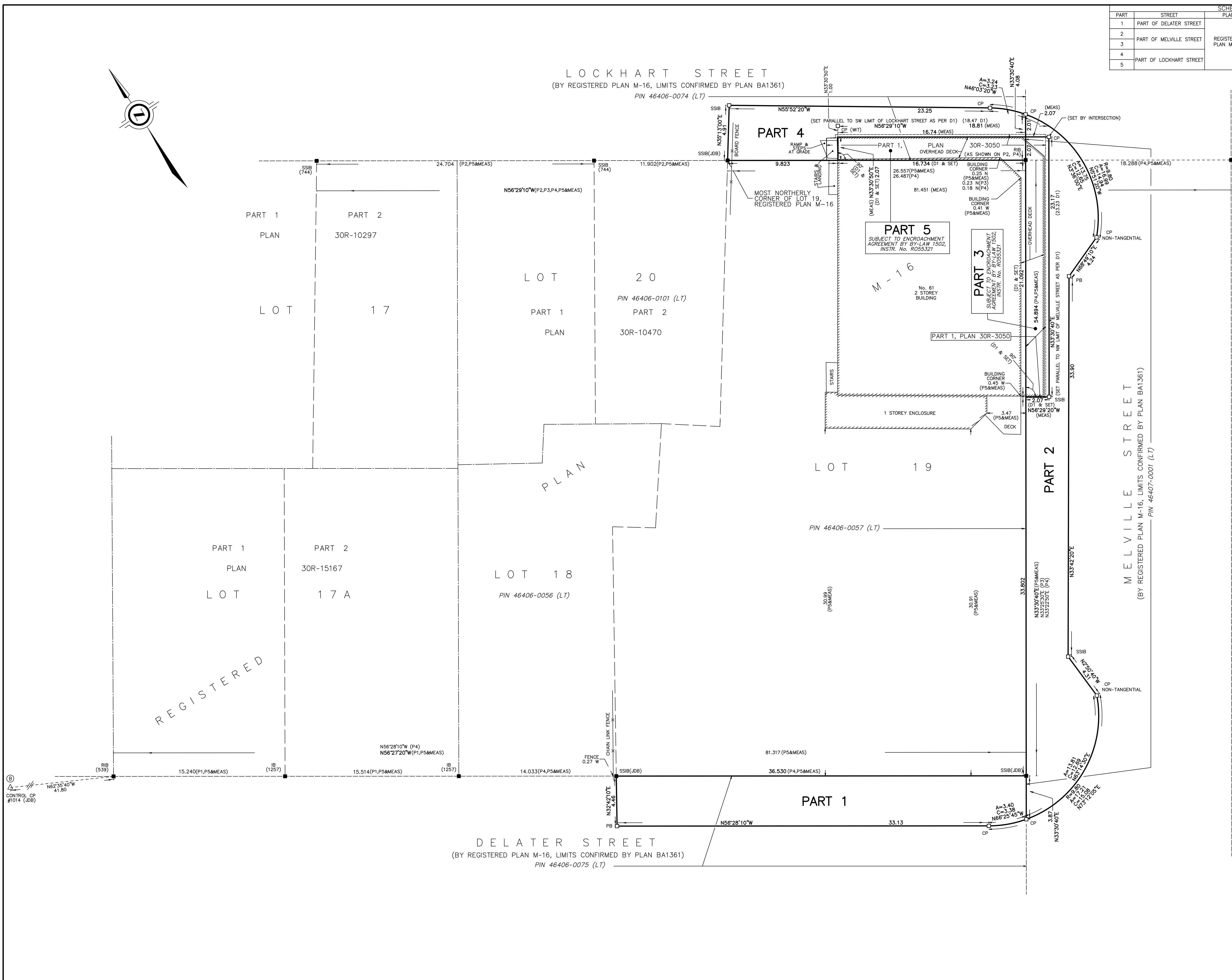
SCHEDULE			
PART	STREET	PLAN	PIN
1	PART OF DELATER STREET		PART OF PIN 46406-0075 (LT)
2	PART OF MELVILLE STREET	REGISTERED PLAN M-16	PART OF PIN 46407-0001 (LT)
3			
4	PART OF LOCKHART STREET		PART OF PIN 46406-0074 (LT)
5			

PLAN 30R-16502

Received and deposited
January 14th, 2026
George Dsouza

Representative for the
Land Registrar for the
Land Titles Division of
Niagara North (No.30)

LOCKHART STREET
(BY REGISTERED PLAN M-16, LIMITS CONFIRMED BY PLAN BA1361)
PIN 46406-0074 (LT)



PLAN OF SURVEY OF PART OF DELATER STREET, PART OF MELVILLE STREET AND PART OF LOCKHART STREET REGISTERED PLAN M-16

TOWN OF NIAGARA-ON-THE-LAKE
REGIONAL MUNICIPALITY OF NIAGARA
SCALE 1 : 150

2.5 0 2.5 5 10 metres
THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:150
J.D. BARNES LIMITED
METRIC DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999898.
FOR BEARING COMPARISONS, A ROTATION OF 1°23'10" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON P2, P3 & P4.

INTEGRATION DATA			
OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0), COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.			
POINT ID	EASTING	NORTHING	
ORP (A)	657 173.65	4 791 049.76	
ORP (B)	657 023.20	4 791 078.28	

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.
THE RESULTANT TIE BETWEEN ORP (A) AND ORP (B) IS 153.15 N 79°16'00" W

LEGEND

- DENOTES SURVEY MONUMENT FOUND
- DENOTES SURVEY MONUMENT SET
- SSIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- RIB DENOTES ROUND IRON BAR
- IB DENOTES IRON BAR
- CC DENOTES CUT CROSS
- CP DENOTES CONCRETE PIN & WASHER
- PB DENOTES PLASTIC BAR
- P1 DENOTES PLAN 30R-15167
- P2 DENOTES PLAN 30R-10470
- P3 DENOTES PLAN 30R-3050
- P4 DENOTES PLAN M-16
- P5 DENOTES SURVEYOR'S REAL PROPERTY REPORT BY J.D. BARNES LIMITED, DATED OCTOBER 13, 2020. (REF. No. 20-16-273-00) INSTRUMENT No. R055321
- D1 DENOTES MEASURED
- MEAS DENOTES CALCULATED
- 539 DENOTES D.S. IRE, O.L.S.
- 744 DENOTES MATTHEWS, CAMERON, HEYWOOD-KERRY T. HOWE SURVEYING LTD.
- 1257 DENOTES R. LAROCQUE, O.L.S.
- JOB DENOTES J.D. BARNES LIMITED, O.L.S.
- OU DENOTES ORIGIN UNKNOWN
- DENOTES PROPERTY LINE

N=NORTH / S=SOUTH / E=EAST / W=WEST
ALL SET SSIB & PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

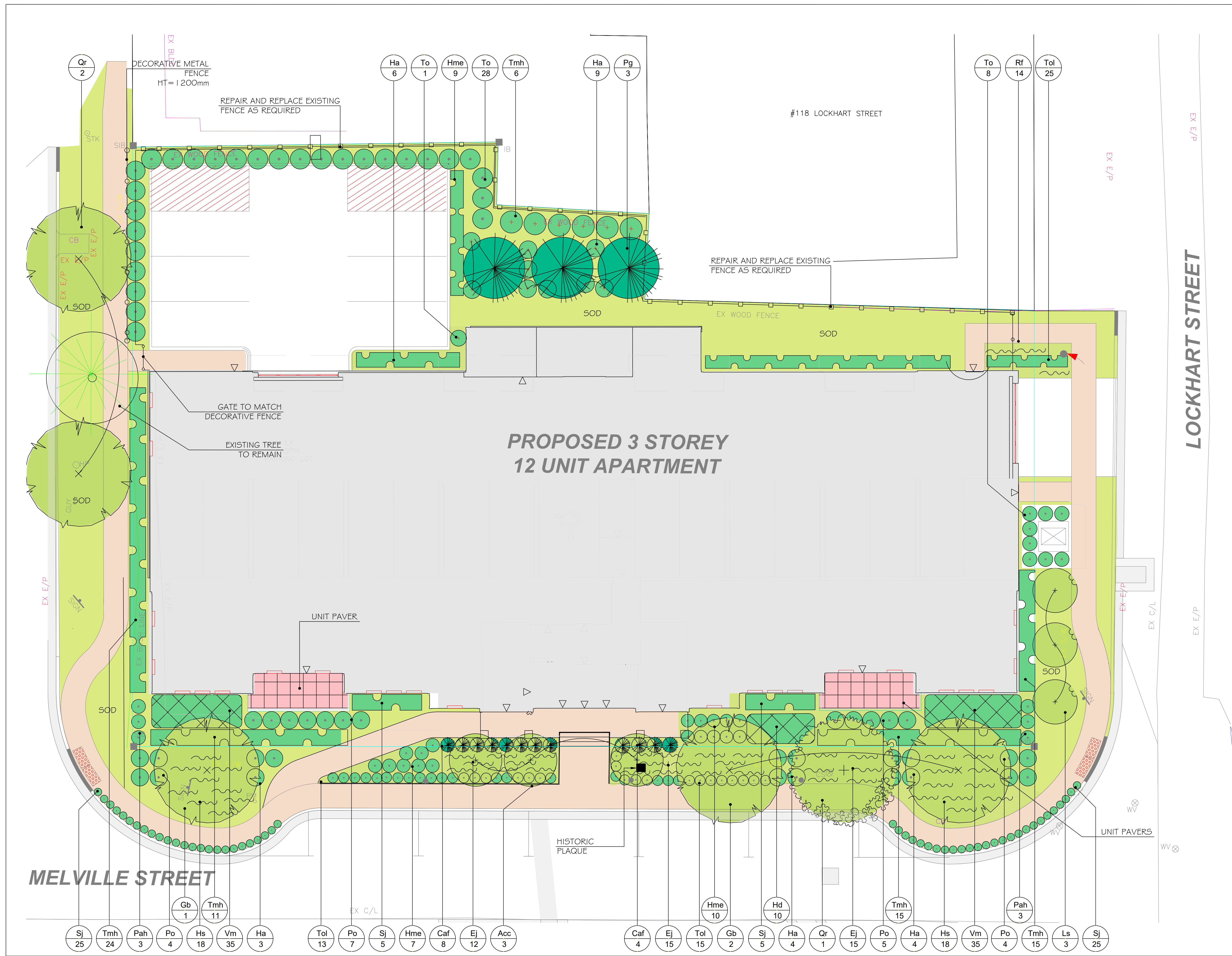
SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM;
2. THE SURVEY WAS COMPLETED ON DECEMBER 18, 2025

JANUARY 8, 2026
DATE
DASHA PAGE
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-103253

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
MD/AT	BM/DP	20-16-273-01



LEGEND

- LARGE CANOPY DECIDUOUS TREES
- CONIFEROUS TREES
- SMALL CANOPY DECIDUOUS TREES
- HEDGE
- SHRUBS
- MASS PLANTING OF PERENNIALS/GRASSES
- UNIT PAVERS

NO.	DESCRIPTION	DATE
13	REVISED	MAR. 21/25
12	REVISED	OCT. 10/24
11	REVISED	JUN. 02/24
10	REVISED	MAY 26/24
9	REVISED	JAN. 17/24
8	REVISED	OCT. 20/23
7	REVISED	MAY 12/23
6	REVISED	APR. 13/23
5	REVISED	APR. 06/23
4	REVISED	JAN. 24/23
3	REVISED	OCT. 31/22
2	REVISED	OCT. 25/22
1	REVISED	JULY 18/22

JAMES McWILLIAM
LANDSCAPE ARCHITECT
jmcwilliam@mladesign.com

PROJECT
MELVILLE CONDOMINIUM
MELVILLE STREET
NIAGARA ON THE LAKE

DRAWING
LANDSCAPE PLAN

NORTH

SCALE:	1:100
DATE:	JUNE 2022
DESIGN BY:	J.S.M.
DRAWN BY:	T.F.G.
SHEET:	L1

GENERAL LANDSCAPE SPECIFICATIONS:

General Instructions:

- Contractor is responsible for locating all underground services prior to any excavation, note that trees are to be offset a minimum of 1000mm from centerline of any underground service.
- General layout of trees, planting beds, to be staked and confirmed by landscape architect prior to installation.
- Plant material to be approved at source by landscape architect, prior to shipment to the site.
- The landscape contractor, is advised that no tree/shrub planting is to occur during the months of December, January, February, March, and July.

Topsoil for Sodded Areas:

- Mixture of mineral particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth.
- soil texture based on the Canadian System of Soil Classification, to consist of 20-70% sand and contain 5-10% organic matter by weight
 - Fertility: major soil nutrients present in the following ratios,
 - Nitrogen (N) 20-40 micrograms of available N per gram of topsoil,
 - Phosphorus (P) 10-20 micrograms of phosphate per gram of topsoil,
 - Potassium (K) 80-120 micrograms of potash per gram of topsoil,
 - Calcium, magnesium, sulphur, and micro nutrients present in balanced ratios to support germination and/or establishment of intended vegetation,
 - Ph value: 5.5 to 7.5,
 - Contain no toxic elements or growth inhibiting materials,
 - Free from:
 - Debris and stones over 25mm diameter,
 - Course vegetative material, 10mm diameter and 100mm length, occupying more than 2% of soil volume,
 - Consistence: friable when moist,

Spreading of Topsoil:

Scarify the subsoil prior to the spreading the topsoil. Remove all debris and leave a fine-textured even surface, all topsoil to be imparted unless previously approved by the landscape architect. Obtain approval for the quality of any imported topsoil before delivery to the site.

Mineral Fertilizer:

- Apply the following mineral fertilizer unless soils tests show other requirements;
- Sodded areas – 11% nitrogen, 8% phosphorus and 4% potash (11-8-4) at a rate of 4.5 kg. per square metre. (10 lbs per 1000 sq. ft.)
 - Planting beds - 7% nitrogen, 7% phosphorus, and 7% potash (7-7-7) at the rate of 40 grams (4 oz) per bushel of topsoil,

Preparation of Planting Beds:

All planting beds to be continuous. Excavate all planting beds to the depth as indicated on the drawings and details, min 300mm (1.0'). backfill all planting beds with a soil mixture consisting of six (6) parts of sandy loam, one (1) part of finely pulverized peat moss, two (2) parts of well-rotted manure and the mineral fertilizer as specified above. Also add .58 kilos bonemeal/cubic metre of planting soil (1lb/cu yd.).
Note: if the existing soil conditions are clay or wet in nature, contact the landscape architect for instructions for a suitable soil mixture or drainage detail.

Mulch:

All planting beds and tree pits to be treated with shredded pine bark mulch, to a depth of 75mm minimum.

Plant Material:

All plant material shall conform to the standards of the Canadian Nursery Trades Association for size and species.
All shrubs and tree material shall be container grown, potted, W/B or B/B, unless otherwise noted. Contractor shall make requests for root condition substitution in writing to the landscape architect prior to commencement of planting operations.

Plant Material Installation:

All trees, shrubs, and ground covers shall be planted as detailed and as shown on the planting plan. All beds to receive a cover of clean mulch to a depth of 75mm. For guying and staking trees, refer to the planting details.

The individual plant grouping total as illustrated on the planting plan supersedes the estimated quantity on the master plant list. Contractor must report any discrepancies to the landscape architect in writing before commencing any work. Contractor will assume full responsibility if landscape architect is not notified on discrepancies.

Ensure that top two rows of wire basket are removed from root ball after installation in planting pit, for all trees planted with wire basket.

General Maintenance:

Proper maintenance procedures are to be fully administered for all newly constructed landscape work on accordance with Landscape Ontario specifications. This shall apply during the construction and maintenance and warranty period. Contractor is responsible for maintenance of sod and plantings until final acceptance by landscape architect.

Rodent protection: the contractor shall be responsible for the protection of all trees and shrubs for winter protection and from rodent injury for the duration of the warranty period. Protective guards shall be employed around all deciduous trees.

General Requirements:

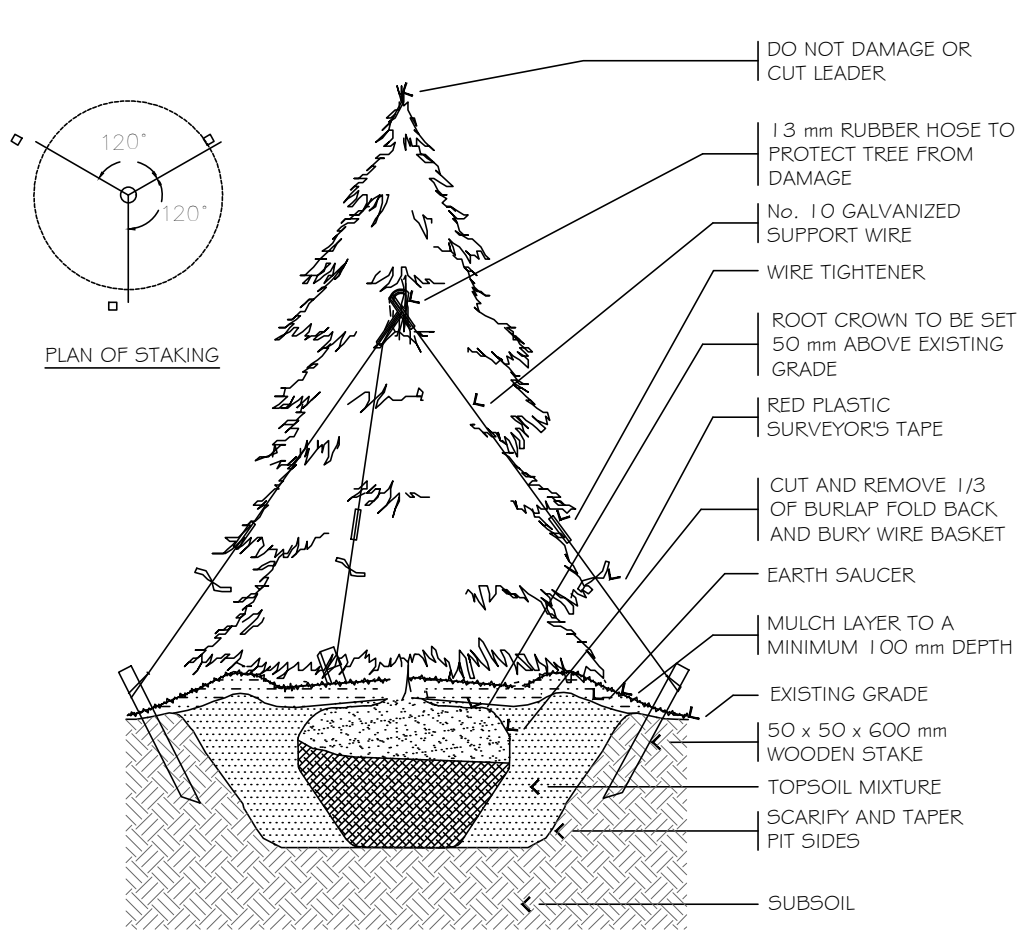
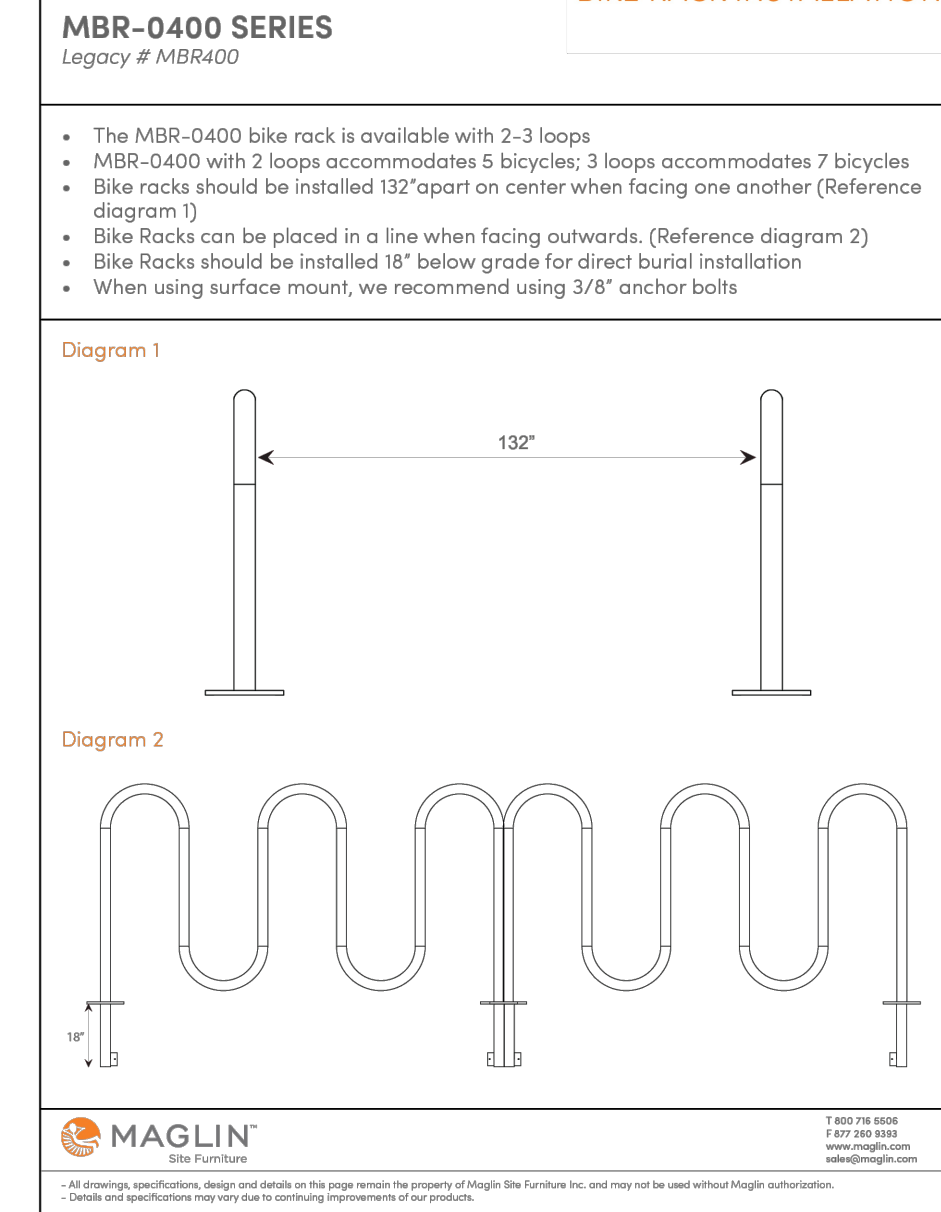
Use above specifications in conjunction with the general landscape specifications of the Ontario Landscape Contractors Association, The Nursery Sod Growers Association of Ontario and with the Guide Specifications for Nursery Stock of the Canadian Nursery Trades Association. Use only plant material true to name, size and grade as specified on planting plan: provide sufficient labels or markings to indicate clearly the variety, size and grade of each specimen or bundle.

Obtain approvals for substitutions as to variety, size or grade from the landscape architect. Use only nursery stock, grown under proper horticultural practices, viable, free from pest and disease and undamaged. Obtain all necessary permits before commencement of construction. Report in writing any discrepancies in the drawings, specifications and contract documents to the landscape architect before the end of the bidding process and commencement of construction. These specifications may be superseded by additional specifications set out in the tender documents. Contractor to review all documents.

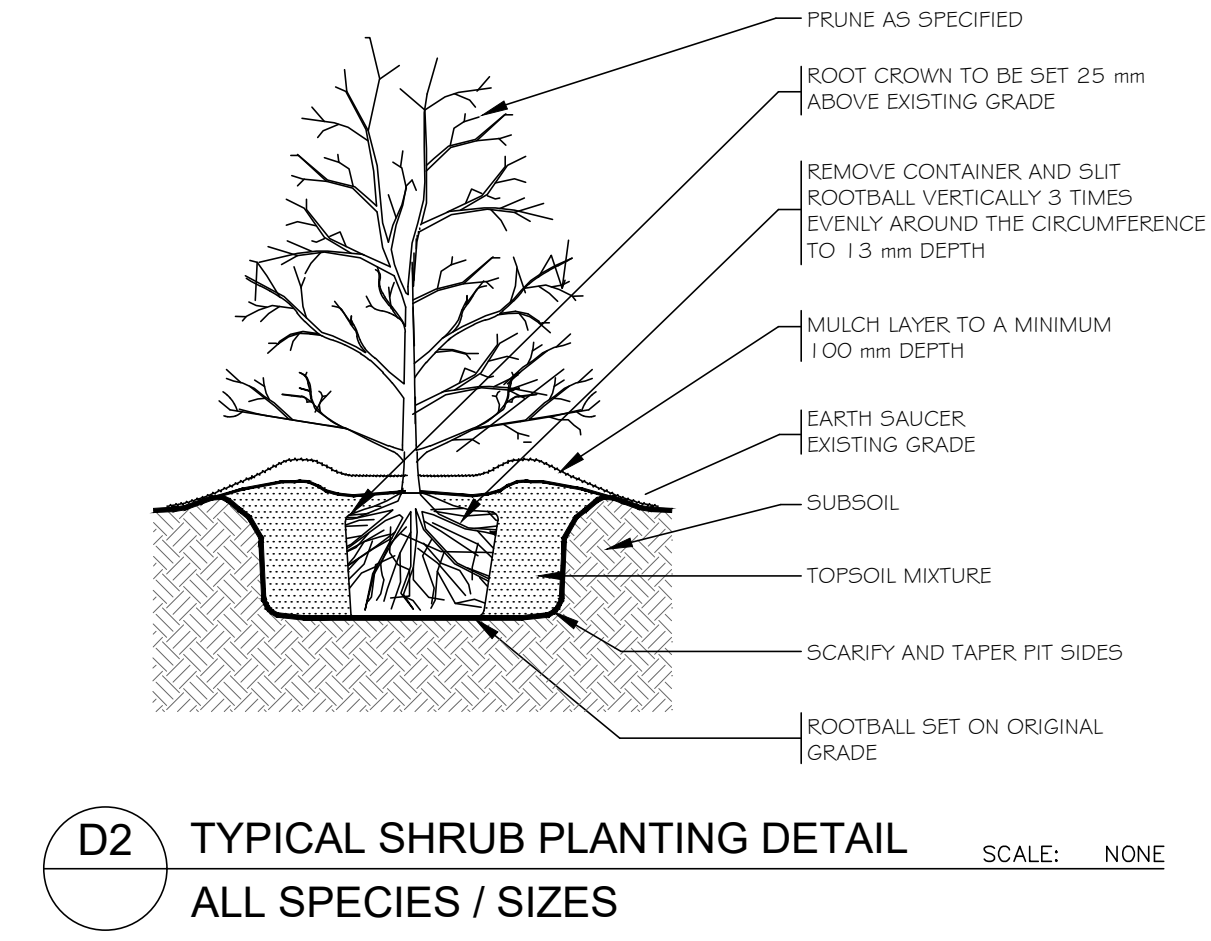
Warranty:

The contractor will warranty all plant material with a one year (unless advised otherwise by owners representative) labour and material warranty, commencing final acceptance by the landscape architect.

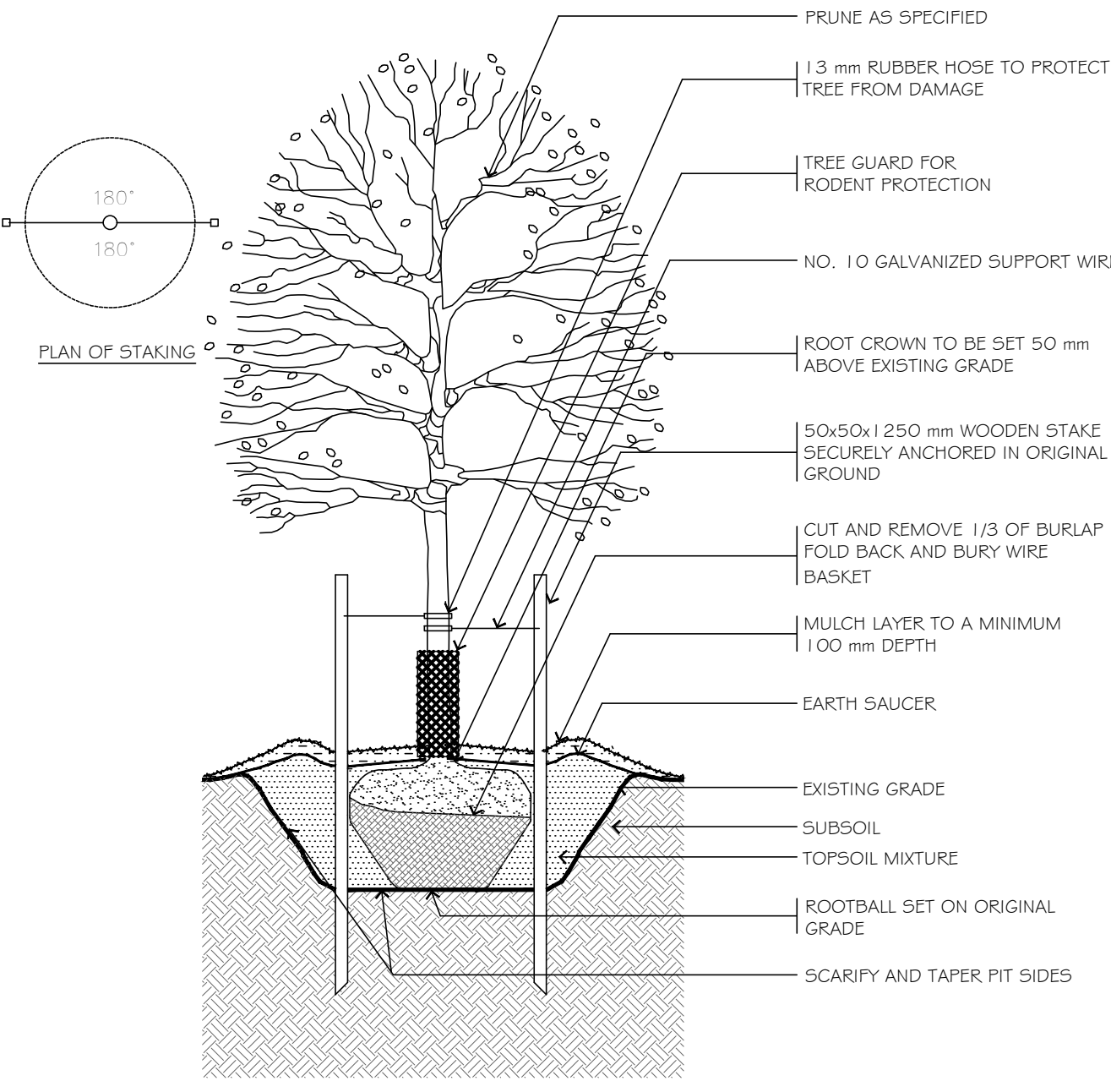
BIKE RACK INSTALLATION



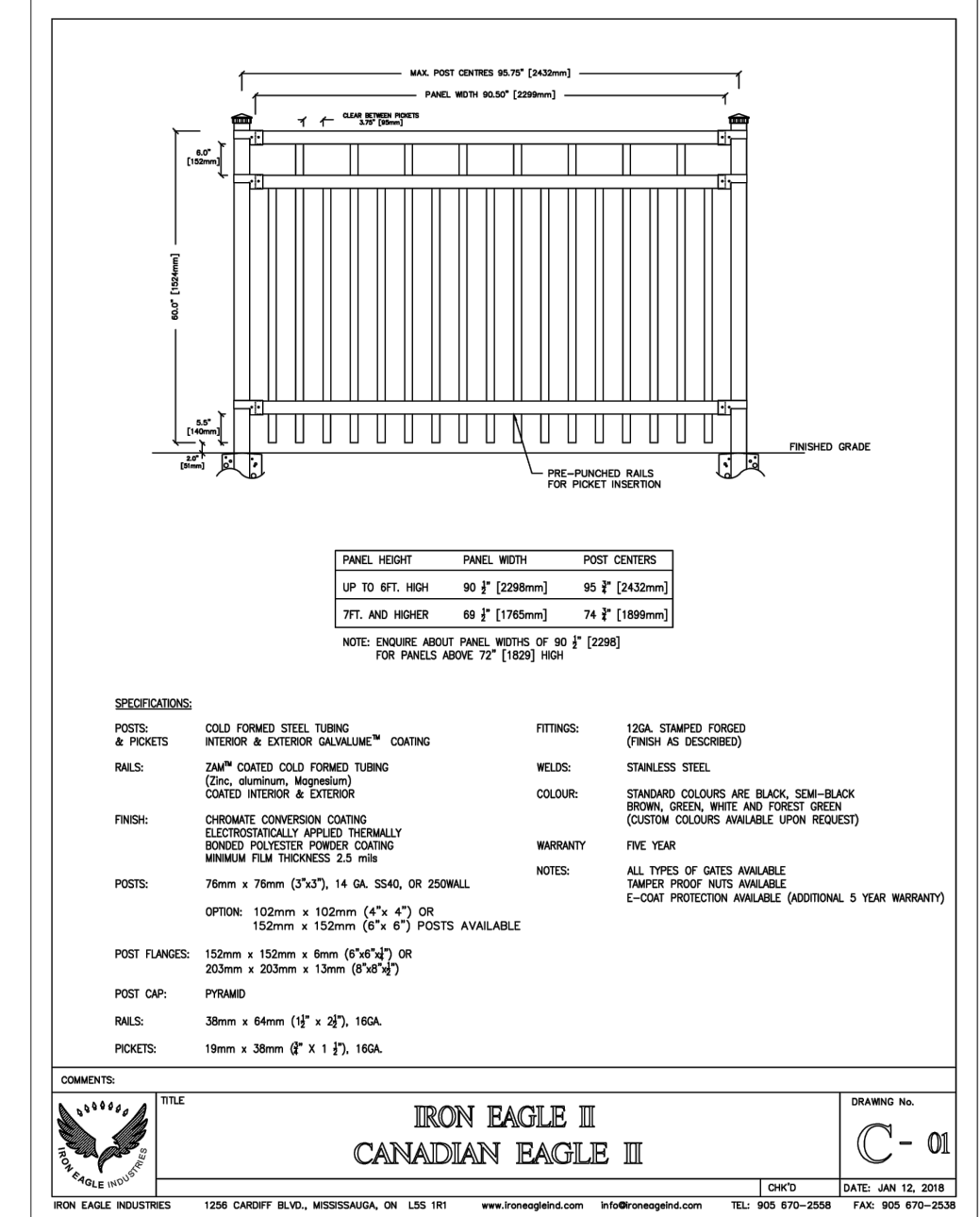
D1 TYPICAL CONIFEROUS TREE PLANTING DETAIL
1.5 m HEIGHT AND LARGER
SCALE: NONE



D2 TYPICAL SHRUB PLANTING DETAIL
ALL SPECIES / SIZES
SCALE: NONE

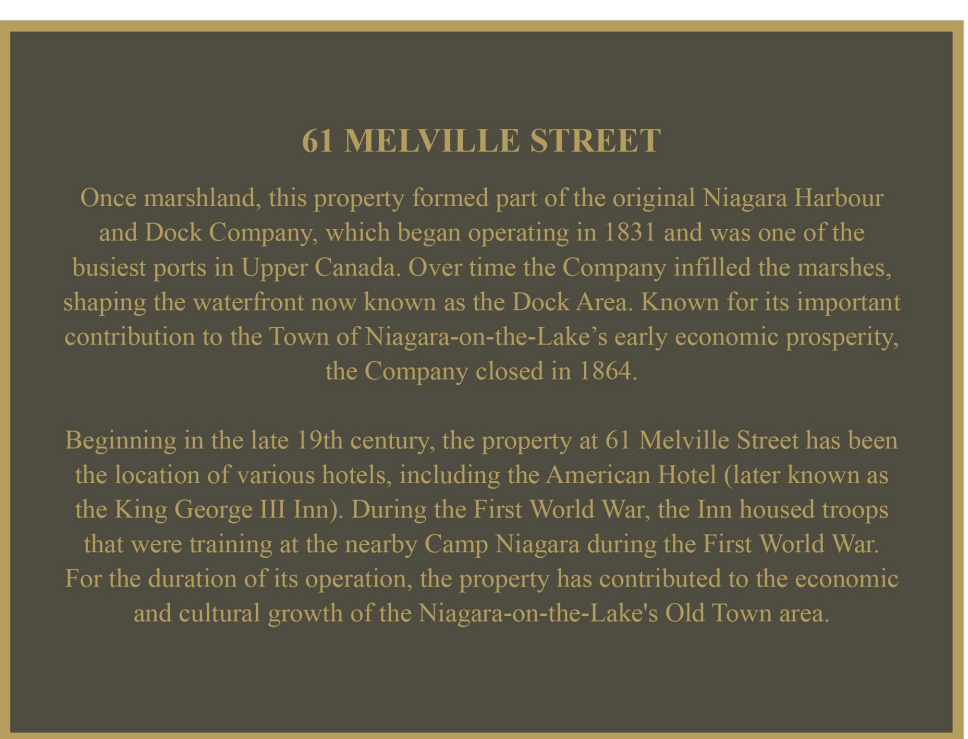


D3 TYPICAL DECIDUOUS TREE PLANTING DETAIL
TREES OVER 45mm CALIPER
SCALE: NONE



IRON EAGLE II CANADIAN EAGLE II

Melville Condos - PLANT LIST						
W.B. = Wire Basket, B&B = Balled and Burlapped, CT = Container Grown						
Code	BOTANICAL NAME	COMMON NAME	SIZE	#	ROOT CONDITIO	REMARKS
Acc	Amelanchier canadensis	Serviceberry (clump form)	250cm ht	3	W.B.	Clump Form
Gb	Ginkgo biloba 'Magyar'	Maidenhair Tree 'Magyar'	60mm cal.	3	W.B.	Full & equal form
Ls	Liquidambar styraciflua 'Slender Silhouette'	Sweetgum 'Slender Silhouette'	50mm cal.	3	W.B.	Full & equal form
Qr	Quercus rubra	Red Oak	60mm cal.	3	W.B.	Full & equal form
Coniferous Trees						
Pg	Picea glauca	White Spruce	2.5m ht.	3	W.B.	Branched to the Ground
Deciduous Shrubs						
Hme	Hydrangea macrophylla 'Endless Summer'	Endless Summer Hydrangea	3 gal. pot	26	CT	Well Branched
Ha	Hydrangea arborescens 'Annabelle'	Annabelle Hydrangea	3 gal. pot	25	CT	Well Branched
Sj	Spirea japonica 'Flaming Mound'	Flaming Mound Spirea	3 gal. pot	60	CT	Well Branched
Po	Physocarpus opulifolius 'Monlo'	Diablo Ninebark	60cm ht.	20	CT	Well Branched
Coniferous Shrubs						
Tmh	Taxus media 'Hicksii'	Hicks Yew	60cm ht.	65	10 gal pot	Branched to the Ground
To	Thuja occidentalis 'Emerald'	Emerald Cedar	110cm ht.	37	5 gal pot	Branched to the Ground
ToI	Thuja occidentalis 'Little Giant'	Little Giant Cedar	40cm ht	53	3 gal pot	Branched to the Ground
Ornamental Grasses						
Pah	Pinnisetum alopecuroides 'Hamelin'	Dwarf Fountain Grass	1 gal pot	6	CT	Well Branched
Caf	Calamrostis x acutifolia 'Karl Foerster'	Feather Reed Grass	1 gal pot	12	CT	Well Branched
Broadleaf Evergreen Shrubs						
Vm	Vinca minor	Periwinkle	10cm pot	70	CT	Well Branched
Perennials						
Hs	Hemerocallis 'Joan Senior'	Daylily 'Joan Senior' (white)	1 gal pot	36	CT	Well Branched
Hd	Hosta 'Blue Moon'	Plantain Lily 'Blue Moon'	1 gal pot	10	CT	Well Branched
Rf	Rudbeckia fulgida goldsturm	Rudbeckia	1 gal pot	14	CT	Well Branched
Ej	Echinacea purpurea 'White Swan'	White Swan Coneflower	1 gal pot	42	CT	Well Branched



D4 HISTORIC PLAQUE
SCALE: NONE

LANDSCAPE CONSTRUCTION NOTES:

- General Notes:**
- Contractor is responsible for locating all underground services prior to any excavation,
 - General layout of planting beds, paths, amenity areas, to be staked and confirmed by landscape architect prior to installation,
 - Plant material to be approved at source by landscape architect, prior to shipment to the site,
 - Plant material to have a one-year warranty (supply and installation, unless otherwise directed by client), to commence, once final installation approval is provided by landscape architect.

- Sod:**
- Sodded areas to be prepared with imported topsoil to a depth of 100mm

- Shrub Bed and Tree Pit Preparation:**
- Shrub beds to be prepared with imported 'triple-mix' topsoil, to the depth of 300 mm., and to be flush with surrounding grades,
 - Shrub beds to be mulched with shredded pine bark mulch, installed to a minimum depth of 75 mm.
 - Tree pits are to be dug to a depth below any existing compacted granular or unnatural fill material, to allow for adequate drainage conditions,

- Unit Pavers:**
- General Layout: Unilock, 'Il Campo' pavers, colour = 'Granite, size = 300x300x70, 150x300x70, and 150x150x70, random laying pattern
 - Soldier Course = Unilock, 'Series 3000' pavers, colour = 'Black Granite', size = 150x300x70, width of strip to be 300mm
 - Colour to be confirmed by project administrator prior to shipment of pavers to site.
 - Install Unilock paver edging where pavers do not butt walls,

- Bike Racks (1):**
- Maglin – Bike Rack 350 Series, model # = MBR 350-4-S (capacity = 3-4 bikes), (or approved equivalent), with Polyester powder coat, colour = Black
 - Bike racks to be secured to level (max 1.5% slope) paved surface

- Decorative Metal Fence:**
- Manufacturer = Iron Eagle, Model Iron Eagle II, (or approved equivalent) galvanized steel, with polyester power coating, colour = black, post cap = 'ball'
 - Height of fence to be 2000mm, post spacing to be 2000mm (maximum).
 - Fencing to be 'plate' mounted on concrete footing (250mm diameter)

- Grading:**
- Grading of all soft and hard landscaped areas to conform to site grading plan provided by others

NO.	DESCRIPTION	DATE
13	REVISED	MAR. 21/25
12	REVISED	OCT. 10/24
11	REVISED	JUN. 02/24
10	REVISED	MAY 26/24
9	REVISED	JAN. 17/24
8	REVISED	OCT. 20/23
7	REVISED	MAY 12/23
6	REVISED	APR. 13/23
5	REVISED	APR. 06/23
4	REVISED	JAN. 24/23
3	REVISED	OCT. 31/22
2	REVISED	OCT. 25/22
1	REVISED	JULY 18/22

JAMES McWILLIAM
LANDSCAPE ARCHITECT

jmwilliam@mladesign.com

MELVILLE CONDOMINIUM
MELVILLE STREET
NIAGARA ON THE LAKE

LANDSCAPE DETAILS

SCALE: AS NOTED
DATE: JUNE 2022
DESIGN BY: J.S.M.
DRAWN BY: T.F.G.
SHEET: **L2**



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: CPS-26-003 **COMMITTEE DATE:** 2026-04-21
REPORT TO: COTW-General **DUE IN COUNCIL:** 2026-04-28
SUBJECT: Fire Code Administrative Monetary Penalties Adoption

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 Council **RECEIVES** Report CPS-26-003;
- 1.2 Staff be **DIRECTED** to include the addition of the Ontario Fire Code infractions to the scope of the Administrative Penalty By-law for Non-Parking Related Offences No. 5334-21; and
- 1.3 Staff be **DIRECTED** to bring forward the amending by-law to the following Council meeting.

2. EXECUTIVE SUMMARY

Recent legislative changes have introduced the ability for municipalities to issue administrative monetary penalties for contraventions of certain provisions of the Fire Code. The adoption of the Administrative Monetary Penalties System (AMPS) under the Fire Code is being brought forward for Council's consideration, as it would provide an additional tool for enforcing fire safety requirements.

3. PURPOSE

The purpose of this report is to outline the necessary revisions to implement the changes permitted under **Ontario Regulation 260/25** to ensure the municipality is equipped with the appropriate tools to support best enforcement practices.

4. BACKGROUND

On November 26, 2025, Ontario Regulation 260/25, enacted under the *Fire Protection and Prevention Act, 1997* (FPPA), was filed. The regulation authorizes municipalities to implement the AMPS, which includes progressive enforcement mechanisms for contraventions of specified provisions of the Fire Code. AMPS tickets may be issued to any person or entity, including property owners, tenants, and corporations. The regulation came into effect on January 1, 2026.

Municipalities that choose to adopt this framework may issue AMPS tickets either as a standalone enforcement tool or alongside existing enforcement measures. Currently, Fire Staff

primarily rely on Fire Inspection Orders, following an education-first approach, to achieve compliance and ensure community safety.

5. DISCUSSION / ANALYSIS

AMPS tickets have been used successfully by Municipal Enforcement Staff over the past several years to promote compliance with applicable municipal by-laws.

As noted previously, Fire Staff have several enforcement tools available under the Fire Code. The ability to issue AMPS tickets would provide an additional option to encourage compliance with legislated requirements. These tickets are a time-efficient enforcement tool, include an established and transparent appeal process, and offer better cost recovery than Part III Summons.

Staff do not expect many AMPS tickets will be issued under the Fire Code. However, obtaining this authority proactively would better position the Town to continue demonstrating leadership in fire prevention.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

4. Optimize Organizational Excellence

Priority

4.1 Streamline & Modernize

Action

4.1 b) Modernization Initiatives
-Update Enforcement Plans

Pillar

1. Vibrant & Complete Community

Priority

1.3 Strategies & Masterplans

Action

1.3 a) Strategies & Masterplans

7. OPTIONS

7.1 Option 1: That the addition of the Fire Code to the designated By-laws included within the Administrative Penalty By-law for Non-Parking Related Offences No. 5334-21 be approved by Council, and Staff be directed to present an amending By-law to designate the Fire Code. **(Recommended)**

7.2 Option 2: Council choose not to approve the recommendations in this report and provides an alternate direction. *(Not Recommended)*

8. FINANCIAL IMPLICATIONS

Any financial implications from the addition of the Fire Code provisions to the Administrative Penalty By-law would result in a positive gain for the municipality. Staff do not expect these gains to be significant; however, any gains would be applied to the fire budget to help achieve cost recovery for Fire Enforcement activities.

9. ENVIRONMENTAL IMPLICATIONS

There are no anticipated environmental implications.

10. COMMUNICATIONS

If approved, the decision will be communicated on the Town's website, and the necessary steps will be taken to enforce accordingly.

11. CONCLUSION

Ontario Regulation 260/25 provides municipalities with an additional enforcement option under the *FPPA*. The introduction of the AMPS offers a flexible and progressive tool to address non-compliance with the Fire Code. Council's adoption of this authority will ensure that the Town is positioned to utilize the new tool.

12. PREVIOUS REPORTS

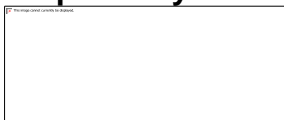
There are no applicable reports addressing the issuance of AMPS tickets under the Fire Code.

13. APPENDICES

- Appendix I - Draft AMPS Non-Parking By-Law Amendment

Respectfully submitted:

Prepared by:



**Cassandra Cruickshank
By-law and Policy Coordinator**

Recommended by:

**Brad Disher
Chief Fire Prevention Officer**

Recommended by:

**Jay Plato
Director / Fire Chief
Community & Protective Services**

Submitted by:

**Nick Ruller, M.A.
Chief Administrative Officer**

**CORPORATION OF THE
TOWN OF NIAGARA-ON-THE-LAKE
BY-LAW NO. 5334D-26**

**A BY-LAW TO AMEND BY-LAW 5334-21, BEING A
BY-LAW TO ESTABLISH AN ADMINISTRATIVE
MONETARY PENALTY SYSTEM FOR NON-
PARKING OFFENCES:**

WHEREAS the Council of the Corporation of the Town of Niagara-on-the-Lake approved By-Law 5334-21 on the 21st day of June 2021;

AND WHEREAS sections 8, 9, 10 and 11 of the *Municipal Act, 2001, S. O. 2001, c.25*, as amended ("*Municipal Act, 2001*") authorize the Town of Niagara-on-the-Lake to pass by-laws necessary or desirable for municipal purposes;

AND WHEREAS section 434.1 (1) of the *Municipal Act, 2001*, provides that, a municipality may require a person, subject to such conditions as the municipality considers appropriate, to pay an administrative penalty if the municipality considers appropriate, to pay an administrative penalty if the municipality is satisfied that the person failed to comply with a by-law passed under this Act;

AND WHEREAS section 434.1 (2) of the *Municipal Act, 2001*, provides that the purpose of a system of administrative penalties established by a municipality under this section shall be to assist the municipality in promoting compliance with its by-laws;

AND WHEREAS the *Fire Protection and Prevention Act, 1997, S.O. 1997, c. 4*, as amended (the "*FPPA*"), provides for the establishment and enforcement of fire safety requirements in Ontario;

AND WHEREAS *Ontario Regulation 260/25*, made under the *FPPA*, authorizes municipalities to establish an administrative monetary penalty system for the enforcement of prescribed provisions of the Fire Code;

WHEREAS the Council of the Corporation of the Town of Niagara-on-the-Lake considers it desirable to enforce and seek compliance with prescribed provisions of the Fire Code made under the *FPPA* through inclusion in the Administrative Monetary Penalty System for Non-Parking Offences (AMPS Non-Parking) By-law 5334-21;

NOW THEREFORE, THE CORPORATION OF THE TOWN OF NIAGARA-ON-THE-LAKE enacts as follows:

1. That Schedule "I" of By-Law 5334-21 (Administrative Monetary Penalty System for Non-Parking Offences) be amended by deleting:

Designated By-law	By-law Number
Animal Care and Control	2025-007
Clean Yards	5190-19
Fence	4778-14
Fireworks - Sale of & Use	5172-19
Noise	4588-12
Public Nuisance	4397-10
Parks	5306-21
Property Standards	5192-19
Sign	4586-12
Site Alteration	2026-007

Short Term Rental	2025-032
Swimming Pool	5155-19
Public Tree	4571-12
Private Tree	5139-19
Idling Reduction	2024-025
Special Events	2026-005

2. That Schedule “I” of By-law 5334-21 (Administrative Monetary Penalty System for Non-Parking Offences) be further amended by adding:

Designated By-law	By-law Number
Animal Care and Control	2025-007
Clean Yards	5190-19
Fence	4778-14
Fireworks - Sale of & Use	5172-19
Noise	4588-12
Public Nuisance	4397-10
Parks	5306-21
Property Standards	5192-19
Sign	4586-12
Site Alteration	2026-007
Short Term Rental	2025-032
Swimming Pool	5155-19
Public Tree	4571-12
Private Tree	5139-19
Idling Reduction	2024-025
Special Events	2026-005
Ontario Fire Code (as prescribed for AMPS enforcement under O. Reg. 260/25)	O. Reg. 213/07

3. That this By-law come into force and effect immediately upon the passing thereof.

**READ A FIRST, SECOND AND THIRD TIME AND PASSED THIS XXTH DAY
OF XXXX 2026.**

LORD MAYOR GARY ZALEPA

TOWN CLERK GRANT BIVOL



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: PBDS-26-003 **COMMITTEE DATE:** 2026-04-21
DUE IN COUNCIL: 2026-04-28
REPORT TO: COTW-General
SUBJECT: Revised Recommendation Report - 263 Concession 6 Road – Zoning By-law Amendment Application (ZBA-18-2024)

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 The Application for Zoning By-law Amendment (File No. ZBA-18-2024) for lands known municipally as 263 Concession 6 Road **BE APPROVED**, and the revised draft Zoning By-law Amendment, attached as **Appendix I**, be forwarded to Council for adoption.

2. EXECUTIVE SUMMARY

- This report summarizes the outcomes of Council’s direction to Staff at the February 3, 2026 Committee of the Whole-Planning meeting regarding the Application for a Zoning By-law Amendment (File No. ZBA-18-2024) for lands known municipally as 263 Concession 6 Road (the “Application”).
- Council directed Staff to obtain input from the Town’s Agricultural Advisory Committee and the Ministry of Agriculture, Food and Agribusiness (OMAFRA) on the Application as it relates to conformity with the OMAFRA Guidelines.
- Staff’s evaluation for consistency and conformity with the relevant Provincial and local planning policies and legislation, as discussed in Staff Report CDS-26-005 remains substantively unchanged based on the additional input provided by the Agricultural Advisory Committee and OMAFRA.
- A modified site-specific definition of “Agricultural Equipment Storage” has been included in the Draft Zoning By-law (**Appendix I**) to further ensure that the proposed agricultural equipment storage use will remain directly supportive of farm operations in the area and not expand to serve a broader, non - agricultural customer base.
- Staff continue to recommend approval of the Application, as the proposal conforms to *Planning Act* requirements, is consistent with the Provincial Planning Statement and conforms with Provincial and local planning policies.

3. PURPOSE

The purpose of this report is to:

- Provide a summary of the input provided by the Town’s Agricultural Advisory Committee and the Ministry of Agriculture, Food and Agribusiness (OMAFRA) on Staff’s Policy analysis of the Application, summarized in Staff Report CDS-26-005, as directed by Council; and,
- Provide a recommendation to Committee and Council on the Application in consideration of the input received.

4. BACKGROUND

At the February 3, 2026 Committee of the Whole-Planning Meeting, Staff provided a detailed evaluation for consistency and conformity of the Zoning By-law Amendment Application for 263 Concession 6 Road with the relevant Provincial and local planning policies and legislation in Staff Report CDS-26-005. The Staff Report included a review of the Application against *Planning Act* requirements, the Provincial Planning Statement, the Greenbelt Plan, Niagara Official Plan, Town Official Plan, as well as the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Publication 851: Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas ("OMAFRA Guidelines").

The following recommendation was put forth by Town Staff to the Committee of the Whole:

"The Application for Zoning By-law Amendment (File No. ZBA-18-2024) for lands known municipally as 263 Concession 6 Road **BE APPROVED**, and the draft Zoning By-law Amendment, attached as Appendix V, be forwarded to Council for adoption."

The Committee deferred their decision on Staff's recommendation within Staff Report CDS-26-005, requesting Staff to obtain additional input from the Agricultural Advisory Committee and the Ministry of Agriculture, Food and Agribusiness (OMAFRA) on the Application as it relates to the conformance with the OMAFRA Guidelines. Accordingly, Council passing the following motion:

"That the report be returned to staff to get input from the Agriculture Committee in regard to Policy and from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) into regard to policy with the matter to return at the earliest date possible."

As directed by Council, Town Staff have gathered input from the Agricultural Advisory Committee and the Ministry of Agriculture, Food and Agribusiness (OMAFRA) on the application as it relates to the conformance with the OMAFRA Guidelines, as discussed in Section 5, below.

5. DISCUSSION / ANALYSIS

The discussion and analysis below are provided to supplement such provided within **Staff Report CDS-26-005**. All appendices associated with Staff Report CDS-26-005 can be found on the Town's website at the following link, under Item 9.3 of the Committee of the Whole-Planning Agenda dated February 3, 2026:

<https://pub-notl.escribemeetings.com/Meeting.aspx?Id=52bc8794-2e32-4371-a2fd-e4ddc567bbeb&Agenda=Agenda&lang=English&Item=19&Tab=attachments>

As discussed below, and in **Staff Report CDS-26-005**, Staff continue to recommend approval of the Zoning By-law Amendment Application for lands municipally known as 263 Concession 6 Road. The proposal conforms to *Planning Act* requirements, is consistent with the Provincial Planning Statement and conforms with Provincial and local planning policies.

5.1 Agricultural Advisory Committee Input

The Town's Agricultural Advisory Committee provided their input on the policy evaluation of the application as it relates to conformance with OMAFRA Guidelines at the March 16, 2026, Agricultural Advisory Committee Meeting. A copy of the minutes from the Agricultural Advisory Committee is provided in **Appendix II**, while a recording of the meeting can be found on the

Town's website at:

<https://pub-notl.escribemeetings.com/Players/ISISStandAlonePlayer.aspx?Id=aea04ec8-ab26-4713-8fd5-cf829b28296b>

A summary of the input provided by the Agricultural Advisory Committee's as it relates to the evaluation of the application against the OMAFRA Guidelines, as well as Staff's responses, are provided in **Table 1**.

Table 1 – Agricultural Advisory Committee Input

Agricultural Advisory Committee Input Summary	Staff Response
Concern that the proposal exceeds the OMAFRA Guideline that on-farm diversified may occupy no more than 2% of the property on which the uses are located.	The proposed uses were evaluated as agricultural-related uses in accordance OMAFRA Guidelines. The 2% limited in area criterion is only applicable to on-farm diversified uses. This criterion does not apply to this Application.
<p>Concern that the proposed built-form does not maintain the rural character of the area, and therefore does not meet the OMAFRA Guidelines.</p> <p>Concern that the proposed built-form would detract from surrounding wineries, and therefore does not meet the OMAFRA Guidelines.</p>	<p>The proposed development is not requesting relief from any provisions of the Town Zoning By-law related to built-form scale, including but not limited to the proposed setbacks, height, and lot coverage provisions.</p> <p>A detailed review of building elevations, lighting, and landscaping will take place during the Site Plan Agreement process to ensure that the development maintains rural character, is visually compatible with surrounding agricultural lands, and is appropriately screened. Further, the Town's agricultural lands support a range of agriculture, agriculture-related and on-farm diversified uses.</p> <p>No potentially conflicting off-site impacts on agricultural operations including wineries, greenhouses, vineyards, and orchards are anticipated related to traffic, air, noise, odour, or water that could affect nearby agricultural operations.</p>
Concern that the goods sold at the agricultural market would not be grown on site, and therefore does not meet the OMAFRA Guidelines.	OMAFRA Guidelines do not require an agricultural-related use to be located on a farm. Provincial and local policy permit agricultural-related uses within the Specialty Crop Area to be located on farms or on separate agriculture-related commercial or industrial properties, subject to criteria.
Concern that the proposed uses would support agricultural operations located outside of the municipality limits, and therefore does not meet the OMAFRA Guidelines.	<p>The OMAFRA Guidelines requires agriculture-related uses to be directly related to farms in the area, primarily providing products or services that are associated with, required by or that enhance agricultural operations in the area.</p> <p>The OMAFRA Guidelines clarify that "in the area" is not determined by fixed distances or municipal boundaries, but</p>

Agricultural Advisory Committee Input Summary	Staff Response
	<p>by how far farmers will reasonably travel to obtain agricultural products or services. The applicant has identified several agricultural operations in the area based on how far farmers will reasonably travel to obtain agricultural products or services that the proposed uses will directly support.</p> <p>Staff are satisfied that the proposed agricultural- related uses will provide services and facilities that are both within and directly tied to the surrounding agricultural community.</p>

The Town’s Agricultural Advisory Committee also provided general feedback on the OMAFRA Guidelines. A summary of the input provided by the Agricultural Advisory Committee on the OMAFRA Guidelines, as well as Staff’s responses, are provided in **Table 2**. These comments are not specific to the Application, but were provided for Staff consideration as part of the Official Plan review process.

Table 2 – Agricultural Committee Input (General Agricultural-Related Use Policy)

Agricultural Advisory Committee Input Summary	Staff Response
<p>Desire for all <i>Planning Act</i> applications for agricultural-related and on-farm diversified uses to be reviewed by the Town’s Agricultural Advisory Committee early in the planning process.</p>	<p>The review of individual <i>Planning Act</i> applications for agricultural-related and/or on-farm diversified uses is not within the current scope of the Agricultural Advisory Committee Terms of Reference.</p>
<p>Desire to require agricultural-related uses to provide additional evidence that the use provides direct products and/or services to farm operations as a primary activity.</p>	<p>Existing Town Official Plan policies do not require the submission of a Farm Business Plan or similar document to support the development of agricultural-related uses as a requirement for a complete application.</p> <p>The final Draft Official Plan introduces the ability for the Town to require the submission of a Farm Business Plan as a requirement to better assess whether a proposed agriculture-related use meets the test of providing direct products and/or services to farm operations as a primary activity.</p>
<p>Desire to limit permitted uses in the area to the wine industry, including wineries and vineyards.</p> <p>Desire to only permit agricultural uses in the agricultural area.</p>	<p>In Prime Agricultural Areas, permitted uses and activities include agricultural uses, agriculture-related uses, and on-farm diversified uses.</p> <p>The OMAFRA Guidelines permit a full range and scales of agriculture-related uses within the Specialty Crop Area. Limited proposed uses within the Specialty Crop Area to</p>

Agricultural Advisory Committee Input Summary	Staff Response
	those uses supporting a specific component of the agricultural system (i.e., wineries) would not align with Provincial policy direction.
Desire to introduce design criteria to regulate the built form of agricultural-related uses to ensure compatibility with the character of the area	The current and proposed Town Official Plan does not contain built-form design criteria for development within the agricultural designation. It is recognized that the agricultural area contains a diverse range of built-form and scale of agricultural uses (i.e., greenhouses), agricultural-related uses (i.e., cold storage facilities), and on-farm diversified uses (i.e., wineries).

5.1.1 Ministry of Agriculture, Food and Agribusiness (OMAF) Input

As directed by Council, Town staff reached out to Ministry of Agriculture, Food and Agribusiness (OMAF) Staff for input on Town staff’s evaluation of the proposal against the OMAFRA Guidelines, as outlined within Staff Recommendation Report CDS-26-005. OMAF Staff advised that they cannot determine or confirm whether a specific proposal is or is not an agriculture related uses, as that determination rests with the municipality.

However, OMAF provided notes of consideration to further support the Town’s assessment of whether this proposal meets the intent of an agriculture related use in the OMAFRA Guidelines. A copy of the input from OMAF is provided in **Appendix III**.

A summary of the input provided by OMAF Staff, as well as Town Staff’s responses, are provided in **Table 3**.

Table 3 – OMAF Staff Input and Staff Response

OMAFRA Guidelines Agriculture-Related Use Criteria		OMAF Staff Note for Consideration	Staff Response
1	Farm-related commercial and farm-related industrial use	Consider whether the proposed use adds value to agricultural operations and production in the surrounding area and/or if the use creates a new opportunity for agricultural commodities grown in the area.	Addressed in Section 5.1.2.2 of Staff Report CDS-26-005. The proposed Agricultural Equipment Storage and Farm Produce Storage Building provide products and services directly supporting farm operations as their primary purpose, and the Agricultural Market use will supply retail opportunities for agricultural products originating from local farm operations.

OMAFRA Guidelines Agriculture-Related Use Criteria	OMAFRA Staff Note for Consideration	Staff Response	
2	Shall be compatible with, and shall not hinder, surrounding agricultural operations	<p>Compatibility should be assessed both on the subject property and across the broader area where impacts may occur. The use must not hinder normal farm practices or introduce conflicts with nearby agricultural activities, such as sensitivities to livestock facilities or increases in noise, light, dust, or traffic that may affect farm operators or livestock. Any potential impacts should be avoided or mitigated.</p>	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>The proposed uses are not anticipated to generate adverse impacts related to air, noise, light, dust, traffic, odour, or water that could affect nearby agricultural operations.</p>
		<p>Consider the cumulative effect of introducing another agriculture related use to ensure that agricultural and rural character are not undermined and that rural infrastructure is not adversely affected.</p>	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>The cumulative impact of the proposed uses will not undermine the primary function of the area, being agriculture, and no upgrades to municipal infrastructure (i.e., road access or other public services) are required to service the proposal.</p>
		<p>Prime agricultural areas should remain dedicated to farming and protected for future generations. Only minimal land should be removed from current or future production, with attention to long term (multi-generational) effects. Uses should maintain rural character, support continued normal farm practices, contribute positively to the agricultural sector, and require servicing</p>	<p>Addressed in Section 5.1.2.2 and 5.1.2.4 of Staff Report CDS-26-005.</p> <p>The proposal does not remove any lands from agricultural production. Furthermore, based on the constraints of the subject lands, namely the significant woodland covering the majority of the site, and the existing home, it is not anticipated that the lands proposed for development (approximately 1.81 hectares) would be of an adequate size to sustain a standalone agricultural operation, including that of tender fruit and/or grapes.</p> <p>The scale of the proposed development is consistent with agricultural-related uses commonly found within the Town, Region, and Province, and is not requesting relief</p>

OMAFRA Guidelines Agriculture-Related Use Criteria		OMAFRA Staff Note for Consideration	Staff Response
		appropriate to a rural agricultural context (e.g., rural road access, water, emergency services).	<p>from any provisions of the Town Zoning By-law related to built-form scale, including but not limited to the proposed setbacks, height, and lot coverage provisions.</p> <p>The proposed uses are not expected to constrain or diminish the efficiency of adjacent agricultural operations. Farmers in the surrounding area will be able to continue their activities without interruption or inconvenience.</p> <p>No upgrades to municipal infrastructure (i.e., road access or other public services) are required to service the proposal.</p>
3	Directly related to farm operations in the area	Consider the types of agricultural operations surrounding the property and assess whether the proposed use is directly related to those operations. The use should primarily provide products or services associated with, required by, or that enhance agricultural operations in the immediate area.	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>The Agricultural Equipment Storage use will provide facilities for the storage and sale of farm machinery and equipment, while the Farm Produce Storage Building will support the aggregation, storage, and distribution of produce grown by local farm operators. The Agricultural Market will enable the direct retail sale of agricultural products from local farms.</p> <p>As further described in Section 5.2 of Staff Report CDS-26-005, site-specific definitions are recommended to ensure that each use remains limited to functions that directly relate to and serve farm operations within the area.</p> <p>A revised site-specific definition for the proposed agricultural equipment storage use is proposed to ensure the use supports agricultural operations that are common within the local specialized crop area, as described in Section 0 of this report.</p>

OMAFRA Guidelines Agriculture-Related Use Criteria		OMAFRA Staff Note for Consideration	Staff Response
4	Supports agriculture	<p>Consider whether the primary focus of the use is to support agriculture or if there will be a general use component. Will farm operators be the primary customers, and will this component provide a benefit to their operations?</p>	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>The proposed uses will provide essential functions such as equipment storage, crop storage, distribution, and the retailing of products grown locally.</p> <p>As further described in Section 5.2 of Staff Report CDS-26-005, site- specific definitions are recommended to strictly limit the uses so they remain directly supportive of farm operations and do not expand to serve a broader, non- agricultural customer base.</p> <p>A revised site-specific definition for the proposed agricultural equipment storage use is proposed to ensure the use does not include a general use component as described in Section 0 of this report.</p>
		<p>Farmers’ markets must primarily sell agricultural products grown in the area to be considered an agricultural use. Markets selling a mix of local and non local produce, baked goods, coffee, or crafts may still qualify as agriculture related if the majority of goods sold are agricultural commodities grown in the surrounding area.</p>	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>The Agricultural Market will enable the direct retail sale of agricultural products from local farms which will reinforce and enhance local agricultural activity and strengthen the farm- to- market supply chain.</p> <p>As further described in Section 5.2 of Staff Report CDS-26-005, the site-specific definition proposed for the agricultural market is intended to ensure the use is limited to the sale of goods grown and produced by local farm operations. The sale of the following products is not permitted: clothing, meat, frozen foods, paper products, coffee, housewares, breakfast cereals, tobacco products, magazines, newspapers, soap, detergents, pharmaceutical products, lottery tickets and similar items.</p>
5	Provides direct products and/or services to farm operations as a primary activity	<p>Consider whether the proposed use will primarily serve farmers in the area, or whether it will also cater to a</p>	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>Staff are satisfied that the proposed Agricultural Equipment Storage and Farm</p>

OMAFRA Guidelines Agriculture-Related Use Criteria	OMAFRA Staff Note for Consideration	Staff Response
	<p>broader customer base. General purpose uses are not agriculture related, even if farmers are among their customers.</p>	<p>Produce Storage Building uses will service farm operations as a primary business activity, and that customers will primarily be farm operators in the area. The services provided are supportive of local farm operations and do not include items catering to a broader customer base.</p> <p>Similarly, Staff are satisfied that the proposed Agricultural Market use also meets this criterion, as its definition requires that the products sold are exclusively agricultural products produced in the area.</p> <p>A revised site-specific definition for the proposed agricultural equipment storage use is proposed to ensure the use does cater to a broader customer base as described in Section 0 of this report.</p>
	<p>Businesses that sell or repair farm implements alongside general consumer product lines (e.g., lawn mowers, snow blowers, other equipment, toys, clothing) should be directed to settlement areas, rural lands, or lower priority agricultural lands.</p>	<p>A revised site-specific definition for the proposed agricultural equipment storage use is proposed to ensure the use does cater to a broader customer base as described in Section 0 of this report.</p>
	<p>Municipalities should require evidence demonstrating that servicing farm operations will be the primary business activity (e.g., customers primarily being local farm operators or inputs sourced from the area). As a best practice, municipalities may also seek evidence that the use cannot be reasonably located in a</p>	<p>The existing Town Official Plan does not provide the Town the ability to require the submission of a Farm Business Plan or similar document to support the development of agriculture-related uses as a requirement for a complete application.</p> <p>The final Draft Official Plan update introduces the ability for the Town to require the submission of a Farm Business Plan as a requirement to better assess whether a proposed agriculture-related use meets the test of providing direct products and/or services to farm operations as a primary activity.</p>

OMAFRA Guidelines Agriculture-Related Use Criteria		OMAFRA Staff Note for Consideration	Staff Response
		settlement area or rural lands.	<p>Nevertheless, as described in Section 5.2 and 5.3.3 of Staff Report CDS-26-005 the applicant has submitted supplemental information of potential agricultural operations in the vicinity, which the proposed uses may be connected to and supportive of, and proposed site-specific definitions as outlined in, which are intended to ensure the proposed uses are supportive of local farm operations.</p> <p>Staff are satisfied that the permitted uses are scoped to align with Provincial, Regional and Town Policy for agricultural-related uses, including the need to be connected to and supportive of local farm operations.</p>
6	Benefits from being in close proximity to farm operations.	Proximity may improve operational efficiency, reduce transportation distances, lower the risk of spoilage, better accommodate slow-moving farm vehicles, and support cluster-based agricultural activity.	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>Staff are satisfied that the proposed uses are appropriately located near the agricultural operations they are intended to serve. Perishable produce often requires rapid movement to storage or market, and the proximity of the storage and distribution facility to farms minimizes travel time and costs. Similarly, the location provides convenient access for farmers requiring equipment storage or market access.</p>
		Many general purpose and agriculture related uses are more appropriately located within nearby hamlets, villages, and towns. If the proposal includes a general purpose component, consider whether it would be better suited to a settlement area.	<p>Addressed in Section 5.1.2.2 of Staff Report CDS-26-005.</p> <p>Staff are satisfied that the proposed uses are appropriately located near the agricultural operations they are intended to serve.</p> <p>As further described in Section 5.2 of Staff Report CDS-26-005, site-specific definitions are recommended to ensure that each use remains limited to functions that directly relate to and serve farm operations within the area.</p> <p>A revised site-specific definition for the proposed agricultural equipment storage use is proposed to ensure the use does cater to a</p>

OMAFRA Guidelines Agriculture-Related Use Criteria	OMAFRA Staff Note for Consideration	Staff Response
		broader customer base as described in Section 0 of this report.
N/A	General Feedback	<p>Lot creation in prime agricultural areas are discouraged. While the PPS does allow severances for agriculture related uses, provided that any new lot will be limited to a minimum size needed to accommodate the use and appropriate sewage and water services. Consider whether existing properties in the prime agricultural area could accommodate the proposed use, thereby avoiding the creation of a new lot. For example, a site previously used for another agriculture related use may be available. Locating a new agriculture related use on an existing lot of record is generally preferred over creating a new lot in a prime agricultural area.</p> <p>Addressed in Section 5.3.3 of Staff Report CDS-26-005.</p> <p>The applicant has indicated that the lot creation (consent) application to create a new parcel for the proposed agricultural-related use has been deferred in order to allow the Town to review and update as necessary, the lot creation policies for agricultural-related uses within the Town Official Plan, in order to conform to Provincial and Regional policy.</p> <p>Any future proposal for lot creation will be reviewed based on the relevant policies in force and effect at the time of that application.</p>

5.2 Subsequent Submission and Revised Draft Zoning By-law

Following the completion of Staff Report CDS-26-005, the applicant submitted a letter to Council dated February 23, 2026, which, among other items, contained an Agrologist Peer Review of the application completed by Stovel and Associates Inc. The Agrologist Peer Review proposed a modified site-specific definition for the “Agricultural Equipment Storage” use as follows. All modifications to the initial site-specific definition are denoted using red font.

“Agricultural Equipment Storage” shall mean “premises where new or used farm machinery/equipment are stored or displayed for the purposes of sale or hire to agricultural operations and where such machinery/equipment is intended for agricultural operations that are common within the local specialized crop area,

and shall include the storage and sale of farm machinery/equipment and accessories **directly related thereto, including business administration uses accessory thereto, but does not include the repair and service of farm machinery/equipment and accessories, and nor shall it include the storage, display or sale of lawn mowers, snow blowers, non-agricultural machinery, parts not directly related to agricultural production equipment, toys, clothing, or other merchandise catering to a broad consumer market.**

The proposed modified site-specific definition is intended to help ensure that farm equipment sales are intended for the agricultural operations common in the local area and are not reflective of general-purpose commercial uses that would serve a broad customer base.

Staff are satisfied that the proposed definition revision is consistent with Provincial and local policy, and will assist in ensuring that the proposed agricultural equipment storage use would remain directly supportive of farm operations in the area and not expand to serve a broader, non-agricultural customer base.

Staff recommend approval of the revised draft Zoning By-law Amendment for the subject lands, including the revised “Agricultural Equipment Storage” site-specific definition, a copy of which is attached as **Appendix I** to this report.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

1. Vibrant & Complete Community

Priority

1.1 Planning for Progress

Action

1.1 b) Planning for Progress Initiatives

7. OPTIONS

The Committee may approve, refuse, or modify the proposed Zoning By-law Amendment.

8. FINANCIAL IMPLICATIONS

The applicant is responsible for all costs associated with the development. The Town will collect Development Charges at the time of issuance of building permits. The Town will also hold securities as part of a future Site Plan Agreement.

9. ENVIRONMENTAL IMPLICATIONS

As discussed in Staff Report CDS-26-005, no environmental impacts to the regulated features on the property are anticipated as a result of the proposal.

10. COMMUNICATIONS

Once Council has made a decision on the Application, notice of the decision will be given as required under the *Planning Act*. The decision of Council is subject to a 20-day appeal period. If no appeals are received during the appeal period, the decision of Council is final. Changes to

provincial legislation have been made through Bill 185, and third-party appeals are restricted.

11. CONCLUSION

Planning, Building and Development Services Staff have obtained additional input from the Agricultural Advisory Committee and OMAFA on the application, as directed by Council. Staff's evaluation of the application for consistency and conformity with the relevant Provincial and local planning policies and legislation, as discussed in Staff Report CDS-26-005 remain substantively unchanged based on the additional input provided by the Agricultural Advisory Committee and OMAFA.

A modified site-specific "Agricultural Equipment Storage" has been included in the Draft Zoning By-law (**Appendix I**) to assist in ensuring that the proposed agricultural equipment storage use will remain directly supportive of farm operations in the area and not expand to serve a broader, non-agricultural customer base.

Staff recommend approval of the revised Zoning By-law Amendment Application ZBA-18-2024, as the Application meets *Planning Act* requirements, is consistent with the Provincial Planning Statement and conforms with the Greenbelt Plan, Niagara Official Plan, and Town Official Plan.

12. PREVIOUS REPORTS

- **CDS-26-005** - Recommendation Report - 263 Concession 6 Road – Zoning By-law Amendment Application (ZBA-18-2024)
- **CDS-25-030** - Public Meeting – Information Report – 263 Concession 6 Road (ZBA-18-2024) (March 4, 2025)

13. APPENDICES

- **Appendix I** – Draft Zoning By-law Amendment
- **Appendix II** – Agricultural Committee Meeting Minutes (March 16, 2026)
- **Appendix III** – Ministry of Agriculture, Food and Agribusiness (OMAFA) Staff E-Mail Correspondence

Respectfully submitted:

Prepared by:



**Connor MacIsaac
Planner II
Planning, Building and Development
Services**

Recommended by:



**Taya Devlin, RPP, MCIP
Manager of Planning
Planning, Building and Development
Services**

Recommended by:



**Aimee Alderman, MCIP, RPP
Director, Planning, Building & Development
Services**

Submitted by:



**Nick Ruller, M.A.
Chief Administrative Officer**

Explanation of the Purpose and Effect of
By-law 500YU-26

The subject lands are located at the northeast intersection of York Road, and Concession 6 Road, and are described as 263 Concession 6 Road, Town of Niagara-on-the-Lake, more particularly described as Part of Township Lot 135 Niagara Part 1 as in 30R512; Niagara-on-the-Lake.

Purpose

The purpose of this By-law is to rezone the southerly portion of subject lands to permit additional agricultural-related uses associated with local farm operations, and to add a “Holding (H)” symbol to the “Rural (A) – Site Specific Zone” to prohibit future development or site alteration until such time private servicing requirements are addressed. The purpose of this By-law is also to rezone the northerly portion of the subject lands to provide environmental protection for the existing woodlot feature on the subject lands.

Effect

The effect of this By-law is to rezone the subject lands from “Rural (A) Zone” to “Rural (A) Holding (H) Zone - Site Specific Zone” on the southerly portion, and to rezone the northerly portion from “Rural (A) Zone” to “Open-Space (OS) - Site Specific Zone” in order to:

- Provide site-specific permissions for agricultural-related uses related to local farm operations including:
 - Agricultural Equipment Storage
 - Agricultural Market
 - Farm Produce Storage Building
- Permit the existing single-detached dwelling and associated accessory structure(s) to remain; and
- Provide protection to the existing woodlot on the subject lands.

<p><i>Owner:</i> Parth Patel <i>File Number:</i> ZBA-18-2024 <i>Report Number:</i> CDS-26-005 <i>Assessment Roll Number:</i> 262702001903705</p>
--

**THE CORPORATION
OF THE
TOWN OF NIAGARA-ON-THE-LAKE**

BY-LAW NO. 500YU - 26

263 Concession 6 Road

Roll 262702001903705

A BY-LAW PURSUANT TO SECTION 34 OF THE ONTARIO PLANNING ACT TO AMEND BY-LAW 500A-74, AS AMENDED, ENTITLED A BY-LAW TO REGULATE THE USE OF LAND AND THE CHARACTER, LOCATION AND USE OF BUILDINGS AND STRUCTURES THEREON.

WHEREAS the Town of Niagara-on-the-Lake Council is empowered to enact this By-law by virtue of the provisions of Section 34 of the Planning Act, R.S.O, 1990, c.P.13, as amended;

AND WHEREAS this By-law conforms to the Town of Niagara-on-the-Lake Official Plan.

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWN OF NIAGARA-ON-THE-LAKE enacts as follows:

1. Schedule 'A' of By-law 500A-74, as amended, is further amended by changing the zoning of the subject lands identified on Map 'A' (attached to and forming part of this By-law) from "Rural (A) Zone" to "Rural (A) Holding (H) Zone - Site Specific Zone" on the southerly portion, and to rezone the northerly portion from "Rural (A) Zone" to "Open-Space (OS) - Site Specific Zone".
2. That Subsection 21.A, Special Exceptions of By-law 500A-74, as amended, is hereby further amended by adding the following:

263 Concession 6 Road – Open-Space (OS) - Site Specific Zone

In lieu of the corresponding provisions of section 18.1, only the following use is permitted within the Open Space (OS) – Site Specific Zone:

- a) Conservation management activities and uses

263 Concession 6 Road – Rural (A) Holding (H) Zone - Site Specific Zone

In addition to the permitted uses under Section 4.1(a) of Zoning By-law 500A-74, as amended, the following additional uses shall be permitted on the lands zoned "Rural (A) Holding (H) Zone - Site Specific Zone" shown on 'Map A' attached hereto:

- a) Agricultural-related uses to local farm operations as follows:
 - *Agricultural Equipment Storage*

- *Agricultural Market*

Prohibited Uses:

The following additional uses shall be prohibited on the lands zoned “Rural (A) Holding (H) Zone - Site Specific Zone” shown on ‘Map A’ attached hereto:

- a) A large subsurface sewage disposal system; and
- b) A dwelling unit.

3. For the purposes of this amending By-law only and for the land zoned “Rural (A) Holding (H) Zone - Site Specific Zone” shown on ‘Map A’ attached hereto, the following definitions shall apply:

- a) *Agricultural Equipment Storage* means premises where new or used farm machinery/equipment are stored or displayed for the purposes of sale or hire to agricultural operations and where such machinery/equipment is intended for agricultural operations that are common within the local specialized crop area, and shall include the storage and sale of farm machinery/equipment and accessories directly related thereto, including business administration uses accessory thereto, but does not include the repair and service of farm machinery/equipment and accessories, and nor shall it include the storage, display or sale of lawn mowers, snow blowers, non-agricultural machinery, parts not directly related to agricultural production equipment, toys, clothing, or other merchandise catering to a broad consumer market.
- b) *Agricultural Market* shall mean “a building/structure and land used only for the retail sale of fresh fruit and vegetables, processed fruit and vegetables, including frozen fruit, nuts, honey, maple syrup products, flowers, plants and bedding plants from local farm operations including business administration uses accessory thereto. The retail sale of dairy products, hand-crafted products and baked goods baked on the premises is permitted provided the same are accessory to the products described above. The sale of the following products is not permitted: clothing, meat, frozen foods, paper products, coffee, housewares, breakfast cereals, tobacco products, magazines, newspapers, soap, detergents, pharmaceutical products, lottery tickets and similar items.
- c) *Farm Produce Storage Building* shall mean “building/structure for the storage (including temperature-controlled storage) of fresh fruit and vegetables, processed fruit and vegetables, including frozen fruit, nuts, honey, maple syrup products, flowers, plants and bedding plants from local farm operations, including business administration uses accessory thereto,.”
- d) *Large Subsurface Sewage Disposal System* shall mean “an individual subsurface sewage disposal system with total daily design sanitary sewage flows greater than 10,000 Litres/Day.

- e) *Small Subsurface Sewage Disposal System* shall mean means “an individual subsurface sewage disposal system with total daily design sanitary sewage flows of less than 10,000 Litres/Day, located wholly within the boundaries of the lot or parcel of land on which are located the residence(s), building(s) or facility/ies which they serve, and are subject to the requirements of Part 8 of Division B (O.Reg. 350/06) of the Building Code under the Building Code Act, 1992.”
4. In addition to the corresponding provisions of Schedule F to Zoning By-law 500A-74, as amended, the following provisions shall apply to the subject lands zoned “Rural (A) Holding (H) Zone - Site Specific Zone” shown on ‘Map A’ attached hereto:
- The maximum gross leasable floor area for the *Agricultural Equipment Storage* use shall be 1,950 square metres
 - The maximum gross leasable floor area for the *Agricultural Market* use shall be 186 square metres
 - The maximum gross leasable floor area for the *Farm Produce Storage Building* use shall be 1,860 square metres
5. For the purposes of this By-law, the total maximum lot coverage for all buildings and structures shall be 15% (as per Schedule F to Zoning By-law 500A-74, as amended) on the subject lands shown on ‘Map A’ attached hereto:
- The agricultural-related uses identified in paragraph 2 shall occupy no more than 5% of the total maximum lot coverage on the lands shown on Map ‘A’ attached hereto.
6. In addition to the corresponding provisions of Section 3.19 of Zoning By-law 500A-74, as amended, the following provisions shall apply to the subject lands zoned “Rural (A) Holding (H) Zone - Site Specific Zone” shown on ‘Map A’ attached hereto:
- Off-street parking shall be provided at the following rates:
 - Minimum of one (1) parking space per 185 square metres of Farm Produce Storage Building;
 - Minimum of one (1) parking space per 130 square metres of Agricultural Equipment Storage; and
 - Maximum of 50 parking spaces and 2 loading bays for all agricultural-related uses.
7. Notwithstanding Section 3.15 (d) of Zoning By-law 500A-74, as amended, a loading bay may be located within 80 feet (24.35 m) of a street line if the loading bay is wholly located within a building.
8. Development and site alteration of the subject lands identified as “Rural (A) Holding (H) Zone - Site Specific Zone” on ‘Map A’ attached hereto shall only be permitted

upon removal of the Holding (“H”) Symbol, requiring the approval of Niagara Region and Town staff of any proposed Small Subsurface Sewage Disposal System. Upon the submission of required documents related to private sewages system servicing, the “H” symbol of the By-law shall be removed.

9. All other provisions of Zoning By-law 500A-74, as amended, shall continue to apply to the subject lands.

10. That the effective date of this By-law shall be the date of final passage thereof.

READ A FIRST, SECOND AND THIRD TIME THIS 28TH DAY OF APRIL, 2026.

LORD MAYOR GARY ZALEPA

TOWN CLERK GRANT BIVOL

DRAFT



MAP 'A' ATTACHED TO BY-LAW 500YU-26 BEING AN AMENDMENT TO SCHEDULE "A" OF ZONING BY-LAW 500A-74, AS AMENDED, OF THE TOWN OF NIAGARA-ON-THE-LAKE AS PASSED ON THIS 28th DAY OF APRIL, 2026.

**LORD MAYOR
GARY ZALEPA**

**TOWN CLERK
GRANT BIVOL**



AGRICULTURAL COMMITTEE MINUTES

March 16, 2026, 1:00 p.m.

Members Present: Councillor Sandra O'Connor, Councillor Erwin Wiens, Kai Wiens - Chair, John Fedorkow, Kathryn Hoshkiw, George Lepp, Albrecht Seeger, John Thwaites, Chris Van de Laar

Staff Present: Aimee Alderman – Director - Planning, Building & Development Services, Brad Disher - Chief Fire Prevention Officer, Connor MacIsaac - Planner II, Fiona Main - Senior Policy Planner, Shannon Mista - Legislative and Committees Coordinator, Dylan Skubel, Fire Prevention and Public Education Officer.

1. CALL TO ORDER

The meeting was called to order by Kai Wiens, Chair at 1:00 p.m.

2. ADOPTION OF AGENDA

Moved by: Chris Van de Laar

Seconded by: John Fedorkow

That the agenda be adopted as presented.

APPROVED

3. CONFLICT OF INTEREST

None were declared.

4. PREVIOUS MINUTES

4.1 Wednesday, September 10, 2025

Councillor O'Conner, inquired if Staff incorporated the motion; That staff look at the 2017 Official Plan and pull as much information as possible from this plan for the 2025 Official Plan and; That staff align with the Niagara Region Official Plan section 4.1.1.5 as closely as possible were

completed and followed through with for the Official Plan and the site alteration by-law.

Kia Wiens, Chair, provided an update on Bill 21, Protect Our Food Act, 2025 and Regional Housing Inspection Fees.

Chris Van de Laar, provided an update on the Road Quality.

Moved by: Albrecht Seeger

Seconded by: George Lepp

The September 10, 2025, minutes were received.

APPROVED

5. BUSINESS

5.1 Burn Permits

The Committee asked clarifying questions and provided feedback for Brad Disher, Chief Fire Prevention Officer, and Dylan Skubel, Fire Prevention and Public Education Officer.

5.2 Irrigation - Line 2 Extension

Kai Wiens, Chair, provided the Committee with an overview of the memorandum.

5.2.1 Memo re: Line 2 Road Allowance

Moved by: Chris Van de Laar

Seconded by: John Fedorkow

That the Committee receive the memorandum.

APPROVED

5.3 Amalgamation

Kai Wiens, Chair, gave an overview of why he wanted to bring forward this motion.

5.3.1 Motion

Moved by: Kathryn Hoshkiw

Seconded by: John Thwaites

That any future discussions regarding potential amalgamation include the agricultural community to ensure the unique forms of agricultural lands in Niagara-on-the-Lake are represented and protected, and;

That the Minister of Agriculture and the Minister of Rural Affairs, along with the Minister of Municipal Affairs be included in any advocacy efforts.

APPROVED

5.4 263 Concession 6 Road - Policies Feedback within OMAFRA Guidelines

The Committee discussed the OMAFRA Policies and Guidelines for this application, in detail and asked clarifying questions of the presenters.

The Committee also provided feedback to Staff on the policies of OMAFRA for the use of the land application.

5.4.1 Eric Brathwaite - MHBC - Planning Application History

Eric Brathwaite, Associate from MHBC presented on the history of the application for 263 Concession 6 Road.

5.4.2 John Liotta - Colville Consulting - OMAFRA Guidelines

John Liotta, Consultant from Colville Consulting presented on the OMAFRA policies and guidelines for the application located at 263 Concession 6 Road.

6. ADJOURNMENT

Moved by: Albrecht Seeger

Seconded by: John Thwaites

That the Niagara-on-the-Lake Agriculture Committee hereby adjourns sine die on March 11, 2026, at 2:53 p.m.

APPROVED

Connor Maclsaac

From: Drake, Anna (OMAF)
Sent: March 11, 2026 2:08 PM
To: Connor Maclsaac
Cc: Aimee Alderman, MSc, MCIP, RPP; Shannon Mista
Subject: RE: ZBA-18-2024 - 263 Concession 6 Road - OMAFA Input Request - Follow-up

CAUTION: This email originated from outside the Town of Niagara-on-the-Lake. Use caution when clicking on a link or opening an attachment, unless you were expecting it or know that the content is safe. Forward the email to IT to validate.

Hello Connor,

Thank you for your patience on this. I have made some notes related to our guidance as outlined below:

A use qualifies as an ag-related use where it meets OMAFA's criteria in OMAFA's [Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas](#). The six criteria assess whether a use is:

1. a farm-related commercial or farm-related industrial use,
2. compatible with and not hindering surrounding agricultural operations,
3. directly related to farm operations in the area,
4. supportive of agriculture,
5. providing direct products and/or services to farm operations as a primary activity, and
6. benefiting from being located in close proximity to farm operations.

These considerations align with the 2024 PPS definition of *agriculture-related use* and should be applied together with your municipal context and any other applicable provincial plans and policies.

Based on a preliminary, high-level review of the materials provided, I have provided a few additional points of consideration based on OMAFA's [Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas](#) criteria that may further support your assessment of whether this proposal meets the intent of an agriculture-related use.

1. Farm-related commercial and farm-related industrial use

- Consider whether the proposed use adds value to agricultural operations and production in the surrounding area and/or if the use creates a new opportunity for agricultural commodities grown in the area.

2. Shall be compatible with, and shall not hinder, surrounding agricultural operations

- Compatibility should be assessed both on the subject property and across the broader area where impacts may occur. The use must not hinder normal farm practices or introduce conflicts with nearby agricultural activities, such as sensitivities to livestock facilities or increases in noise, light, dust, or traffic that may affect farm operators or livestock. Any potential impacts should be avoided or mitigated.

- Consider the cumulative effect of introducing another agriculture-related use to ensure that agricultural and rural character are not undermined and that rural infrastructure is not adversely affected.
- Prime agricultural areas should remain dedicated to farming and protected for future generations. Only minimal land should be removed from current or future production, with attention to long-term (multi-generational) effects. Uses should maintain rural character, support continued normal farm practices, contribute positively to the agricultural sector, and require servicing appropriate to a rural agricultural context (e.g., rural road access, water, emergency services).

3. Directly related to farm operations in the area

- Consider the types of agricultural operations surrounding the property and assess whether the proposed use is directly related to those operations. The use should primarily provide products or services associated with, required by, or that enhance agricultural operations in the immediate area.
 - Does the proposed use meet a need or enhance existing farm operations in the area?

4. Supports agriculture

- Consider whether the primary focus of the use is to support agriculture or if there will be a general use component. Will farm operators be the primary customers, and will this component provide a benefit to their operations?
- Farmers' markets must primarily sell agricultural products grown in the area to be considered an agricultural use. Markets selling a mix of local and non-local produce, baked goods, coffee, or crafts may still qualify as agriculture-related if the majority of goods sold are agricultural commodities grown in the surrounding area.

5. Provides direct products and/or services to farm operations as a primary activity

- Consider whether the proposed use will primarily serve farmers in the area, or whether it will also cater to a broader customer base. General-purpose uses are not agriculture-related, even if farmers are among their customers.
- Businesses that sell or repair farm implements alongside general-consumer product lines (e.g., lawn mowers, snow blowers, other equipment, toys, clothing) should be directed to settlement areas, rural lands, or lower-priority agricultural lands.
- Municipalities should require evidence demonstrating that servicing farm operations will be the primary business activity (e.g., customers primarily being local farm operators or inputs sourced from the area). As a best practice, municipalities may also seek evidence that the use cannot be reasonably located in a settlement area or rural lands.

6. Benefits from being in close proximity to farm operations

- Some farm implement dealerships and repair shops have located in prime agricultural areas due to proximity to customers. Under current PPS policy, such uses may be justified only if their primary business activity is serving local farm operations and all other criteria are met.
- Many general-purpose and agriculture-related uses are more appropriately located within nearby hamlets, villages, and towns. If the proposal includes a general-purpose component, consider whether it would be better suited to a settlement area.

Lot creation in prime agricultural areas are discouraged. While the PPS does allow severances for agriculture-related uses, provided that any new lot will be limited to a minimum size needed to

accommodate the use and appropriate sewage and water services. Consider whether existing properties in the prime agricultural area could accommodate the proposed use, thereby avoiding the creation of a new lot. For example, a site previously used for another agriculture-related use may be available. Locating a new agriculture-related use on an existing lot of record is generally preferred over creating a new lot in a prime agricultural area.

I hope this can be helpful in providing further points of consideration. Let me know if there are any further questions.

Thanks,

Anna Drake

Anna Drake

Rural Planner | Agricultural Land Use Planning
Ministry of Agriculture, Food and Agribusiness | Ontario Public Service



Taking pride in strengthening Ontario, its places and its people

From: Connor MacIsaac
Sent: March 6, 2026 10:59 AM
To: Drake, Anna (OMAF)A
Cc: aimee.alderman [REDACTED]; Shannon Mista [REDACTED]
Subject: RE: ZBA-18-2024 - 263 Concession 6 Road - OMAFA Input Request - Follow-up

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Anna,

Town staff would be welcoming of any of input on OMAFA Policy as it relates to the application, as directed by Council's motion.

Best,

Connor MacIsaac
Planner II

Town of Niagara-on-the-Lake
1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
Telephone: (905) 468-3266
Website: www.notl.com

From: Drake, Anna (OMAF) [REDACTED]
Sent: March 6, 2026 10:02 AM
To: Connor MacIsaac [REDACTED]
Cc: Aimee Alderman, MSc, MCIP, RPP [REDACTED]; Shannon Mista [REDACTED]
Subject: RE: ZBA-18-2024 - 263 Concession 6 Road - OMAFA Input Request - Follow-up

CAUTION: This email originated from outside the Town of Niagara-on-the-Lake. Use caution when clicking on a link or opening an attachment, unless you were expecting it or know that the content is safe. Forward the email to IT to validate.

Hi Connor,

I just wanted to confirm the clarification you're looking for regarding your question:

“My question is, would OMAFA staff have any input on the application of the relevant policy in Town staff’s policy evaluation, specifically with regard to Town staff’s evaluation of the proposal against OMAFA’s Publication 851: Guidelines on Permitted Uses in Ontario’s Prime Agricultural Areas.”

Are you looking for guidance on which sections of the Guidelines may be relevant in determining whether this application could be considered an agriculture-related use?

If so, I can certainly provide additional clarification on the guidance that would be applicable to your review. While we cannot determine or confirm whether a specific proposal is or is not an agriculture-related use, that determination rests with the municipality, we can highlight the relevant sections of Publication 851 that can assist Town staff in making that evaluation.

Let me know if this is what you were looking for or if I am misunderstanding the request.

Thanks,

Anna

Anna Drake

Rural Planner | Agricultural Land Use Planning
Ministry of Agriculture, Food and Agribusiness | Ontario Public Service



Taking pride in strengthening Ontario, its places and its people

From: Connor MacIsaac
Sent: March 5, 2026 11:36 AM
To: Drake, Anna (OMAF)

Cc: aimee.alderman [REDACTED]; Shannon Mista [REDACTED]
Subject: RE: ZBA-18-2024 - 263 Concession 6 Road - OMAFA Input Request - Follow-up

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Anna,

I would like to follow-up on the below request to OMAFA staff as directed by Town Council. Please let me know if there is any additional information that I can provide.

Best,

Connor Maclsaac
Planner II

Connor.Maclsaac@notl.com

Town of Niagara-on-the-Lake
1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
Telephone: (905) 468-3266
Website: www.notl.com

From: Connor Maclsaac
Sent: February 26, 2026 1:41 PM
To: [REDACTED]
Cc: Aimee Alderman, MSc, MCIP, RPP [REDACTED]; Shannon Mista [REDACTED]
Subject: ZBA-18-2024 - 263 Concession 6 Road - OMAFA Input Request

Hi Anna,

I am a planner with the Town of Niagara-on-the-Lake and have been the planner on file for the above referenced Zoning by-law amendment application. The applicant requests to rezone a portion of the subject lands to "Rural (A) Site-Specific" Zone to permit a variety of agricultural-related uses, including an Agricultural Equipment Storage Facility, a Farm Produce Storage Facility, an Agricultural Market and associated offices, asphalt parking area, site entrances, and private servicing facilities. The remainder of the property is proposed to be rezoned to an Open Space (OS) zone. The application materials are posted to the Town's website here: [263 Concession 6 Road - ZBA-18-2024 | Town of Niagara-on-the-Lake](#)

At the February 24th, 2026 Town Council meeting, Town Council passed the motion put forth at the Town's February 3rd, 2026 Committee of the Whole-Planning meeting, which directed staff to receive input from OMAFA on the application regarding conformity with the relevant policy.

My question is, would OMAFA staff have any input on the application of the relevant policy in Town staff's policy evaluation, specifically with regard to Town staff's evaluation of the proposal against OMAFA's Publication 851: Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas. Town staff's evaluation of the relevant policies is summarized in the Staff Recommendation Report which can be found under Item 9.3 here: [Committee of the Whole - Planning - February 03, 2026](#)

Based on OMAFA's land staff coverage map, I believe you are the rural planner responsible for the Town of Niagara-on-the-Lake, but please point me in the direction of the relevant OMAFA staff as required.

Please also let me know if there is any additional information that I can provide.

Best,

Connor MacIsaac
Planner II

Town of Niagara-on-the-Lake
1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
Telephone: (905) 468-3266
Website: www.notl.com

NOTICE: This e-mail message (including all attachments) and any printed, copied, saved or other renditions of it or of any part of its contents is confidential and is intended only for the use of the recipient(s) named above, and may be legally privileged. If the reader of this message is not the intended recipient, you are hereby notified that any review, printing, dissemination, distribution, disclosure, or copying of this communication, or any of its contents, is strictly prohibited. If you have received this communication in error please 'Reply to Sender' immediately and erase and delete this entire e-mail and delete and destroy any printed, copied, saved or other renditions of it immediately.

NOTICE: This e-mail message (including all attachments) and any printed, copied, saved or other renditions of it or of any part of its contents is confidential and is intended only for the use of the recipient(s) named above, and may be legally privileged. If the reader of this message is not the intended recipient, you are hereby notified that any review, printing, dissemination, distribution, disclosure, or copying of this communication, or any of its contents, is strictly prohibited. If you have received this communication in error please 'Reply to Sender' immediately and erase and delete this entire e-mail and delete and destroy any printed, copied, saved or other renditions of it immediately.



Town of Niagara-on-the-Lake

1593 Four Mile Creek Road
P.O. Box 100, Virgil, ON L0S 1T0
905-468-3266 www.notl.com

REPORT #: CPS-26-009 **COMMITTEE DATE:** 2026-04-21
REPORT TO: COTW-General **DUE IN COUNCIL:** 2026-04-28
SUBJECT: Pickleball Courts – Update and Next Step

1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 Council **RECEIVES** Report CPS-26-009;
- 1.2 Council **APPROVE** reimbursement to the Niagara-on-the-Lake Pickleball Club for costs related to sound mitigation measures, totaling \$13,748.17, at the Virgil Sports Park Pickleball courts, funded from the Capital Reserve; and,
- 1.3 Council **DIRECT** Staff to review and consider land use permissions for Pickleball within the Town's Zoning By-laws.

2. EXECUTIVE SUMMARY

- The report provides an update on the closure of the Virgil Sports Park pickleball courts for the 2026 season and outlines next steps, including identifying alternative play opportunities.
- Indoor and outdoor pickleball options remain available locally and in nearby municipalities, with staff coordinating with the Pickleball Club and Niagara Parks Commission to expand access.
- Future municipal court development is challenged by noise impacts on nearby residents, with current parks lacking suitable buffer distances.
- Staff recommend reimbursing the Niagara-on-the-Lake Pickleball Club \$13,748.17 for prior contributions to noise mitigation at the now-closed courts.

3. PURPOSE

The purpose of this report is to provide Council with an update regarding staff actions and steps taken in relation to the closure of the Virgil Sports Park Pickleball courts. Additionally, this report identifies alternative opportunities and future considerations.

4. BACKGROUND

At its February 2026 Committee of the Whole meeting, Council considered the future of the pickleball courts at Virgil Sports Park. Due to litigation or potential litigation concerns, these discussions occurred in Closed Session in accordance with the *Municipal Act, 2001*.

Following these discussions, Council directed that the courts remain closed for the 2026 outdoor season and that Staff identify alternative outdoor locations to support pickleball play.

5. DISCUSSION / ANALYSIS

As a result of the Council's direction, Staff undertook a review of what opportunities exist for community members to continue to play indoor and outdoor Pickleball within Niagara-on-the-Lake and within our neighbouring municipalities. Staff also began to understand what future opportunities exist within the community for municipally owned courts; engaged with the local Niagara-on-the-Lake Pickleball Club; and sought to further understand the impacts of pickleball on the surrounding neighbourhoods.

Existing Pickleball Opportunities

- **Indoor:** Opportunities to play Pickleball remain available within Niagara-on-the-Lake. Indoor options currently include booking time at the Town's Community Center for public use, or joining the Niagara-on-the-Lake Pickleball Club and participating in its scheduled indoor times. The club currently uses the community center and other local facilities that are able to accommodate indoor play. Staff reviewed to determine whether the Town's arenas might be suitable for indoor play; however, the complexity of installing and maintaining the required lines and competing pad time with other user groups has proven difficult to coordinate. Other indoor pay-to-play opportunities also exist within both Niagara Falls and St. Catharines.
- **Outdoor:** At this time, the Niagara Parks Commission owns and operates four outdoor pickleball courts within Niagara-on-the-Lake. They are located at Queenston Heights Park, within Queenston. These courts are not free; however, seasonal memberships or daily rental options are available. The 2026 rates are \$65 for a season pass that includes parking, or \$5 for drop-in play.

In Niagara Falls, a new 6-court complex was built, within a 10-minute drive of the Niagara-on-the-Lake Border. Additionally, Niagara Falls offers 10 other municipal parks that contain dual-lined courts able to accommodate both pickleball and tennis. All these courts are operated on a first-come, first-served basis.

St. Catharines also offers 9 outdoor courts on a first-come, first-served basis. Several other courts are located in other regional municipalities, with further information available on their respective webpages.

Stakeholder Coordination

To assist with a coordinated approach, staff have engaged with representatives of the Parks Commission and the Niagara-on-the-Lake Pickleball Club to bring the two organizations together to discuss what mutually beneficial opportunities may exist. Following a meeting between Town Staff and the Parks Commission, where contact information was shared for further follow-up, the Town stepped back, allowing the Parks Commission to reach out and discuss.

The Town further worked with the Pickleball Club to identify additional opportunities to play indoors at the Community Center.

Future Opportunities for Pickleball

At this time, staff have reviewed various articles and datasets to determine an appropriate distance to place a Pickleball court from a residential area, with the goal of reducing noise conflicts. While nearly all available information and studies are not scientific, there is general consensus that it may be most appropriate to locate a Pickleball court a few hundred metres from a nearby residential area. Staff have reviewed our current parks and, so far, concluded that an ideal location for a court that would provide between 200 and 500 metres from residences is not available without disrupting current sports fields or amenities. As future parks are built and staff consider renewal opportunities within existing parks, Pickleball court opportunities can remain a focus.

To assist further with ensuring future Pickleball courts are placed adequately and in proper locations, Staff are recommending a review of Town zoning provisions be conducted to assess appropriate locations for the future installation of pickleball courts. As the Town has seen a slight increase in residents wanting to build courts on their private property, the preparation of specific provisions related to pickleball will also help to ensure minimal disruption to neighbouring lots.

Reimbursement of Sound Mitigation Measures

When the Virgil Sports Park Pickleball courts reopened in the summer of 2024, the Town completed a capital project to install noise-reducing panels. At the time, the Niagara-on-the-Lake Pickleball club contributed \$13,748.17 as a donation towards the project. With the closure of these courts, the Club has inquired about having the donation returned. Staff have reviewed and find this request reasonable.

6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

Pillar

1. Vibrant & Complete Community

Priority

1.2 Economic Development & Community Partnerships

Action

1.2 b) Community Partnership

Pillar

1. Vibrant & Complete Community

Priority

1.3 Strategies & Masterplans

Action

1.3 a) Strategies & Masterplans

7. OPTIONS

7.1 **Option 1:** Receive Report, Approve Reimbursement to the Niagara-on-the-Lake Pickleball Club, and direct staff to review and consider land use permissions for

- Pickleball within the Town's Zoning By-laws. **(Recommended)**
- 7.2 **Option 2:** Receive this Report, Do Not Approve Reimbursement; however, direct staff to review and consider land use permissions for Pickleball within the Town's Zoning By-laws. *(Not Recommended)*
- 7.3 **Option 3:** Receive this Report, Do Not Approve Reimbursement and do not direct staff to take further action towards the future of pickleball within Niagara-on-the-Lake. *(Not Recommended)*

8. FINANCIAL IMPLICATIONS

Reimbursement to the Pickleball Club in the amount of \$13,748.17 is proposed to be drawn from the Capital Reserve.

9. ENVIRONMENTAL IMPLICATIONS

There are no direct environmental impacts associated with this report. Future site evaluations will consider environmental and land use compatibility as part of any proposed pickleball facility developments.

10. COMMUNICATIONS

Given the high level of community interest, ongoing communication will remain important. The Town will continue to provide updates through established communication channels as Staff advance work related to alternative locations and long-term solutions.

11. CONCLUSION

Pickleball remains an important recreational activity in Niagara-on-the-Lake, with growing participation throughout the community. Council's direction to close the Virgil Sports Park courts for the 2026 season reflects the need to balance recreational opportunities with neighbourhood compatibility and evolving best practices.

Reimbursement for noise-reducing panels (\$13,748.17) recognizes the efforts made by the Pickleball Club, while ongoing collaboration and continued analysis will support the identification of appropriate long-term solutions.

12. PREVIOUS REPORTS

N/A

13. APPENDICES

N/A

Respectfully submitted:

Prepared by:



Jay Plato
Director / Fire Chief
Community & Protective Service

Submitted by:



Nick Ruller, M.A.
Chief Administrative Officer

The Corporation of the Town of Niagara-on-the-Lake Information Report to Council

SUBJECT: Tree Canopy Coverage and Planting Initiatives
DATE: 2026-04-21
REPORT #: OPS-26-009
PREPARED BY: Kassie Burns, Climate Change Coordinator
DEPARTMENT: Public Works & Infrastructure Services

BACKGROUND INFORMATION

In 2025, the Niagara Region released its *Tree and Forest Canopy Summary Report*, identifying Niagara-on-the-Lake as having the lowest overall canopy cover in the Region at 18.0%, compared to the Regional average of 25.0%. Notable variation exists within the Town's urban areas, with Queenston recording the highest canopy cover at 46.0%, ranking first in both the Town and the Region's urban areas, while Glendale has the lowest urban canopy at 13.0%.

Following the report's release, Town Council and Staff sought clarification regarding data sources and methodology, particularly the inclusion of orchards and vineyards, which represent a significant portion of Niagara-on-the-Lake's landscape, and a comparison of urban versus rural canopy coverage. The Region confirmed that orchards and fruit trees were included, accounting for 4.2% of the Town's total canopy cover, with the remaining 13.8% classified as general canopy. Vineyards were excluded, as the study only measured trees over one metre in height with a crown width exceeding one metre.

The Region also provided an urban and rural breakdown. Niagara-on-the-Lake's average urban canopy cover is 24.8%, exceeding the Regional urban average of 23.8%, while rural canopy cover in Niagara-on-the-Lake is 17.3% and below the Regional average. These findings indicate that while Niagara-on-the-Lake's overall canopy cover appears low when urban and rural areas are combined, the Town's urban canopy performs well relative to other municipalities.

Further analysis by Staff using the 2024 Annual Crop Inventory (Open Government Portal) shows that 64.9% of Niagara-on-the-Lake's land base is agricultural (including orchards and vineyards), 13.2% consists of natural assets, 19.9% is urban area, and 2.0% is barren land. Given the dominance of agriculture, particularly vineyards that were not captured in the Regional analysis, the Town's overall canopy percentage in the report does not fully reflect its landscape context. While disparities remain among urban areas, Glendale's ongoing development presents opportunities to improve canopy equity through future planting and greening initiatives.

Tree Planting and Joint Procurement

In late 2025, the Niagara Region announced a joint procurement initiative for tree planting and maintenance services. The Town confirmed participation for 2027 and 2028, with an optional two-year extension to 2030. The Region released its Request for Proposal in February 2026, and Town Staff participated on the evaluation committee to select qualified contractors.

Using the approved tree planting budget and Tree Fund, the Town plans to plant approximately 150 trees, 75 in 2027 and 75 in 2028, at an estimated cost of \$800 per tree. This cost includes tree supply, installation, and a three-year maintenance and warranty period, encompassing watering, mulching, weeding, and the replacement of trees that do not survive within the warranty period. This approach is more cost-effective than the current model of approximately \$1,000 per tree with Staff installation and no ongoing maintenance. The three-year maintenance period is critical to tree survival and will increase canopy growth while reducing the likelihood of tree mortality. Use of contractors will also allow Town Staff to focus on other priorities during these years.

NEXT STEP / CONCLUSION

Town Staff are developing a clear public narrative that reflects Niagara-on-the-Lake's unique identity is rooted in its agricultural landscape, with 65% of the Town's land dedicated to vineyards, orchards, and farms. With much of the land dedicated to farming, the Town is focusing on thoughtful, well-placed tree planting to enhance canopy cover while celebrating the agricultural landscape.

Staff will continue to support the joint procurement process and use Regional canopy data alongside an upcoming Town tree inventory, scheduled to begin Spring 2026, to guide planting priorities for 2027 and 2028. The tree inventory will provide detailed, individual tree-level information on town-owned and managed trees and will complement the Natural Asset Inventory and Assessment. Together, these datasets will help establish canopy targets, identify gaps, prioritize equitable planting locations, and inform species selection for diversity and climate resilience. The information collected will support the development of the Town's first Urban Forestry Management Plan, which is being undertaken in 2026.

Tree planting initiatives will continue in 2026 with support from the Niagara Peninsula Conservation Authority's Trees for All program, funded through the federal 2 Billion Trees program. Town Staff are coordinating with the Conservation Authority to facilitate the planting of approximately 600 trees on Town-owned property.

Through the joint procurement process, Staff will continue to plan planting and maintenance at an estimated cost of \$800 per park or street tree and will assess future budget needs beyond 2028 as planting priorities become more defined. Tree planting locations will be prioritized by sites ranked from lowest to highest canopy cover, as well as identified sites requiring tree removal and replacement to prevent net canopy loss.

Finally, Staff will continue to pursue funding and partnership opportunities aligned with the Town's environmental priorities. Through these combined efforts, Niagara-on-the-Lake is well-positioned to enhance both urban and rural canopy cover and advance sustainability, environmental, and climate resilience objectives.

ATTACHMENTS

- Appendix I – Niagara Region Tree and Forest Canopy Summary Report (2024)
- Appendix II – Niagara-on-the-Lake Land Usage Map

Tree and Forest Canopy Summary Report

2024

Land Acknowledgement

Niagara Region is situated on treaty land. This land is steeped in the rich history of the First Nations such as the Hatiwendaronk, the Haudenosaunee and the Anishinaabe, including the Mississaugas of the Credit First Nation.

There are many First Nations, Métis, and Inuit from across Turtle Island that live and work in Niagara today. Niagara Region stands with all Indigenous peoples, past and present, in promoting the wise stewardship of the lands on which we live.

What's inside

01

Introduction 4

02

Methodology 8

03

Regional Canopy Cover and Land
Cover Classification 10

04

Distribution of Canopy Cover 14

05

Canopy Benefits 28

06

Challenges 30

07

Niagara's Changing
Tree And Forest Canopy 32

08

Conclusion 36

Introduction

Niagara's landscape is rich in diversity, encompassing a blend of urban and rural areas along with a variety of natural features such as woodlands, wetlands, beaches, and grasslands.



However, like numerous municipalities across Ontario, this diverse landscape and the interconnected human and ecological systems it supports are confronting escalating challenges.

Escalating challenges



Growing population demands



Intensifying development pressures



Transformation by a changing climate

Boosting wellbeing and sustainability

Trees contribute positively to physical and mental well-being. Developing a robust tree canopy is crucial for enhancing the sustainability and livability of Niagara.

Understanding Tree and Forest Canopies

Tree and forest canopy means the amount of ground area that is covered by the branches, leaves, and overall crown of the trees when viewed from above.



As these issues persist, the role trees and forests have in fostering a healthy and resilient region becomes increasingly important.

As integral components of Niagara's green infrastructure, trees deliver a wide array of ecosystem services.

Niagara's green infrastructure depends on trees to provide environmental benefits

- 1 Provide shade and shield from wind
- 2 Regulate summer temperatures
- 3 Assist in effective stormwater management
- 4 Store and sequester carbon
- 5 Filter airborne pollutants
- 6 Safeguard water quality
- 7 Support biodiversity by providing habitats for various species
- 8 Stabilize soils and prevent erosion

How to help our trees

Plant native trees, protect existing trees, water young trees during periods of low rainfall, protect tree stems and roots from damage during construction and landscaping, respect tree by-laws, participate in community tree planting events, consider transplanting instead of removing trees.

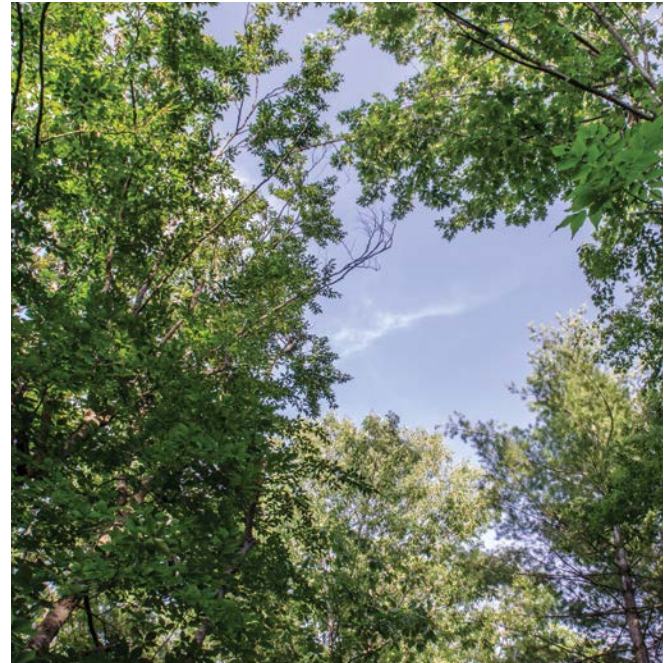
Data from the Tree and Forest Canopy Assessment

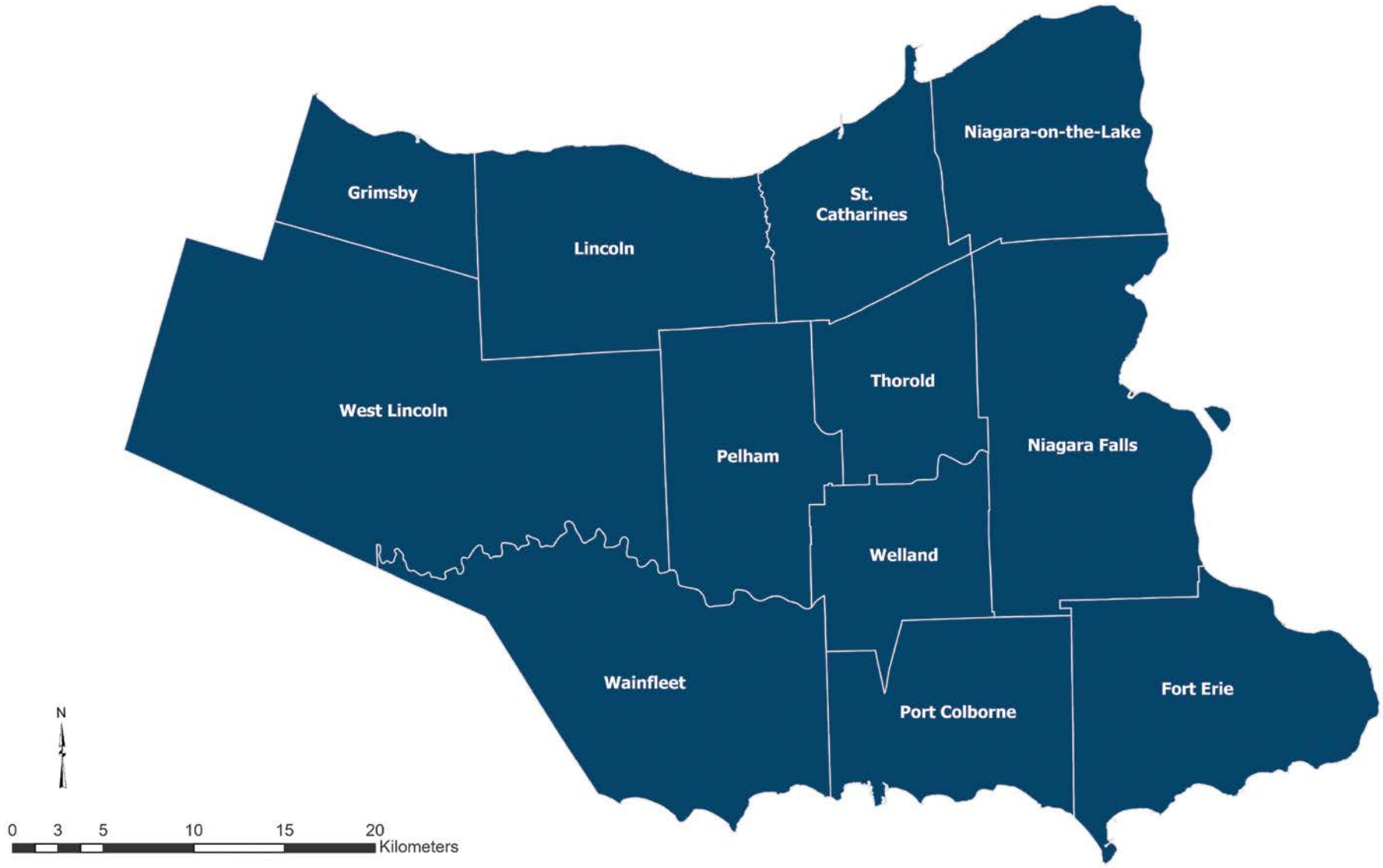
To gain a deeper understanding of the current state of the canopy, Niagara Region undertook an assessment to quantify and map the tree and forest canopy cover across the region.

This assessment encompasses not only larger forested areas, but also smaller groups and individual trees, such as boulevard and yard trees.

The data gathered through the assessment serves as a baseline measure of the region's canopy coverage. It offers insights into the ecological services and benefits provided by the region's tree and forest vegetation.

This data identifies areas of dense canopy cover and areas that may require conservation efforts or tree planting initiatives. It plays a vital role in understanding habitat availability and connectivity for wildlife species. Ultimately, this information will be instrumental in guiding sustainable land use planning and implementing practices that promote environmental stewardship.





Map 01 Niagara Region Municipal Boundaries

- Municipal Boundaries

Methodology

In 2023, the Tree and Forest Canopy Assessment used LiDAR and Orthoimagery from 2020 and 2021 to understand the coverage of trees and land classification within Niagara Region.



Understanding Orthoimagery and Light Detecting and Ranging (LiDAR)

Orthoimagery provides detailed aerial views of the landscape that have been processed to remove distortions and allow uniform measurements of distance across the image, enabling identification of land features and classes.

Light Detecting and Ranging (LiDAR) uses laser pulses to create highly accurate 3D maps of the terrain, which can be used to measure the height and density of vegetation.

Data Integration and Analysis

Using Geographic Information System software and classification techniques, this data was integrated and analyzed to generate a one-metre, raster-based dataset identifying land cover classifications for the entire Niagara region. Raster data allows for detailed maps to illustrate the distribution of these land classifications across the landscape.

Benefits of mature trees

A City of Toronto study titled “Every Tree Counts” compared the environmental performance of a 2.54 centimetres in diameter tree to a 76.2 centimetres diameter tree. The larger, mature tree was able to intercept ten times as much air pollution, store up to 90 times more carbon, and possess a leaf area as much as 100 times the size. Most trees take 20-30 years to mature depending on the type, the surrounding conditions like the climate and seasons, and how well you care for them.



The tree and forest canopy assessment categorized each one square metre pixel into one of six land cover classes

These land cover classes represent a top-down perspective of the landscape.

For example, areas where two classes overlap, such as tree canopy over a road, only the tree canopy is included in the land cover classification.

This method allowed for a comprehensive and systematic analysis and visualization of the spatial data.



Tree and forest Canopy



Buildings



Impervious cover



Soil and bareland



Water bodies



Grass and non-treed vegetation

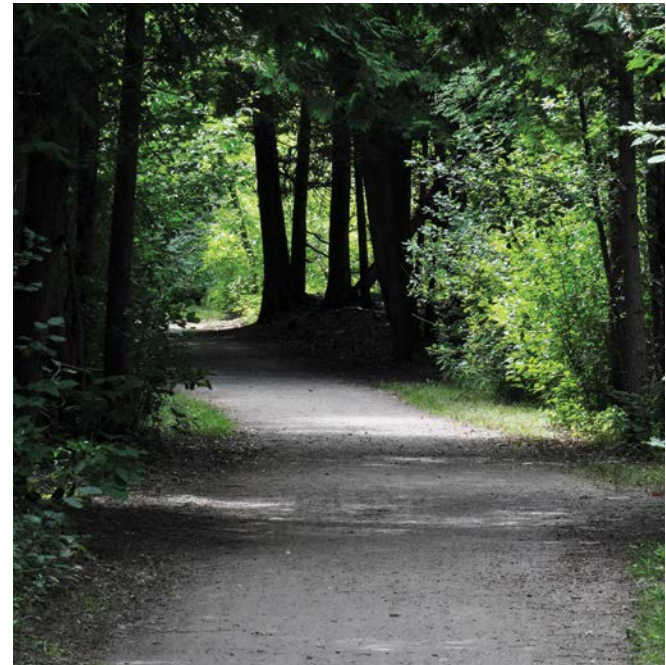
Regional Canopy Cover and Land Cover Classification

The tree and forest canopy assessment results indicate that 46,789 hectares of the region is covered by tree canopy, accounting for 25.4 per cent of the region's total land area.

This data serves as a baseline for future evaluation of growth or decline in regional canopy.

While total tree canopy coverage is a key outcome of the tree and forest canopy assessment, information about the other land classes also offers valuable insights into vegetation cover and land use.

The full breakdown of land classifications across the region are **on page 12**.





Map 02

Niagara Region Tree and Forest Canopy

- Tree and forest canopy
- Municipal boundaries

Land Classification Breakdown



25.4%

Tree and forest canopy

Tree and forest canopy account for 25.4 per cent of the region's total land area. This equates to a total of 46,789 hectares of area covered by tree canopy.



6.1%

Impervious cover

Covers 6.1 per cent of the region's land area. Including constructed surfaces that prevent the infiltration of water into the soil. They include paved areas, such as roads, sidewalks, driveways and parking lots. These surfaces serve as critical indicators of urbanization and development.



39.3%

Soil and bareland

Makes up the largest land cover class at 39.3 per cent and includes agricultural lands.

Although this class incorporates some non-agricultural bare soil area like construction sites, it also underscores the substantial agricultural presence in the region.



26.7%

Grass and non-treed vegetation

Covers 26.7 per cent of the region's land area. Including manicured grass, pasture, shrubs, and all non-treed vegetation less than three meters in height. These areas provide various environmental benefits, including soil erosion control and improved water infiltration, while also enhancing the aesthetic appeal of the landscape.

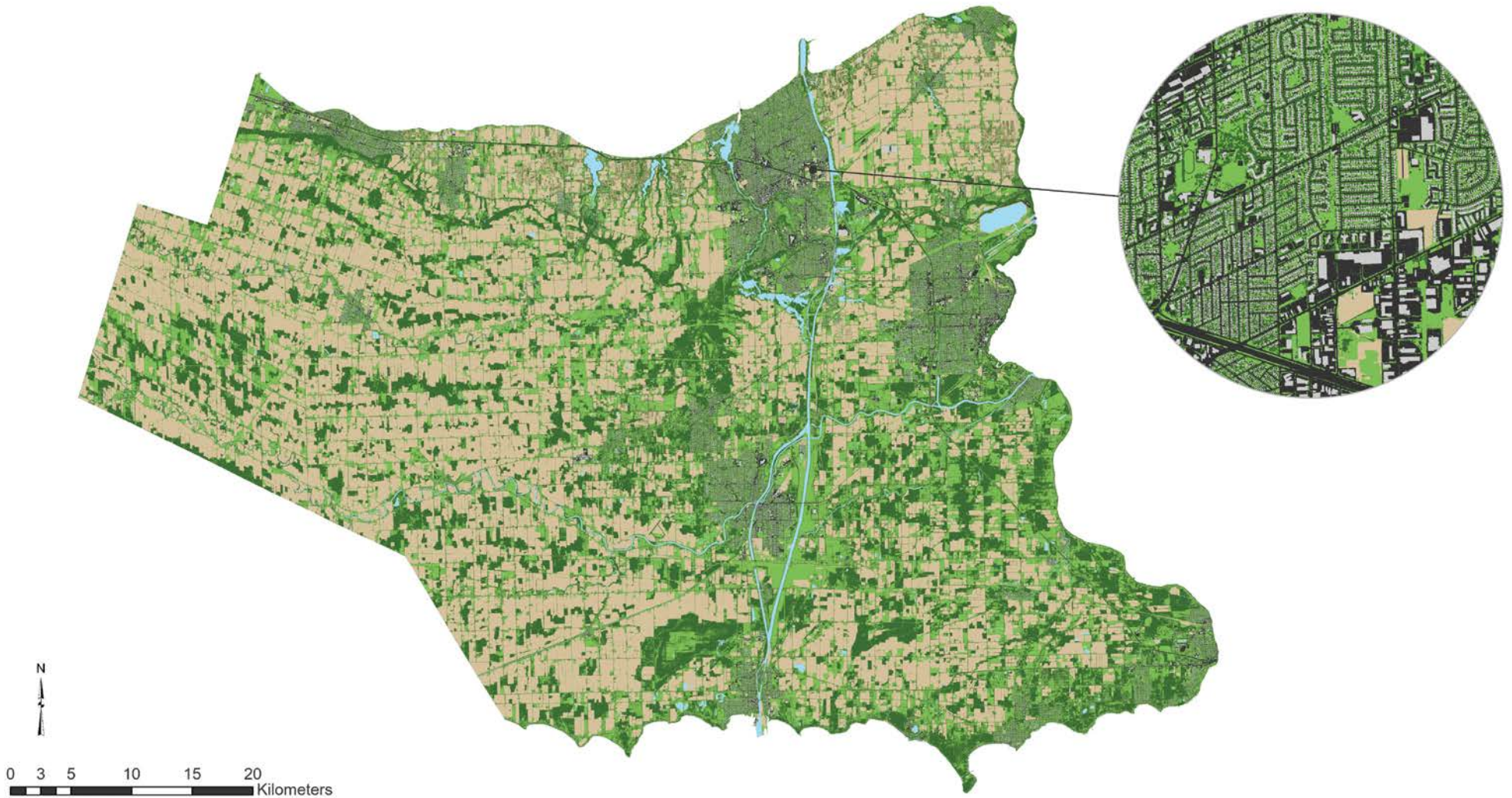


2.5%

Buildings

Occupy 2.5 per cent of the region's land area.

These surfaces, serve as critical indicators of urbanization and development.



Map 03 Niagara Region Land Classification

03

- Tree and forest canopy
- Impervious cover
- Grass and non-treed vegetation
- Soil and bareland
- Buildings

Distribution of Canopy Cover

The distribution of tree and forest canopy coverage across the region is not uniform, due to variations in landscape characteristics and land use patterns

Examples of factors that impact the landscape:

- 1 Urbanization
- 2 Agricultural Activities
- 3 Natural Features

As a result, certain areas have denser tree coverage than others.

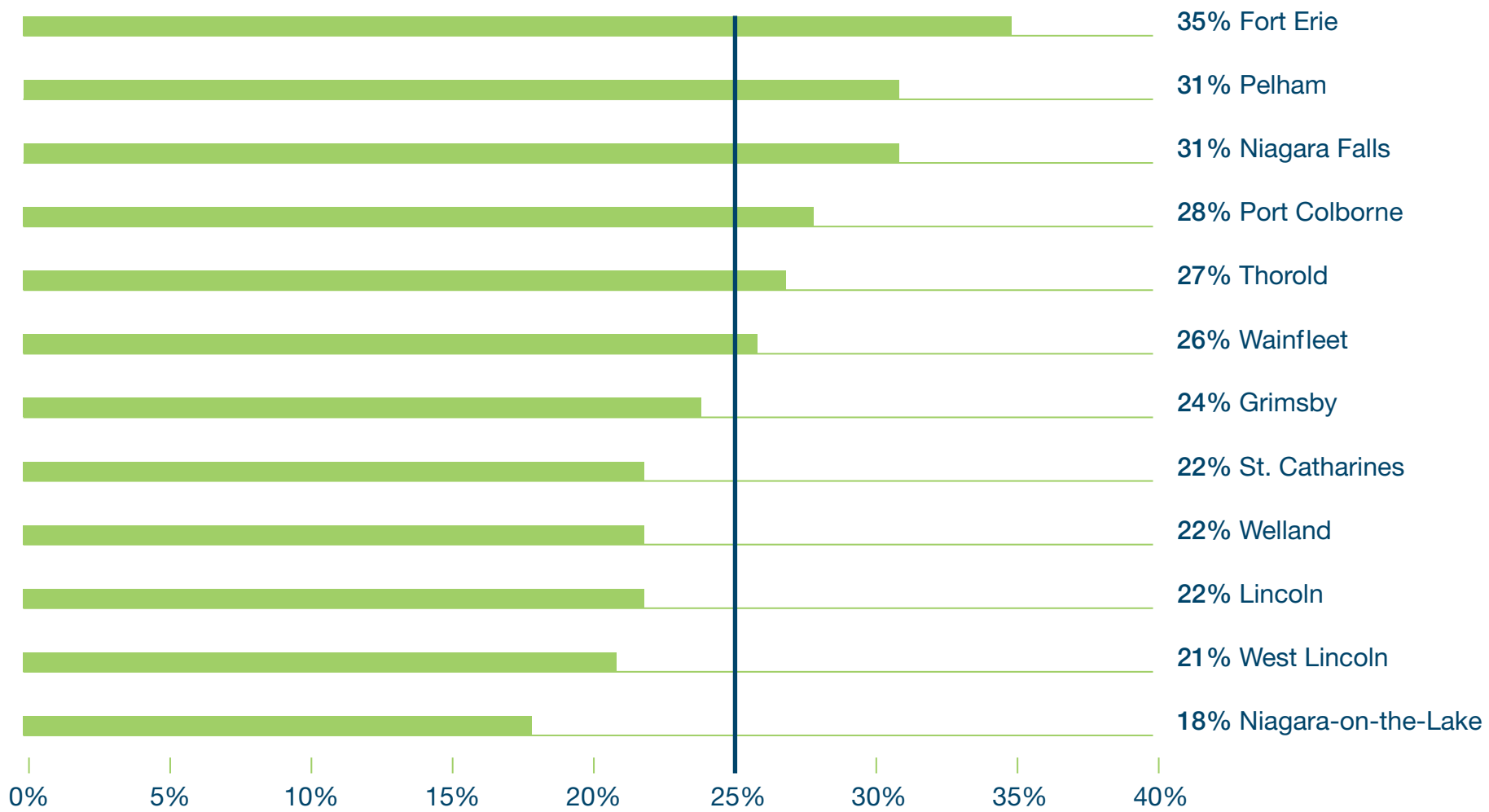
The data from the tree and forest canopy assessment can be analyzed at different geographic scales, and in combination with other land use information to better understand the differences in canopy distribution. In addition, it informs conservation and management strategies to enhance overall tree canopy health and coverage across the landscape.

Canopy Coverage by Municipality

Tree canopy distribution varies between the municipalities within the region, reflecting the differences in their landscapes, demographics and economic activities.

Graph 01 shows the percentage of tree and forest canopy coverage in each of municipality in the region.

Overall, six of the municipalities have a higher canopy coverage than the regional average, with Fort Erie having the highest percentage of canopy cover in the region at 35 per cent.



Graph 01 Municipal Tree and Forest Canopy Coverage

● Tree and forest canopy coverage

— 25% Regional tree canopy coverage average

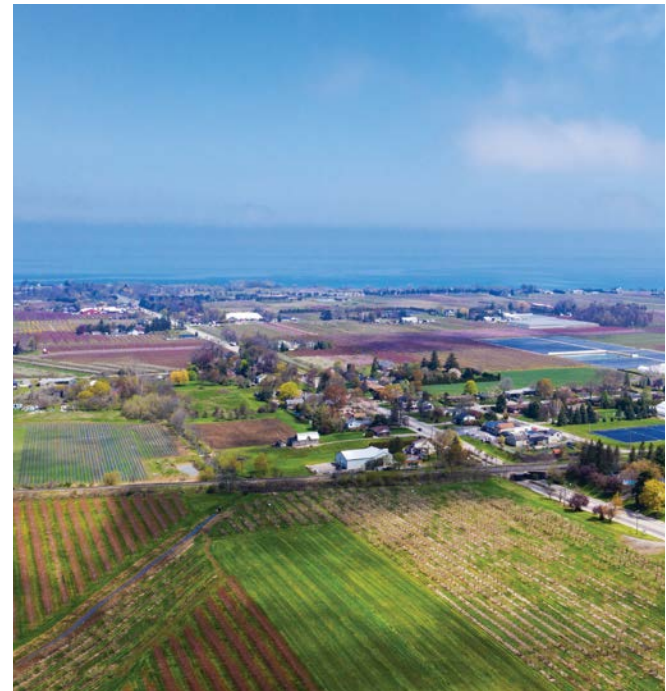
Land Cover Classification by Municipality

The total coverage for the other land cover classes is shown in **Table 01**.

As expected, predominantly rural municipalities have the highest percentage of soil and bareland.

In West Lincoln, this land cover class constitutes 58.1 per cent of the land area. Rural municipalities also had the lowest percentage of grass and non-treed vegetation land cover.

More urbanized municipalities, with larger populations, have the highest coverage of grass and non-treed vegetation. Impervious cover is also highest in these municipalities, particularly in St. Catharines, Niagara Falls and Welland.



Municipality	Land area (hectare)	Tree forest canopy	Grass and non-treed vegetation	Soil and Bareland	Buildings	Impervious cover
West Lincoln	38,628	20.7%	18.6%	58.1%	0.6%	1.9%
Wainfleet	21,626	25.9%	19.3%	52.2%	0.6%	2.0%
Niagara Falls	20,833	30.5%	35.0%	20.9%	3.7%	10.0%
Fort Erie	16,535	34.8%	31.8%	24.8%	2.2%	6.5%
Lincoln	16,217	21.9%	22.6%	48.1%	2.4%	5.0%
Niagara-on-the-Lake	13,108	18.0%	23.4%	49.5%	2.8%	6.2%
Pelham	12,580	31.4%	31.2%	31.5%	1.9%	4.0%
Port Colborne	12,069	28.4%	29.1%	35.7%	1.8%	5.1%
St. Catharines	9,598	22.4%	30.3%	15.7%	10.6%	21.0%
Thorold	8,332	26.6%	32.1%	31.7%	2.3%	7.3%
Welland	8,112	22.1%	43.3%	16.2%	5.5%	12.9%
Grimsby	6,854	23.9%	29.7%	34.5%	3.5%	8.4%
Regional Average	184,492	25.40% (46,789 hectare)	26.70% (49,205 hectare)	39.30% (72, 550 hectare)	2.50% (4,591 hectare)	6.10% (11,314 hectare)

Table 01 Municipal Land Cover Classification

Canopy Coverage by Dissemination Areas and Dissemination Blocks

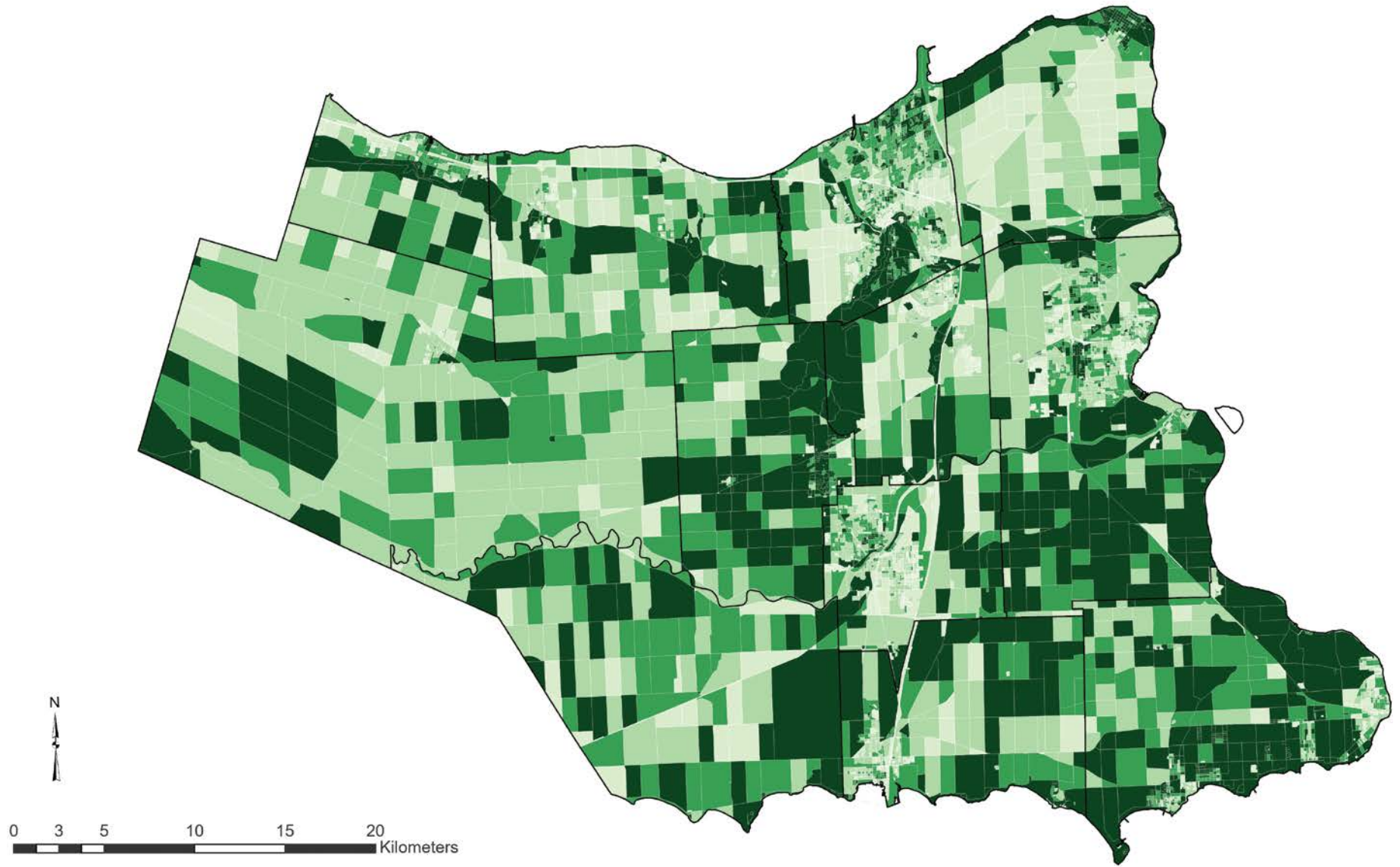
Tree and forest canopy distribution can be analyzed using census-based dissemination areas and blocks as the geographical unit of analysis. This provides a more refined and detailed spatial division compared to municipal boundaries.

Dissemination areas and blocks are smaller and more homogeneous in terms of land use, population density and other characteristics, enabling an assessment of tree and forest canopy cover and its relationship to various environmental and socio-economic factors at a local level.

This can also assist with more targeted interventions and policy decisions related to tree planting and restoration.

Examples of key findings from preliminary analysis at this level include:

Dissemination blocks, the smallest geographic area for which population and dwelling counts are disseminated by Statistics Canada, have been populated with tree and forest canopy coverage statistics, which are qualitatively mapped with a graduated colour scheme to show the distribution of tree and forest canopy rates across the region.



**Map
04**

Niagara Region Tree and Forest Canopy Dissemination Blocks

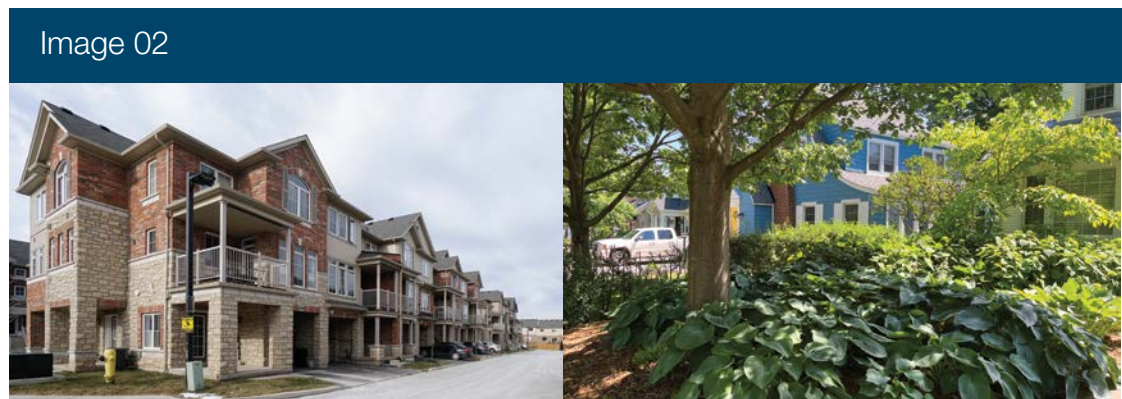
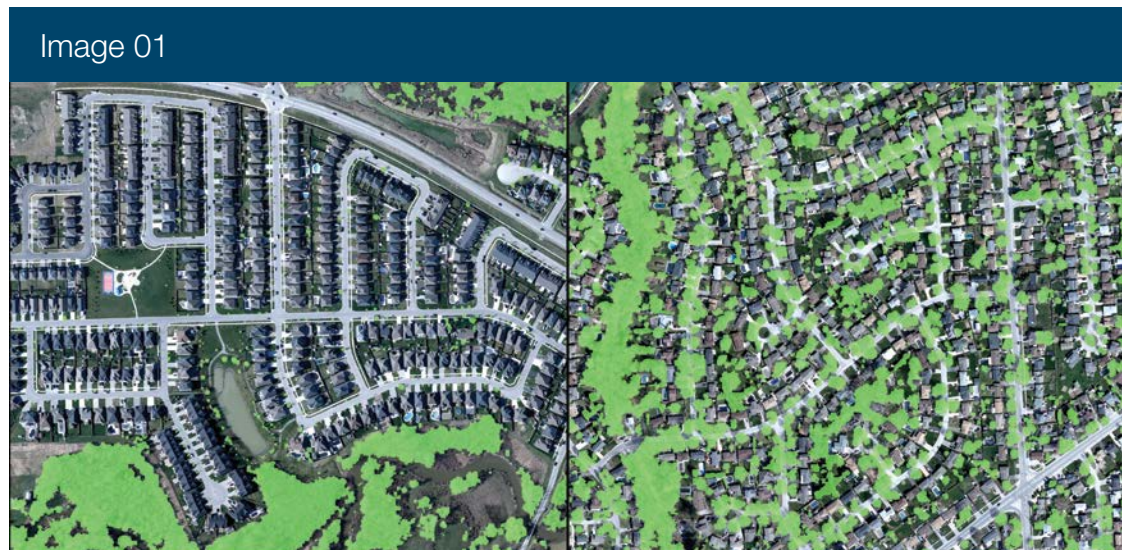
- <10%
- 10 - 20%
- 20-30%
- > 30%

Old and New Residential Neighbourhoods

Several dissemination areas, where newer residential neighbourhoods were recently established, showed lower overall tree and forest canopy rates. This outcome was expected, as many street and backyard trees in these areas were planted post-construction and have not yet matured enough to provide a large canopy. Conversely, older neighbourhoods, especially those with larger lots generally exhibited the densest tree and forest canopy coverage.

Image 01 shows an aerial perspective of old (right) versus new (left) neighbourhood canopy.

Image 02 shows old (right) and new (left) subdivision comparison.



Mixed Use Areas

Dissemination areas with a mix of commercial and residential development typically have low tree and forest canopy, as the impervious surface class is very high due to occurrences of parking areas.

Population Density

Across Niagara region's urban areas, the top 20 most densely populated dissemination areas (persons/hectare) based on 2021 Statistics Canada Census data, have an average 17.8 per cent tree and forest canopy cover.

However, there are some examples throughout the data of areas with high population densities and strong canopy coverages, demonstrating that in some cases high canopy rates can co-exist in areas of high population densities.

Image 03 shows high density, high canopy area

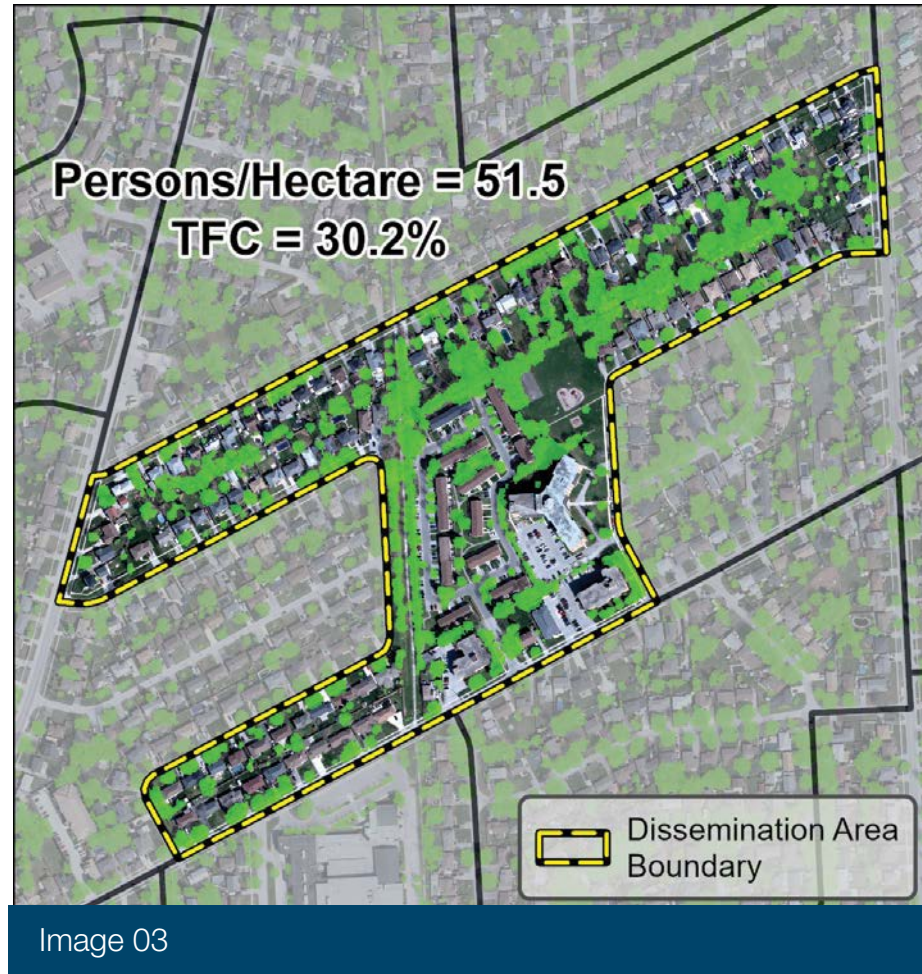


Image 03

Agricultural Areas

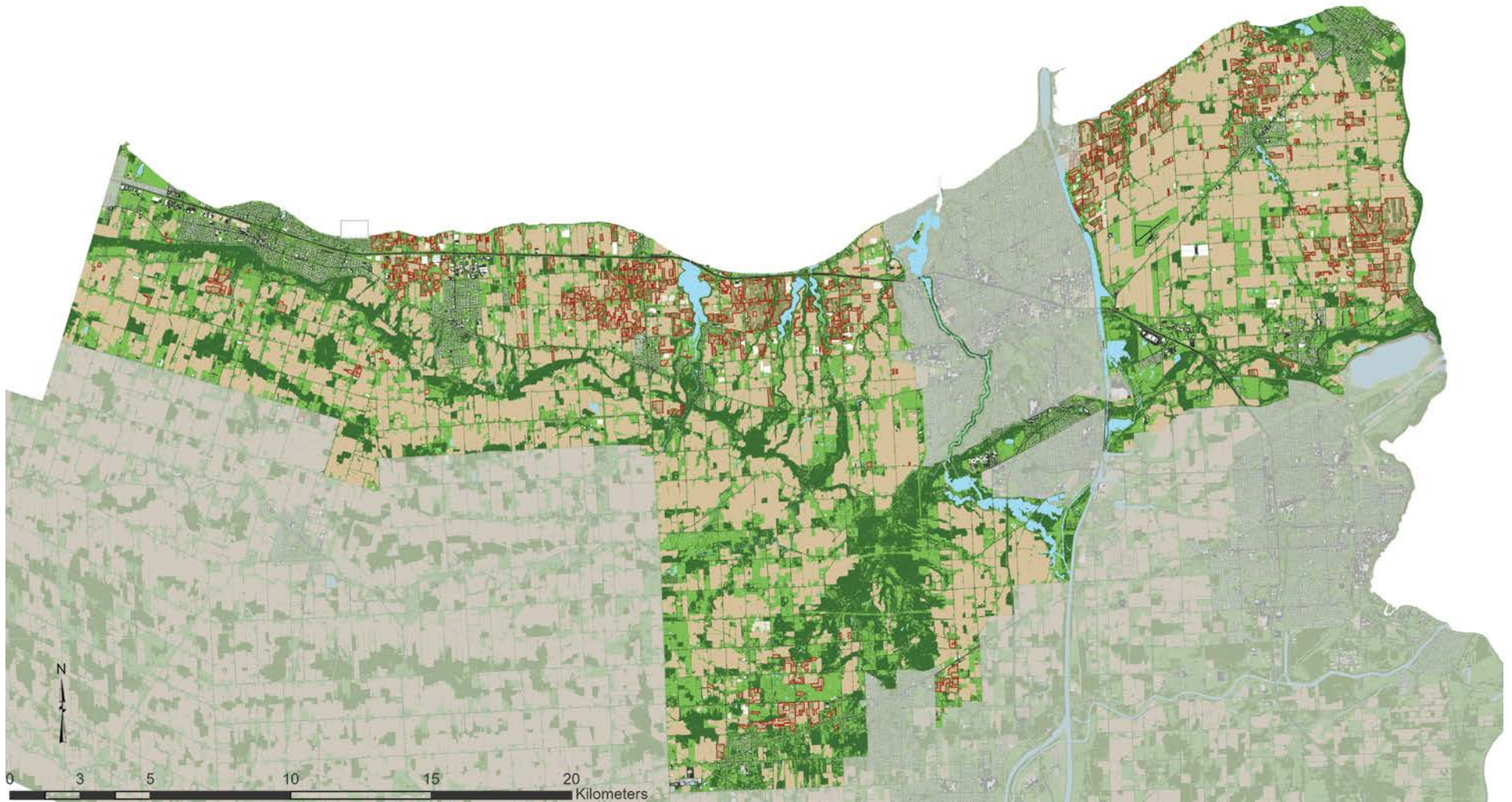
Agricultural lands are a vital component of both the economic and natural land base in Niagara. In addition to its primary role in food production, these lands support wildlife habitat, promote water infiltration and can contribute to carbon sequestration.

Through the land classification process, much of the region's agricultural area was categorized as soil and bareland or, in the case of pastures, grass and non-treed vegetation. However, it is important to note that there is tree canopy within the agricultural areas in Niagara.

In the northern part of the region, bordering the shoreline of Lake Ontario, specialty crop agriculture is prevalent with vineyards and orchards being common outside of settlement areas. Orchard trees are an important contributor to climate change mitigation through sequestration and storage of carbon dioxide from the atmosphere.

As shown in **Map 05**, these agricultural lands are included within the Greenbelt Plan area, a provincial policy area aimed at protecting and preserving green space, farmland and watersheds.

Total tree and forest canopy coverage in Niagara's Greenbelt Plan area is 23.6 per cent. Orchards account for 9.9 per cent of this canopy, which equals 1,165 hectares. Municipalities where orchard canopy is a major contributor to overall canopy, include Niagara-on-the-Lake and Lincoln, where orchard canopy makes up 23 per cent and 13 per cent of the total canopy in these municipalities, respectively.



**Map
05**

Niagara Region Tree and Forest Canopy Greenbelt Area | Land Classification

- Orchards
 - Soil and bareland
 - Tree and forest canopy
- Grass and non-treed vegetation
 - Impervious cover
- Buildings
 - Water

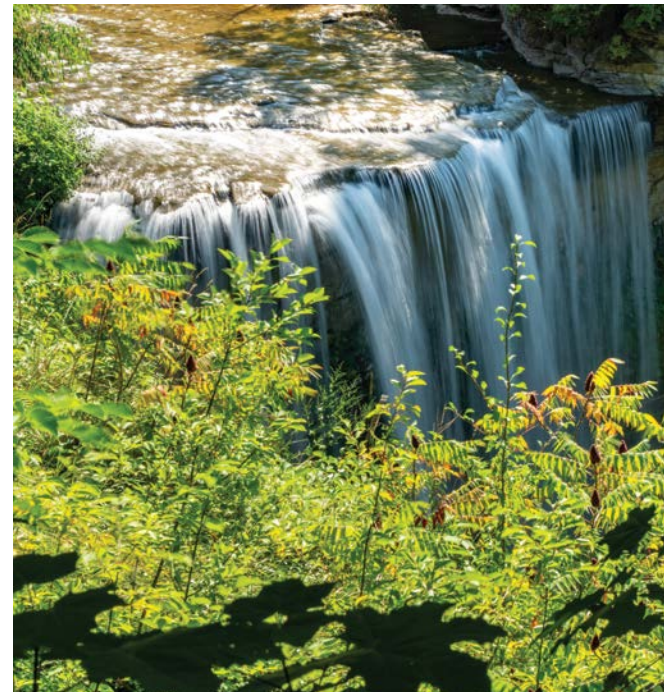
Urban Areas Tree and Forest Canopy in Urban Areas

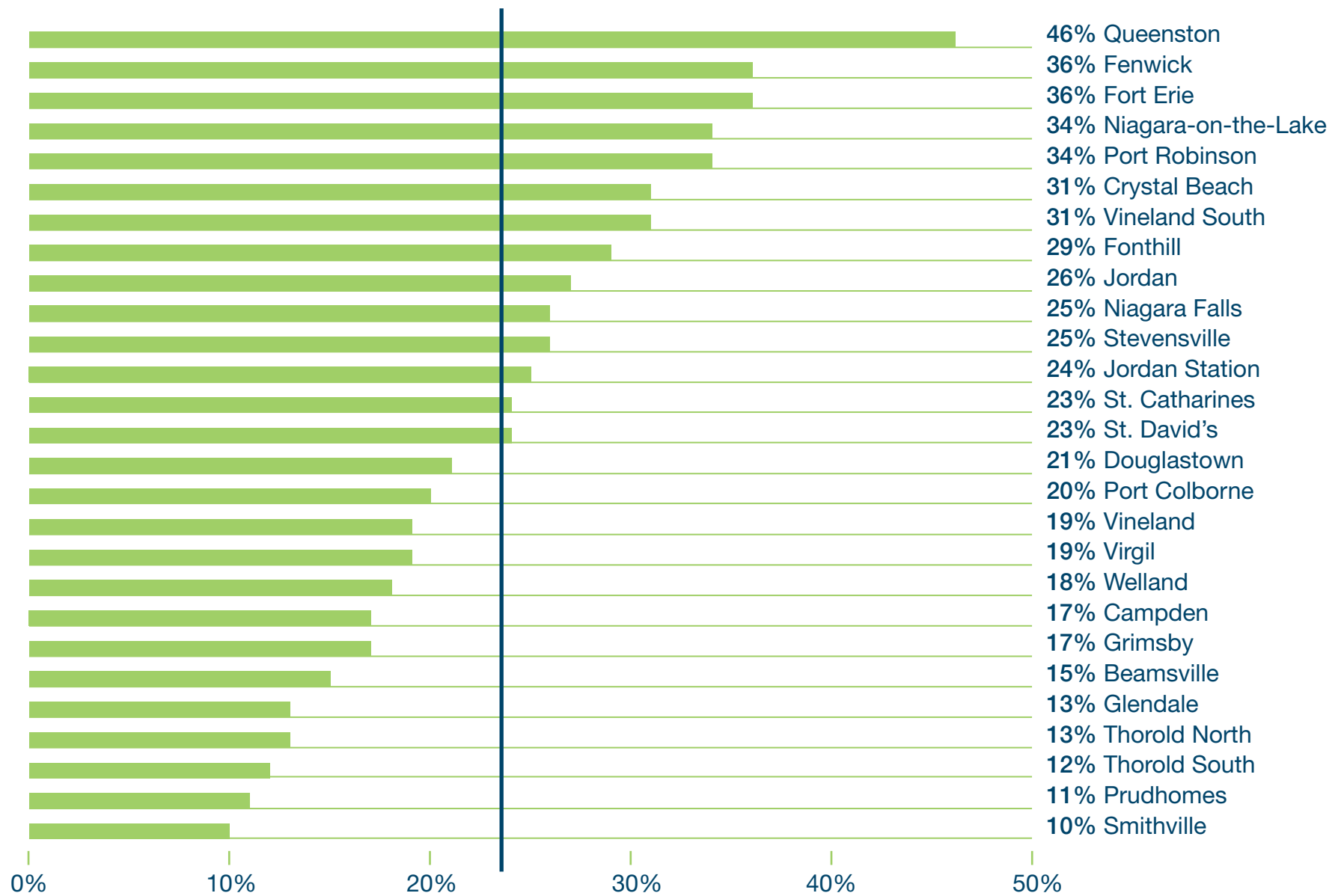
While canopy distribution in urban areas can often be less continuous and dense than in rural areas, it nonetheless plays a critical role.

Tree canopy in urban areas links the natural and built environments and contributes to the well-being of residents. It provides shade and lowers ambient air temperatures, mitigating the urban heat island effect.

Canopy in Niagara's urban areas varies greatly, between 10.4 per cent and 46.2 per cent tree and forest canopy cover.

The average tree and forest canopy coverage over all the urban areas is 23.7 per cent as shown in **Graph 03**.





Graph 02 Tree and Forest Canopy Coverage in Niagara's Urban Areas

— 23.8 per cent average tree and forest canopy in urban area

● Per cent tree and forest canopy

Impervious Surfaces in Urban Areas in Niagara

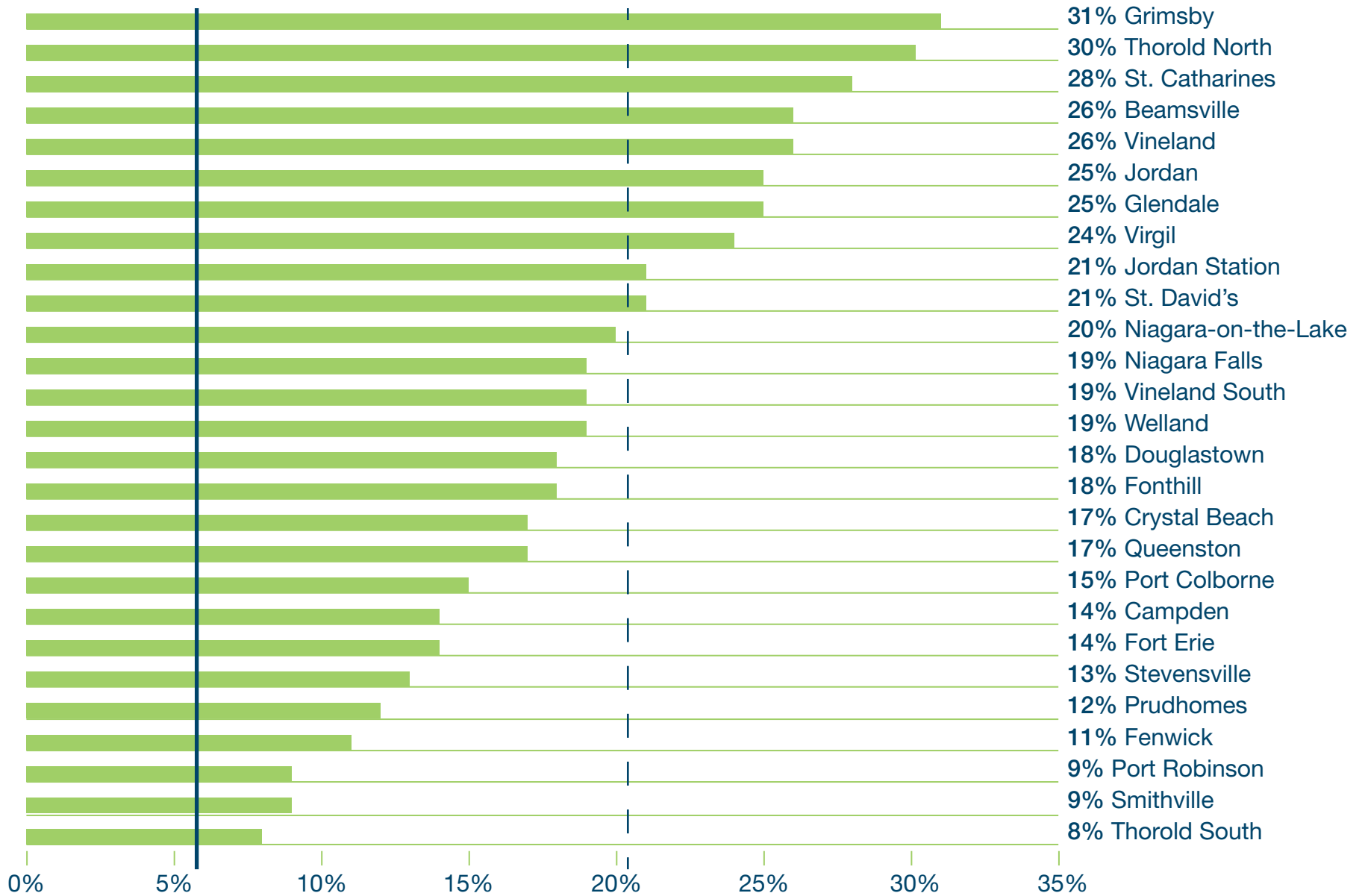
Niagara's urban areas are the settlement areas where development has been directed and concentrated.

As expected, these areas have a higher level of impervious surface coverage than the rest of the region. The average impervious surface cover for all the urban areas is 20.3 per cent.

The impervious surface coverage in each urban area is shown in **Graph 02**. These surfaces alter the natural hydrological processes, contributing to increased stormwater runoff and reduced groundwater recharge.

Increased imperviousness also results in increased temperatures compared to surrounding rural areas creating what is known as the 'urban heat island' effect.





Graph 03 Impervious Surface Cover in Niagara Region's Urban Areas

- Per cent of impervious cover in urban areas
- 6.1 per cent average impervious cover in region
- 20.3 per cent average impervious cover in urban areas

Canopy Benefits

Trees and forests offer multiple benefits to individuals and communities. Beyond the beauty trees bring to their surroundings, they also provide essential ecosystem services that enhance wellbeing and quality of life.



Among the many benefits trees provide, key services include:

Improved air quality

Increased canopy cover can filter pollutants and improve air quality, positively impacting respiratory health.

Each year, the region's trees and forests absorb an estimated 2,757.7 metric tons of air pollutants including carbon monoxide, ozone, sulfur dioxide and nitrogen dioxide through their leaves.

Additionally, they produce and release approximately 240.6 metric kilotons of oxygen every year.

Carbon capture and storage

Trees act as natural carbon stores by capturing carbon dioxide and storing it in their biomass.

Trees accumulate more carbon as they grow, which is why mature trees are important carbon stores.

Trees in Niagara region capture 330.9 metric kilotons of carbon dioxide equivalent each year and store 15,639.2 metric kilotons of carbon dioxide equivalent.

Providing shade and reducing energy use

Climate change means the risk of more frequent, persistent, and intense heat events will increase in some areas. Increased canopy cover can reduce overall temperatures in the summer as well as reduce humidex values during a heat wave.

Strategically planted trees can lower indoor temperatures and reduce the need for air conditioning. In winter, trees planted as windbreaks can reduce heat loss from buildings and lower home heating bills.



Absorbing stormwater and improving water quality

Significant surface runoff from storm events can occur where impervious surfaces are the primary land cover. Surface runoff in urbanized areas can gather surface pollutants and deposit them into adjacent aquatic ecosystems. Surface runoff may also cause channels to exceed capacity causing flooding.

Tree canopies intercept precipitation, lessening and slowing runoff, while the roots of trees promote infiltration and water storage in the soil, also reducing flood risks. Avoided surface runoff is calculated based on the amount of rainfall intercepted by leaves. The total avoided surface runoff from Niagara region's tree and forest canopy is estimated to be 598,000 cubic metres every year.

Improved mental and physical health

Studies have demonstrated that increased canopy cover and access to greenspace improve physical, emotional, mental and social well-being.

Regularly spending time near trees and greenspace has been linked to improved mental health. It can reduce stress, anxiety and depression, while promoting a sense of well-being.

Access to greenspace also encourages physical activity such as walking, running or cycling; leading to a more active lifestyle. This reduces the risk of chronic diseases, including heart disease and diabetes.

Providing wildlife habitat

Trees and shrubs can support a wide diversity of wildlife, including birds, pollinators and other insects. Many different types of animals depend on trees for food, water, or places to raise their young. Trees can also be used for resting, shelter and as a place from which to hunt or capture prey.

Standing dead and dying trees or trees with dead branches, are important for wildlife in both natural and landscaped settings. Birds, small mammals, and other wildlife use these trees for nests, nurseries, storage areas, foraging, roosting and perching.

Challenges

The estimated replacement value of all trees in Niagara region, which represents the local cost of replacing a tree with a similar tree, is approximately \$11 billion.

Threats to Niagara's tree and forest canopy, include susceptibility to pests and disease, stresses associated with climate change, invasive plant species and changes in land use

Invasive Plant Species

Invasive non-native vegetation is considered a significant threat to biodiversity and can severely impact the regeneration of native vegetation in treed areas. Several non-native vegetation species have capabilities to out compete native plants for nutrients and water.

They may establish quickly in areas where there has been native tree-die off (such as ash dominant forests) and suppress the regeneration and growth of native tree species, thereby reducing native tree and forest canopy cover.

Understanding Native and Invasive Species

A native species is defined as a species living within its natural range that is naturally self-sustaining.

An invasive species is defined as a non-native species that aggressively out-competes native species and comes to dominate the ecosystem.





Climate Change

Climate change has the potential to significantly impact Niagara's tree and forest canopy, affecting structure, health, distribution, and ecological function.

The specific impacts of climate change vary depending on factors such as geography, existing species compositions, and the prevalence of pests and disease.

Negative impacts of climate change on tree and forest canopy

- 1 Increased water stress in trees from prolonged drought conditions, causing wilt and increased susceptibility to pests and disease.
- 2 Climate facilitated increased expansion and movement of pests into the Niagara region.
- 3 Altered phenology such as the timing of leaf emergence, flowering, and leaf fall. This can disrupt the interactions between tree species and organisms that rely on these temporal cycles.
- 4 Increased wildfire risk from dry forest conditions.

Pests and Diseases

The most significant pests and diseases affecting Niagara's tree and forest canopy, include longstanding pests such as the Spongy Moth and Emerald Ash Borer. Additionally, potential future threats come from Oak Wilt and the Spotted Lanternfly.

The Spotted Lanternfly primarily poses a threat to grapevines and orchards. Without early detection and rapid response, these pests can lead to high tree mortality, severe declines in native tree species and substantial economic losses to agricultural operations.

Niagara's Changing Tree and Forest Canopy

Forecasting tree and forest canopy growth and decline over time can help guide forestry management and tree planting decisions.

Forecasting tree and forest canopy growth and decline over time can help guide forestry management and tree planting decisions.

Niagara's tree and forest canopy is variable throughout the region and is subject to a wide array of natural stressors (such as soil moisture, extreme weather events, insects and disease) and human stressors (such as land use changes and forestry management practices) that can affect canopy over time.

Detailed modelling and forecasting of tree and forest canopy change in Niagara were outside of the scope of the tree and forest canopy assessment.

However, as an exercise to understand the potential scale of tree planting required to increase tree and forest canopy, a simplified mortality forecast was used to estimate the potential loss and replanting needed to maintain or increase Niagara's urban tree and forest canopy over the next 30 years.

The estimated planting scenarios apply only to the urban areas Niagara region, inclusive of all 27 urban areas.

In urban settings, tree mortality is highly variable depending on planting locations and general tree maintenance and upkeep.





To help estimate the annual mortality rates of trees in Niagara's urban areas, data from the City of Guelph's 2023 One Canopy Tree Planting Strategy and the City of Toronto's 2018 Canopy Study were used as a reference.

Based on this data, a mortality rate of 3.3 per cent was applied to trees in developed areas (including, residential, commercial, industrial, park and street trees) and a mortality rate of 1.4 per cent was used for trees in more natural areas (including, trails, ravines and small urban forests).

There are an estimated 514,000 urban trees in developed areas and 420,213 urban trees in natural areas. In total these trees cover 8,379 hectares of land.

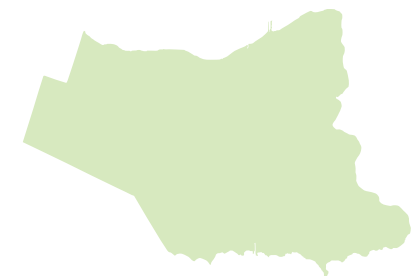
Data at a Glance

3.3%
mortality rate for trees
in developed areas

1.4%
mortality rate for trees
in more natural areas

514,000
urban trees in
developed areas

420,213
urban trees in
natural areas



in total these trees cover
8,379 hectares
of land in Niagara region

Morality Forecasting and Planting Scenarios

To maintain or increase canopy coverage, trees lost to mortality must be replaced. In the forecast exercise, the maintenance and increases in tree and forest canopy are all due to tree planting.

However, natural regeneration would be expected in some natural urban areas (for example where mowing and tree removals are not occurring regularly) and would potentially offset some of the required planting.

This forecast highlights the importance of ongoing tree planting efforts. Growing the region's tree and forest canopy will require continued efforts to increase and encourage tree planting on both public and private lands.

Future follow-up studies that continue to monitor the region's canopy coverage could provide greater insight into how the tree and forest canopy is changing over time and inform tree planting and protection strategies.



Planting scenario	Maintain existing urban tree forest canopy at 23.7%	Increase urban tree forest canopy to 25%	Increase urban tree forest canopy to 30%
Current urban area tree forest canopy	23.7%	23.7%	23.7%
Yearly tree planting required	22,845	24,604	31,184
Urban area tree forest canopy in 30 years	23.7%	25.0%	30.0%
Urban area canopy area (hectare)	8,379	8,852	10,623

Table 02 Mortality Forecasting and Planting Scenarios

Conclusion

The tree and forest canopy assessment offers critical data to understand Niagara's existing canopy. It not only provides a baseline to inform planning and urban forestry management decisions, but it also underlines the significant value of Niagara's trees and the importance of maintaining and increasing canopy throughout the region.

Our next steps



Niagara Region will continue to analyze the study data and share findings with local municipalities and the public.



Staff will integrate the data into planning and decision-making.



Data will support tree planting and protection programs on Regional properties.



Map Disclaimer

Disclaimer applies to all maps in this report 2024 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. The Niagara Region makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, currency or otherwise of the information shown on this map.



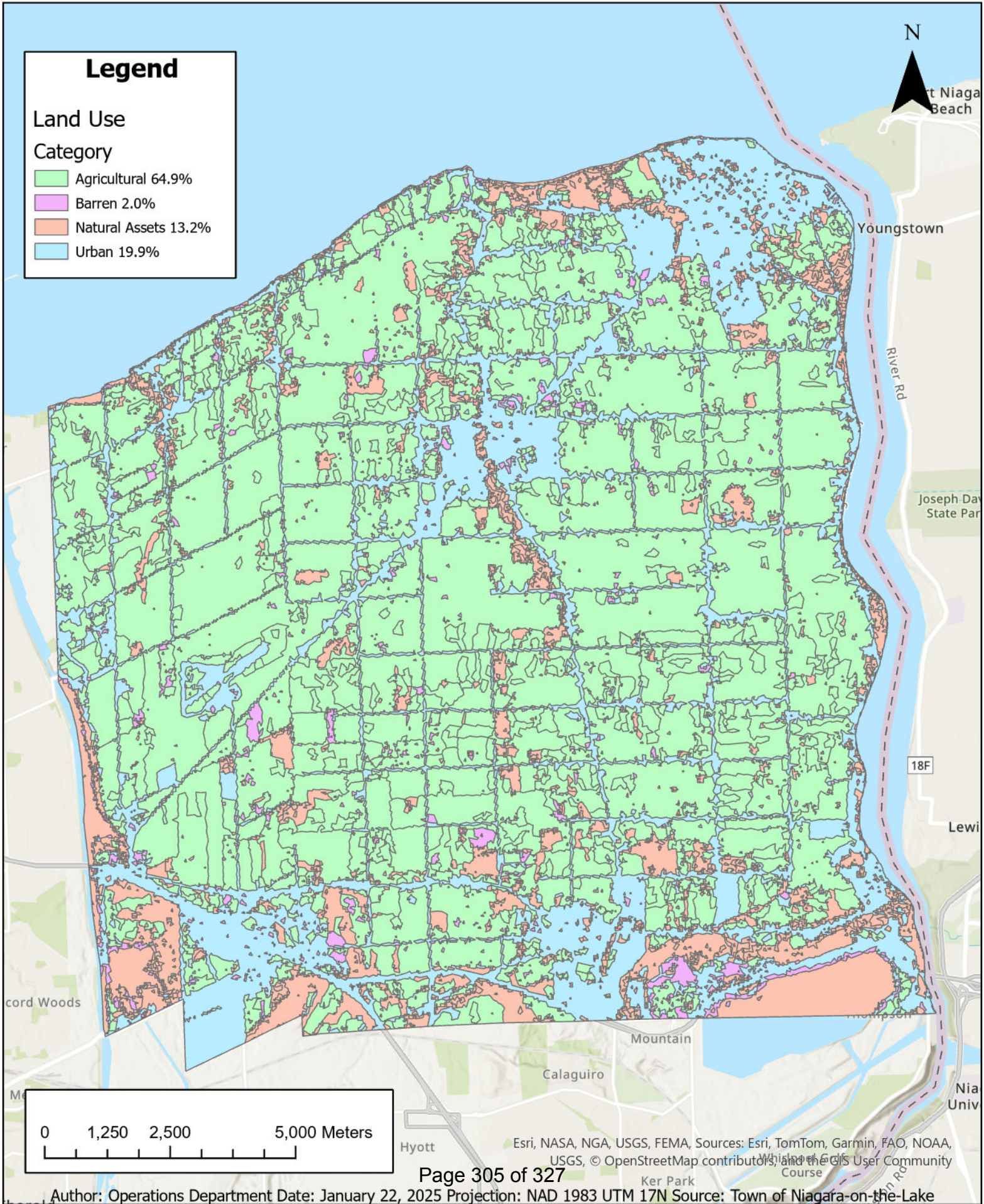
Tree and Forest Canopy **Summary Report**

Page 304 of 327

2024

Niagara  Region

niagararegion.ca



Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



The Corporation of the Town of Niagara-on-the-Lake Information Report to Council

SUBJECT: Winter Weather Event Policy
DATE: 2026-04-21
REPORT #: OPS-26-012
PREPARED BY: Darren MacKenzie, Manager of Public Works
DEPARTMENT: Public Works & Infrastructure Services Department

BACKGROUND INFORMATION

The purpose of this report is to inform Council of the proposed Significant Weather Event (SWE) Policy for the Town of Niagara-on-the-Lake. The policy establishes a framework for declaring, managing, communicating, and rescinding Significant Weather Events in accordance with Ontario Regulation 239/02 under the Municipal Act, 2001.

The policy supports public safety, operational clarity, and regulatory compliance during severe weather conditions that may temporarily prevent the Town from meeting the minimum maintenance standards prescribed by the Province.

Ontario Regulation 239/02 establishes minimum maintenance standards for municipal highways, including requirements related to snow accumulation, ice control, roadway and sidewalk conditions.

Amendments to the regulation in 2018 introduced provisions allowing municipalities to declare a **Significant Weather Event** when severe or unusual weather conditions make it impractical or unsafe to meet the prescribed maintenance timelines.

A Significant Weather Event is defined as an approaching or occurring weather hazard with the potential to pose a significant danger to users of municipal highways.

Examples of weather hazards that may trigger a declaration include:

- Major snowstorms or blizzards
- Freezing rain or ice storms
- Snow squalls or flash freeze conditions
- Extreme rainfall or flooding
- High wind events

During a declared Significant Weather Event, municipal roads and sidewalks are considered to be in a **state of repair** under the regulation while the municipality monitors conditions and deploys resources as circumstances permit.

NEXT STEP / CONCLUSION

When a Significant Weather Event is declared:

- Public Works staff will continue to monitor weather and roadway conditions;
- Resources will be deployed when it is safe and practical to do so;
- Minimum Maintenance Standard timelines are temporarily suspended while the event remains in effect;
- All operational actions and decisions will be documented for accountability and legal purposes.

The policy does not relieve the Town of its responsibility to make reasonable efforts to maintain municipal infrastructure and ensure public safety.

When a Significant Weather Event is declared or rescinded, the Town will communicate the information through one or more of the following channels:

- Town website
- Official Town social media platforms
- News releases where appropriate

Public communication helps ensure residents understand that severe weather conditions may temporarily impact maintenance operations.

The Significant Weather Event Policy establishes a clear and consistent framework for responding to extreme weather conditions in Niagara-on-the-Lake.

Adopting the policy will support regulatory compliance, enhance operational efficiency, and strengthen the Town's ability to manage risk during severe weather events.

The Region of Niagara has issued a number of Significant Weather Events during this winter, and it was noted during a review of current Public Works policies that the Town of Niagara-on-the-Lake did not have a policy in place to allow for the same declaration. This new internal policy rectifies this situation.

This policy will be finalized with a number and draft watermark removed, and will come into effect on May 1, 2026.

ATTACHMENTS

- Appendix I – Significant Weather Event Policy - DRAFT

1. Policy

Policy Number:	<i>TBD</i>
Policy Name:	Significant Weather Event Policy
Effective Date:	May 1, 2026
Last Revised:	February 28, 2026
Last Reviewed:	February 28, 2026

2. Policy Purpose

The purpose of this policy is to establish a clear, consistent, and legally compliant framework for the declaration, management, communication, and termination of Significant Weather Events (SWE) for the Town of Niagara-on-the-Lake (Town). This policy is intended to protect public safety, support effective operations, and ensure compliance with Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways (O. Reg. 239/02).

3. Scope

This policy applies to:

- The Public Works and Infrastructure Services Division, including all staff involved in winter control, road maintenance, sidewalk maintenance, storm response, and related operations;
- All municipal highways, roadways, sidewalks, multi-use paths, and related infrastructure under the jurisdiction of the Town; and
- Town staff involved in operational response, communications, and emergency coordination during severe or unusual weather events.

This policy does not apply to:

- Private roads/lanes, or roadways not assumed for maintenance by the Town; and
- Regional roads or Provincial highways within Niagara-on-the-Lake (operated and maintained by Niagara Region or the Ministry of Transportation Ontario).

4. Definitions

TERM	DEFINITION
Significant Weather Event	<p>An approaching or occurring weather hazard with the potential to pose a significant danger to users of municipal highways, such that it may be impractical or unsafe to meet the minimum maintenance standards set out in O. Reg. 239/02.</p> <p>Significant Weather Events may include, but are not limited to:</p> <ul style="list-style-type: none"> • Snowstorms or blizzards • Freezing rain or ice storms • Snow squalls or flash freeze events • Extreme rainfall or flooding • High wind events • Extreme temperature events

5. Policy Statement

The Town is committed to maintaining safe municipal highways and pedestrian infrastructure in accordance with O. Reg. 239/02.

Where severe or unusual weather conditions occur, it may be impractical or unsafe to meet the minimum maintenance standards within prescribed timelines. In these circumstances, the Town may declare a SWE in accordance with this policy to ensure:

- Public safety remains the primary operational priority;
- Decisions and actions are coordinated and consistently applied; and
- Communications are timely and transparent.

6. Policy Details

This policy is enacted under the authority of:

- Municipal Act, 2001
- Ontario Regulation 239/02, Minimum Maintenance Standards for Municipal Highways, as amended

O. Reg. 239/02 recognizes that during severe or unusual weather conditions, municipalities may be unable to meet prescribed maintenance standards and permits the declaration of a SWE.

7. Procedures

7.1 Conditions for Declaration

A SWE may be declared when one or more of the following conditions exist:

- A severe or unusual weather event is approaching or occurring within the Town;
- The weather conditions pose, or are expected to pose, a significant risk to the safety of road and sidewalk users; and/or
- A Public Weather Alert has been issued by Environment and Climate Change Canada under the Public Weather Alerting Program (e.g., Winter Storm Warning, Blizzard Warning, Freezing Rain Warning, Snowfall Warning).

The declaration may apply to the entire municipality or to specific geographic areas, depending on the scope and impact of the weather event.

7.2 Declaration of Significant Weather Event

The declaration of a SWE should be made by the Director of Public Works and Infrastructure, or their designate, in consultation with the Chief Administrative Office (CAO), Manager of Public Works, and the Road Supervisor, with knowledge of weather, road conditions, and resource availability.

The Director, or their designate, shall:

- Determine when a SWE begins and ends;
- Direct operational responses during the event;
- Ensure appropriate documentation and record-keeping; and
- Communicate the declaration and termination of the event in accordance with this policy.

7.3 Operational Implications During a Significant Weather Event

When a SWE is declared:

- Municipal roads, sidewalks, and related infrastructure are deemed to be in a state of repair for the duration of the event;
- The timelines and performance standards prescribed under O. Reg. 239/02 are temporarily suspended;

- The Town shall make reasonable efforts, as conditions permit, to deploy resources and monitor conditions; and
- Public safety remains the primary operational objective.

This policy does not relieve the Town of its obligation to act responsibly, prudently, and in good faith during severe weather events.

7.4 Communication and Public Notification

The declaration and termination of a SWE shall be communicated to the public through one or more of the following channels:

- Town website;
- Official social media platforms;
- Media release, where appropriate.

Internal notification shall also be provided to relevant Town departments and emergency partners as required.

7.5 Documentation and Record-Keeping

During a SWE, the Public Works and Infrastructure Services Department shall maintain detailed records, including:

- Date and time of declaration and termination;
- Weather forecasts, alerts, and observations;
- Operational decisions and actions taken; and
- Resource deployment and limitations.

These records are essential for operational review, regulatory compliance, and risk management purposes.

7.6 Rescinding a Significant Weather Event

A SWE shall be rescinded when weather conditions have stabilized to the extent that normal maintenance operations and minimum maintenance standards can reasonably resume.

The termination of the event shall be communicated using the same methods as the declaration.

8. Forms

Not Applicable

9. Responsibilities

POSITION or OFFICE	RESPONSIBILITIES
Chief Administrative Officer	<ul style="list-style-type: none"> Consult with the Director of Public Works & Infrastructure Services to determine the appropriateness of declaring a Significant Weather Event.
Director of Public Works and Infrastructure Services	<ul style="list-style-type: none"> Declare and SWE. Ensure SWE declarations align with this policy and O. Reg. 239/02. Direct operational priorities and allocate resources. Ensure documentation and records are maintained.
Manager of Public Works	<ul style="list-style-type: none"> Coordinate operational response activities. Ensure staff scheduling and equipment deployment align with event conditions.
Road Supervisor/Operations Supervisor	<ul style="list-style-type: none"> Monitor conditions and provide operational recommendations. Implement operational response actions (plowing, salting, patrols, etc.). Maintain operational logs, deployment details, and resource limitations.
Public Works Staff/Contractors	<ul style="list-style-type: none"> Carry out assigned operational tasks safely and in accordance with procedures. Record operational activities and any hazards/limitations encountered.
Communications Staff	<ul style="list-style-type: none"> Issue public notices for SWE declaration and termination. Maintain consistent public messaging (website, social media, media release as needed).

10. Related Information

- Municipal Act, 2001
- Ontario Regulation 239/02, Minimum Maintenance Standards for Municipal Highways, as amended

11. Contacts

Please direct any questions regarding this policy to:

OFFICE	PHONE	EMAIL
Public Works and Infrastructure Services	905-468-3266	operations@notl.com

POLICY GOVERNANCE	
Policy Number:	TBD
Effective Date:	May 1, 2026
Last Reviewed Date:	February 28, 2026
Target Review Date:	September 1, 2028
Approval Authority:	
Policy Owner:	Public Works and Infrastructure Services Division
Responsible Office:	Public Works and Infrastructure Services Division
Supplemental Documents:	Not Applicable



NEWS RELEASE

Niagara's Mayors Welcome Provincial Action on Regional Council Reform

Coalition of Niagara Municipalities welcomes today's legislation and calls on the Province to work with all municipalities to get the details right.

For Immediate Release

April 2, 2026

The Mayors of Grimsby, Port Colborne, West Lincoln, Pelham, Thorold, Wainfleet, and the Lord Mayor of Niagara-on-the-Lake today welcomed the Province of Ontario's introduction of the Better Regional Governance Act, 2026, as an important step forward, while calling on the Province to ensure that the final legislation reflects the made-in-Niagara principles this coalition has championed since February.

"We wrote to Premier Ford in February because we believed Niagara needed reform; locally led, evidence-based, and built around the principle that every community deserves a real voice," said Lord Mayor of Niagara-on-the-Lake Gary Zalepa. "Today's announcement reflects that direction, and we welcome it. But the details matter, and we will be engaged every step of the way to make sure the final product serves all of Niagara's communities."

A Made-in-Niagara Agenda Already in Motion

This coalition has been acting on governance reform ahead of any provincial directive. Since issuing their joint letter to Premier Ford in February 2026, the municipalities have made tangible progress:

- Niagara-on-the-Lake, Thorold, Grimsby, and Port Colborne have each passed formal resolutions to voluntarily reduce the size of their local councils, demonstrating that Niagara's municipalities can lead reform without waiting for direction from above
- The group is actively championing publicly-owned Water and Wastewater Service Corporations and the transition of services such as regional roads, Social Services, Public Health, and EMS to locally-governed Public Service Boards,



delivering best value for money while keeping essential services close to the communities that depend on them

- A comprehensive governance and service delivery review was initiated by Niagara Regional Council on February 26, 2026, with overwhelming support, proof that the appetite for made-in-Niagara reform runs deep across the region's elected leadership

Getting the Details Right

On weighted voting, any framework must balance representation by population with fairness, ensuring every municipality retains a meaningful voice. The group welcomes the Province's commitment to develop this collaboratively and will be active partners in that process.

On strong chair powers, the group has serious questions. An appointed chair with authority to veto bylaws and override elected mayors sits in tension with local accountability and with the weighted voting model the Province is simultaneously proposing. The group will be seeking clarity from the Province before the legislation passes.

On Local Council Reductions: Act Now

The group renews its call on the Province to move quickly to provide the legislative authority needed to implement local council reductions in time for the 2026 municipal election. Any changes not approved before May 2026 will not take effect until 2030, a four-year delay Niagara's taxpayers should not have to wait for.

Recognizing Those Who Have Served

The group recognizes that many Regional Councillors have served Niagara with dedication and distinction. Today's changes will mean real transitions for people who have given much to public life, and it is in that spirit of service that this coalition will continue to advocate for reform that is locally led, delivers for taxpayers, and maintains the exceptional public services Niagara's communities depend on.

"Today is a moment to move forward together; province and municipalities, working in the same direction," said Mayor of Thorold Terry Ugolini. "Partnership means local communities have a real seat at the table, not just a ceremonial one. That is what we will continue to fight for."

For immediate alerts, follow the Town of Niagara-on-the-Lake on [Facebook](#) and [Instagram](#). [Subscribe](#) to receive Town news directly in your inbox.



Media Contact:

Marah Minor, Corporate Communications Lead

905-468-3266 | communications@notl.com



NEWS RELEASE

Niagara Region Council Votes to Launch Made-in-Niagara Governance Review, Putting Taxpayers First

For Immediate Release

March 26, 2026

Niagara Mayors unite with Regional Councillors to initiate service delivery and governance review in the region.

NIAGARA, ON — Niagara Regional Council has voted 23-2 to initiate a service delivery and governance review of the region.

"Our residents deserve a government that is efficient, accountable, and close to home," said Lord Mayor Gary Zalepa, Town of Niagara-on-the-Lake. "This review is how we get there. Carefully, responsibly, and on our own terms."

The motion reflects a clear consensus across Niagara's municipal leadership: reform is needed, but it must be done right and come from Niagara itself. Any proposed changes will be required to demonstrate, at a minimum, clear value to taxpayers, respect for local voices, while maintaining excellent public services, before moving forward. Public consultation should also be grounded in the facts of the business case, giving residents the information they need to weigh in meaningfully.

The vote reinforces what Premier Ford said publicly on February 25 that any governance changes in Niagara must come from Niagara, by Niagara, with the support of the majority of mayors and elected officials.

"This is exactly what made-in-Niagara reform looks like," said Cheryl Ganann, Mayor of West Lincoln. "Not top-down directives, not rushed decisions without evidence. A serious, locally led review that puts taxpayers first and follows the facts, while respecting local autonomy."

This regional vote builds on growing momentum across Niagara's local municipalities. Four local councils have already passed formal resolutions this month to voluntarily reduce the size of their own councils and some councils are already at the minimum



size, demonstrating that Niagara's communities are ready to lead reform without waiting for direction from above.

The municipalities that have voluntarily cut the size of their councils have called on the Province to introduce the legislative authority needed to make those reductions take effect at the 2026 municipal election, with a deadline of May 2026.

Background

- Niagara Regional Council passed the governance review motion 21-9 on February 26, 2026, and forwarded it to Premier Ford and Minister Flack.
- Any proposed changes must be supported by a rigorous, peer-reviewable business case including financial analysis, value to taxpayers and the maintenance of excellent public services.
- So far, many local municipalities, including Grimsby, Niagara-on-the-Lake, Thorold and Port Colborne, have passed voluntary council reduction resolutions in the past year.
- The Province must act by May 2026 for those reductions to take effect at the October 2026 municipal election.

Media Contact:

Marah Minor, Corporate Communications Lead
905-468-3266 | communications@notl.com



NEWS RELEASE

Town Council Approves Motion to Reduce Niagara-on-the-Lake Council Size

For Immediate Release

March 25, 2026

At its March 24 meeting, Niagara-on-the-Lake Town Council approved a motion to voluntarily reduce the size of its Council from one Lord Mayor and eight Councillors to one Lord Mayor and six Councillors, effective for the 2026 municipal election. The approved motion reflects Council's commitment to being responsive to the Province's concern regarding governance in Niagara.

This change reflects a broader regional discussion about modernizing governance structures, improving efficiency, and ensuring Council composition aligns with community size and needs. Niagara-on-the-Lake, with a population of approximately 19,000 residents, currently has one of the highest Councillor-to-population ratios in the region.

"Niagara-on-the-Lake is a small, rural community, and our governance structure should reflect that," said Lord Mayor Gary Zalepa. "A smaller Council is not a weaker Council; it is a more focused, more accountable, and more effective one that can better serve our residents. This decision also reflects ongoing feedback about the importance of keeping government efficient, cost-effective, and aligned with the needs of residents."

Niagara-on-the-Lake is not alone in considering changes to Council composition. Across the region, municipalities are reviewing governance models, with some already moving toward smaller Councils. Thorold, Port Colborne, and Grimsby have each passed formal resolutions to reduce the size of their local Councils. In total, more than 100 elected officials currently serve across Niagara's twelve lower-tier municipalities, with Council sizes ranging from four to twelve councillors, depending on population and structure.



The decision to reduce Council size is part of a broader effort to ensure efficient, responsive, and financially responsible local government. It also aligns with discussions aimed at reducing duplication and improving service delivery for residents.

Town Staff will now begin the administrative and legislative steps required to apply for the change ahead of the 2026 municipal election, including any required approvals and updates to election processes. The Town is now asking the Province to provide the legislative framework to make this change effective for the 2026 election, with a deadline of May.

For more information about the regional governance review, please visit the Town's dedicated [amalgamation webpage](#).

For immediate alerts, follow the Town of Niagara-on-the-Lake on [Facebook](#) and [Instagram](#). [Subscribe](#) to receive Town news directly in your inbox.

Media Contact:

Marah Minor, Corporate Communications Lead
905-468-3266 | communications@notl.com



TOWN STATEMENT

Town Provides Update on Royal George Theatre Judicial Review

For Immediate Release

March 25, 2026

On March 24, 2026, the Divisional Court released its [decision](#) on the Judicial Review of the Royal George Theatre. The Court found that the Town's processes were thorough, transparent, justified, and grounded in extensive consultation and expert analysis. The application has therefore been dismissed by the Divisional Court.

In its conclusion, the Court highlighted that the Town undertook months of consultation, considered numerous expert reports, and addressed key heritage concerns. The Court further recognized that Council's decisions were justified and made in the broader interest of the community. The decision of the Divisional Court also notes costs awarded to the Town in the amount of \$25,000.00.

The Court's decision affirms the strength and integrity of the Town's planning processes and confirms that the Town acted appropriately throughout. It validates that the Town's approach was comprehensive, well-documented, and aligned with legislative requirements. The decision further confirms that Town Council acted appropriately and in accordance with all applicable requirements.

Today, on March 25, 2026, the applicant (Centurion Building Corporation) has subsequently filed two motions with the Court of Appeal for Ontario: (1) a motion for leave to appeal the Divisional Court decision, and (2) a motion seeking a stay (pause) of any demolition of the structures at 79-83 Queen Street pending the outcome of a potential appeal. At this time, no determination has been made with respect to these motions.

Staff continue to work through the standard planning, heritage and building processes related to this proposal. The Town remains committed to following all required legislative and legal processes to ensure decisions are made appropriately and in the public interest.

For immediate alerts, follow the Town of Niagara-on-the-Lake on [Facebook](#) and [Instagram](#). [Subscribe](#) to receive Town news directly in your inbox.

The Corporation of the Town of Niagara-on-the-Lake
communications@notl.com | 905-468-3266



The Corporation of the Town of Niagara-on-the-Lake Information Report to Council

SUBJECT: 2025 Legal Expenditure Disclosure
DATE: 2026-04-21
REPORT #: CS-26-016
PREPARED BY: Kyle Freeborn, CPA, CMA
DEPARTMENT: Corporate Services

BACKGROUND INFORMATION

In accordance with the Town's commitment to financial transparency and accountability, this report provides Council with a comprehensive summary of legal expenditures incurred during the 2025 fiscal year. The annual legal cost disclosure enables Council to assess the Town's legal exposure, evaluate the effectiveness of risk management practices, and inform budgetary planning for future periods.

As of December 31, 2025, the Town has incurred the following costs with respect to legal matters, insurable claims, and Ontario Land Tribunal matters:

Type of Expenditure	2025 Budget	2025 Expenditures to December 31, 2025	Variance
Ontario Land Tribunal and Planning Matters	\$650,000	\$61,354	(\$804,476)
General Litigation		\$1,384,445	
Insurable Claims	\$105,000	\$102,301	\$2,699
Other Legal (advice, contract review, procurement, etc.)	\$54,000	\$170,636	(\$116,636)
Total	\$809,000	\$1,718,737	(\$909,737)

Note: The 2025 Budget of \$650,000 for Ontario Land Tribunal and Planning Matters represents a combined allocation covering both Ontario Land Tribunal and Planning Matters and General Litigation, with no specific sub-allocation between the two categories.

Two major settlements were reached during 2025, which contributed heavily to the 2025 unfavourable variance:

- 2022 Interim Control By-law Appeal – Hummel Properties Inc. v. Town of Niagara-on-the-Lake: \$1,000,000 (Public Statement)
- 2019 Heritage Designation Matter – Black 27 Prideaux v. Town of Niagara-on-the-Lake: \$225,000 (Public Statement)

For previous years, total legal expenses related to insurable claims, litigation, and planning matters are as follows:

Year	Budget	Actual	Variance
2024	\$817,000	\$1,921,621	(\$1,104,621)
2023	\$675,000	\$1,222,335	(\$547,335)
2022	\$673,000	\$1,086,058	(\$412,988)
2021	\$684,870	\$668,750	\$16,120

In addition to the above settlements, a significant and ongoing contributor to legal costs has been the Randwood Estate matter (200 John Street East and 588 Charlotte Street), involving appeals by Solmar (Niagara 2) Inc. related to Official Plan Amendment, Zoning By-law Amendment, Plan of Subdivision, and Heritage Permit applications. This matter, which originated in 2018 with objections to heritage designations under the Ontario Heritage Act, proceeded through extensive Ontario Land Tribunal proceedings, including a seven-week hearing in 2024. At times, Randwood-related costs accounted for upwards of 90% of the Town's total legal expenditures.

On October 11, 2024, the OLT issued its decision requiring Solmar to undertake significant revisions to its proposed subdivision before any approvals could be considered. Solmar challenged this decision; however, the OLT dismissed the challenge on January 28, 2025. On April 11, 2025, Solmar advised the Tribunal that it was not prepared to pursue the required studies and revisions, and on April 15, 2025, the OLT issued a final order dismissing the appeals. No planning approvals or heritage permits have been granted for the development of these lands.

As of December 31, 2025, the cumulative cost of the Randwood matter to the Town totals \$3,467,668, of which \$127,497 was incurred in 2025. Staff continue to monitor developments related to this matter.

Collectively, these three matters account for approximately 94% of the Town's total legal expenditures in 2025, underscoring that the unfavourable budget variance is attributable to a limited number of significant legacy proceedings rather than to a systemic increase in legal activity.

NEXT STEP / CONCLUSION

The total legal expenditure of \$1,718,737 exceeded the approved 2025 budget of \$809,000 by \$909,737, driven primarily by two significant settlements totalling \$1,225,000 and continued costs associated with the Randwood Estate proceedings of \$127,497.

This annual disclosure assists Staff in establishing appropriate legal budgets for future fiscal years. Over the 2022–2025 period, three significant matters have driven the majority of the Town's legal expenditures:

- The 2022 Interim Control By-law Appeal (Hummel Properties Inc.) — settled in 2025 for \$1,000,000;
- The 2019 Heritage Designation Matter (Black 27 Prideaux) — settled in 2025 for \$225,000; and
- The Randwood Estate proceedings (Solmar (Niagara 2) Inc.) — cumulative cost of \$3,467,668 since 2018, with the OLT issuing a final order dismissing Solmar's appeals in April 2025.

The first two matters have been fully resolved and will no longer contribute to the Town's ongoing legal costs. With respect to Randwood, while the OLT's dismissal of the appeals represents a significant milestone, Staff will continue to monitor any further proceedings related to this matter. Collectively, the resolution of these matters is expected to result in a substantially more stable legal expenditure profile in future fiscal years.

**THE CORPORATION OF THE
TOWN OF NIAGARA-ON-THE-LAKE**
OFFICE OF THE TOWN CLERK

Notice of Motion

INTRODUCTION DATE: April 28, 2026

SUBJECT: Motion RE: Developing a Comprehensive Lifecycle Strategy for Niagara-on-the-Lake

REQUESTED BY: Councillor Vizzari

SECONDED BY: Councillor Wiens

WHEREAS Niagara-on-the-Lake is experiencing demographic shifts, including a growing aging population and challenges in retaining youth and young families; and

WHEREAS a balanced and sustainable community requires planning for residents at all stages of life, including youth, families, and seniors; and

WHEREAS many residents wish to both age in place and raise families within the community, close to services, employment, and social supports; and

WHEREAS current supports for both seniors and youth are largely program-based or delivered through Niagara Region, school boards, and community organizations, without a comprehensive, municipally-led strategy; and

WHEREAS Niagara-on-the-Lake does not currently have a formal Aging in Place Strategy or Youth Strategy to guide long-term planning, land use, and service delivery; and

WHEREAS gaps in housing, engagement, and services may contribute to seniors leaving the community and youth relocating elsewhere for opportunities; and

WHEREAS proactive lifecycle planning aligns with responsible governance, supports economic sustainability, and strengthens community well-being; and

THEREFORE BE IT RESOLVED:

1. **THAT** Council direct Staff to develop a comprehensive “Lifecycle Strategy” for Niagara-on-the-Lake, which includes both an Aging in Place Strategy and a Youth Strategy; and

2. **THAT** the Lifecycle Strategy include an assessment of current and projected demographic trends, identification of gaps in housing, services, and opportunities, and recommendations to support aging in place, youth retention, and community sustainability; and
3. **THAT** Staff report back on opportunities to integrate lifecycle planning into the Town's planning framework, including the Official Plan, Secondary Plans, and zoning tools; and
4. **THAT** Staff identify municipally owned lands or strategic sites that could support seniors-focused housing, youth- and family-supportive development, and mixed-use community spaces; and
5. **THAT** Staff explore partnerships with Niagara Region, educational institutions, non-profit and private sector partners, and healthcare and community organizations; and
6. **THAT** Staff report back on financial and policy tools available to support lifecycle planning, including incentives, partnerships, and streamlined approvals; and
7. **THAT** Staff explore the establishment of advisory bodies, including a Youth Advisory Council and enhanced engagement mechanisms for seniors; and
8. **THAT** public engagement be undertaken, ensuring meaningful input from seniors, youth, families, and the broader community; and
9. **THAT** this work be incorporated into existing staff workplans where feasible, and where additional resources are required, staff report back with options and timelines.

**THE CORPORATION OF THE
TOWN OF NIAGARA-ON-THE-LAKE**
OFFICE OF THE TOWN CLERK

Notice of Motion

INTRODUCTION DATE: April 28, 2026

SUBJECT: Active Transportation Connectivity in St. Davids

REQUESTED BY: Councillor Vizzari

SECONDED BY: Councillor Mavridis

WHEREAS Niagara-on-the-Lake is experiencing growth and development within St. Davids without an active transportation master plan to inform locations of existing and future active transportation linkages and facilities;

AND WHEREAS the proposed development at 46 Paxton Lane provides for additional housing and population within St. Davids;

AND WHEREAS growth and intensification increases the need for improved active transportation connections within St. Davids to key transportation corridors such as York Road and Four Mile Creek Road and destinations such as St. Davids Lions Park;

AND WHEREAS Paxton Lane between York Road and 46 Paxton Lane is a substandard roadway lacking active transportation facilities thus requiring motorists, cyclists, and pedestrians to share the road;

AND WHEREAS the sidewalk on the east side of Four Mile Creek Road is a substandard sidewalk lacking adequate width to accommodate multiple pedestrians and/or pedestrians with accessible needs simultaneously;

THEREFORE BE IT RESOLVED THAT Council directs Staff prepare a capital project budget request for approval to retain a consulting engineering firm to undertake a feasibility study identify the constraints and financial implications of reconstructing Paxton Lane between York Road and the southern limits to include active transportation facilities;

AND THAT Council directs Staff to procure the services to deliver the capital project as outlined above.