



**Environmental
Advisory Committee
Meeting Agenda**

**Thursday, June 14, 2018
7 p.m.**

**Holland Room
Aurora Town Hall**



**Town of Aurora
Environmental Advisory Committee
Meeting Agenda**

Date: Thursday, June 14, 2018

Time and Location: 7 p.m., Holland Room, Aurora Town Hall

1. Approval of the Agenda

Recommended:

That the agenda as circulated by Legislative Services be approved.

2. Declarations of Pecuniary Interest and General Nature Thereof

3. Receipt of the Minutes

Environmental Advisory Committee Meeting Minutes of February 1, 2018

That the Environmental Advisory Committee meeting minutes of February 1, 2018, be received for information.

4. Delegations

(a) Mark Bassingthwaite, Cole Engineering Group Ltd.

Re: Aurora Wildlife Park Design Status

5. Matters for Consideration

1. Memorandum from Program Manager, Environmental Initiatives

Re: Environmental Advisory Committee (EAC) Terms of Reference

Recommended:

1. That the memorandum regarding Environmental Advisory Committee (EAC) Terms of Reference be received; and
2. That the Environmental Advisory Committee provide comment and suggestions regarding the current EAC Terms of Reference.

6. Informational Items

2. EAC18-001 – Feasibility of the Containment or Removal of Phragmites

Recommended:

1. That Report No. EAC18-001 be received for information.

**3. Memorandum from Program Manager, Environmental Initiatives
Re: Corporate Environmental Action Plan (CEAP) Progress Report
2017**

Recommended:

1. That the memorandum regarding Corporate Environmental Action Plan (CEAP) Progress Report 2017 be received for information.

**4. Memorandum from Program Manager, Environmental Initiatives
Re: Wildlife Park Project Update**

Recommended:

1. That the memorandum regarding Wildlife Park Project Update be received for information.

**5. Extract from Council Meeting of March 27, 2018
Re: Environmental Advisory Committee Meeting Minutes of February 1,
2018 and Summary of Committee Recommendations Report No.
2018-03**

Recommended:

1. That the Extract from Council meeting of March 27, 2018, regarding the Environmental Advisory Committee Meeting Minutes of February 1, 2018, and Summary of Committee Recommendations Report No. 2018-03 be received for information.

7. New Business

8. Adjournment



**Town of Aurora
Environmental Advisory Committee
Meeting Minutes**

Date:	Thursday, February 1, 2018
Time and Location:	7 p.m., Holland Room, Aurora Town Hall
Committee Members:	Councillor Paul Pirri (Chair), Councillor Tom Mrakas (Vice Chair), Jennifer Sault, Sara Varty, Nancee Webb, Kristina Zeromskiene
Member(s) Absent:	Irene Clement, Larry Fedec, and Melville James
Other Attendees:	Christina Nagy-Oh, Program Manager, Environmental Initiatives, and Linda Bottos, Council/Committee Secretary

The Chair called the meeting to order at 7:05 p.m.

1. Approval of the Agenda

**Moved by Kristina Zeromskiene
Seconded by Nancee Webb**

That the agenda as circulated by Legislative Services, with the following addition, be approved:

- Delegation (a) Anu Bidani, STEM MINDs Corp., and Team STEMbotics
Re: Smart Rainwater Harvesting Project

Carried

2. Declarations of Pecuniary Interest and General Nature Thereof

There were no declarations of pecuniary interest under the *Municipal Conflict of Interest Act*.

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3. Receipt of the Minutes

Environmental Advisory Committee Meeting Minutes of December 4, 2017

**Moved by Councillor Mrakas
Seconded by Kristina Zeromskiene**

That the Environmental Advisory Committee meeting minutes of December 4, 2017, be received for information.

Carried

4. Delegations

**(a) Anu Bidani, STEM MINDs Corp., and Team STEMbotics
Re: Smart Rainwater Harvesting Project**

Ms. Bidani introduced the nine members of Team STEMbotics, each of whom presented aspects of their Smart Rainwater Harvesting innovation, including their solution and approach, benefits, value proposition, key clients, use of technology, research and surveys completed, accomplishments and media presentations. Ms. Bidani and the Team responded to the questions and feedback from the Committee.

**Moved by Sara Varty
Seconded by Nancee Webb**

That the comments and documentation of the delegation be received for information.

Carried

5. Matters for Consideration

None

6. Informational Items

**1. Memorandum from Program Manager, Environmental Initiatives
Re: Vegetation Management Background**

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Staff provided a brief overview of the memorandum.

Moved by Nancee Webb

Seconded by Jennifer Sault

1. That the memorandum regarding Vegetation Management Background be received for information.

Carried

**2. Memorandum from Program Manager, Environmental Initiatives
Re: Wildlife Park Project Update**

Staff provided background to the memorandum.

The Committee inquired about the next steps and how to move this project forward, and the Chair and staff provided a response.

Moved by Jennifer Sault

Seconded by Kristina Zeromskiene

1. That the memorandum regarding Wildlife Park Project Update be received;
and
2. That the Environmental Advisory Committee recommend to Council:
 - (a) That further work on the Wildlife Park be endorsed; and
 - (b) That the Environmental Advisory Committee receive regular updates on the progress of the Wildlife Park Project.

Carried

7. New Business

The Chair noted that the issue of anti-idling was raised at Council, and the Mayor and Chair have committed to addressing this matter further.

The Vice Chair noted that staff reports to Council currently include a section titled "Link to Strategic Plan" and staff have been asked to consider also including "Link to Corporate Environmental Action Plan" in the report template.

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Staff provided an overview of the Town's draft communications plan for the promotion of the "Bring Your Own Bottle" initiative and campaign. The Committee suggested also using the Yonge Street digital notice board and requested extra copies of posters for Committee members to help spread the word.

Staff reviewed the correspondence and invitation from a member of the Toronto & York Region Labour Council's newly formed Environmental Action Committee, which will be holding an Ecofair and free screening of "Before the Flood" on Tuesday, February 20, 2018, from 6 p.m. to 9 p.m. at the Newmarket Theatre.

The Committee suggested that it would be beneficial for the Environmental Advisory Committee to design a portable pop-up booth, in readiness for display at various events as any opportunity arises, to aid in the promotion and education of its environmental initiatives.

8. Adjournment

Moved by Nancee Webb

Seconded by Jennifer Sault

That the meeting be adjourned at 8:10 p.m.

Carried

Committee recommendations are not binding on the Town unless adopted by Council.



Legislative Services
905-727-3123
Clerks@aurora.ca
Town of Aurora
100 John West Way, Box 1000
Aurora, ON L4G 6J1

Delegation Request

This Delegation Request form and any written submissions or background information for consideration by either Council or Committees of Council must be submitted to the Clerk's office by the following deadline:

4:30 p.m. Two (2) Days Prior to the Requested Meeting Date

Council/Committee/Advisory Committee Meeting Date: Environmental Advisory Committee Meeting June 14, 2018	
Subject: Aurora Wildlife Park Design Status	
Name of Spokesperson: Mark Bassingthwaite	
Name of Group or Person(s) being Represented (if applicable): Cole Engineering Group Ltd. on behalf of Town of Aurora Parks Division	
Brief Summary of Issue or Purpose of Delegation: To present the proposed Aurora Wildlife Park Detailed Design Status	
Please complete the following:	
Have you been in contact with a Town staff or Council member regarding your matter of interest? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
If yes, with whom? Gary Greidanus, Senior Landscape Architect	Date: Various Dates
<input checked="" type="checkbox"/> I acknowledge that the Procedure By-law permits five (5) minutes for Delegations.	



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Town of Aurora
Planning and Development
Services

Memorandum

Date: April 5, 2018
To: Environmental Advisory Committee
From: Christina Nagy-Oh, Program Manager, Environmental Initiatives
Re: Environmental Advisory Committee (EAC) Terms of Reference

Recommendation

- 1. That the memorandum regarding the Environmental Advisory Committee (EAC) Terms of Reference be received; and**
- 2. That the Environmental Advisory Committee provide comment and suggestions regarding the current EAC Terms of Reference.**

Background

At the February 1, 2018 meeting, the Committee requested to give input into the next Council Term EAC Terms of Reference. For this reason, the current EAC Terms of Reference have been attached to this memo to be used as basis for this discussion.

Attachments

Attachment 1 – Current EAC Terms of Reference



ENVIRONMENTAL ADVISORY COMMITTEE

TERMS OF REFERENCE

1. PURPOSE

The Environmental Advisory Committee is to act as an advisory committee of Council on matters relating to protection and enhancement of the environment; support local initiatives that promote environmental sustainability, integrity and conservation of our resources and ecosystems, as well as provide input to protect, maintain, restore and enhance the environment and our common natural heritage within the Town of Aurora, and support stewardship initiatives within the community towards our open spaces, parks and woodlots.

The Environmental Advisory Committee supports the Council of the Town of Aurora in achieving its goals and responsibilities towards the preservation of the natural environment from the perspective of residents, local businesses, subject matter experts and community members. Environmental Advisory Committee should align its work plan with the goals of the Corporate Environmental Action Plan set to be completed by 2015.

2. MEMBERSHIP

The Committee shall be comprised of nine (9) Members:

- Two (2) Members of Council, one appointed as Chair for a two-year term, the other appointed as Chair for the following two-year term;
- Seven (7) citizen Members.

3. TERM

The Committee shall be appointed for a two-year term, with the option of a further two-year term and will be concurrent with the term of Council.

4. REMUNERATION

None.

5. DUTIES AND FUNCTIONS

The Committee shall consider in establishing its objectives the need to:

- Act as a link between citizens, Town Staff and government to facilitate the resolution of environmental concerns and to assist in implementing projects that will enhance our community environment;



-
- Identify changing needs, bring forward and recommend appropriate actions to deal with environmental issues impacting Aurora;
 - Work at building relationships and establishing partnerships with interested environmental organizations and individuals;
 - Provide advice to Council on environmental policies, procedures and regulations;
 - Advise Council on possible green issues;
 - Identify opportunities to implement initiatives for education, outreach, public awareness, public consultation, and to seek funding sources;
 - Undertake educational initiatives, both formally and informally, to raise the profile of the environment and provide advice to Council and Staff on identifying opportunities to implement initiatives for education, outreach, public awareness and public consultation;
 - Assist Council and Staff, where feasible, in identifying research needs and environmental data gaps and assist in gathering data, undertaking research;
 - Assist in the promotion of green space, environmental restoration, environmental rehabilitation and enhancement projects;
 - Support development and education of the public on energy conservation initiatives; and
 - Undertake any assignments as may be requested by Council.

6. MEETING TIMES AND LOCATIONS

First Thursday of every second month at 7 p.m. except during July and August. Additional meetings of the Committee may be called by the Chair to address urgent matters.

7. STAFF SUPPORT

The Legal and Legislative Services Department will provide administrative support services to the Committee.

The Manager of Environmental Initiatives will attend Environmental Advisory Committee meetings to provide technical assistance to the Committee.

8. Agendas

Agendas are set by the Director in consultation with the Chair.



Subject: Feasibility of the Containment or Removal of Phragmites

Prepared by: Christina Nagy-Oh, Program Manager, Environmental Initiatives and Sara Tienkamp, Manager, Parks (Operational Services)

Department: Planning and Development Services

Date: June 14, 2018

Recommendation

- 1. That Report No. EAC18-001 be received for information.**

Executive Summary

The purpose of this report is to provide the Environmental Advisory Committee (EAC) with information on the feasibility of the containment or removal of phragmites and public education strategy:

- **Best management practices for control of Phragmites**
- **Active partnerships in Aurora working to combat invasive plant species**
- **Public education and awareness**
- **Municipalities at different stages in the process of dealing with invasive species**
- **Building a management plan for invasive species in Aurora**
- **Recommended priority treatment areas for Phragmites**

Background

At the November 24, 2016 EAC meeting, a citizen advocate provided an overview of invasive plant species in Aurora.

The Invasive Species Act was brought into effect in 2015 by The Province of Ontario to deal with invasive species. In November 2016 the Province of Ontario categorized Phragmites, Dog-strangling vine and Japanese knotweed as “restricted” under the Invasive Species Act. The same three invasive plants appear to be the most threatening in the Town of Aurora, with phragmites posing the highest threat.

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Report No. EAC18-001

Phragmites is a highly invasive European grass that is overwhelming many wetlands, watercourses and roadsides across Ontario. It rapidly out competes native plants, spreads aggressively and reduces areas of suitable habitats for many species of native amphibians, reptiles and birds.

As a result of the November 24, 2016 meeting, EAC put forward the following Motion which was carried at Council on December 13, 2016.

New Business Motion No. 3

1. That the Environmental Advisory Committee recommend to Council:
 - (a) That staff be directed to investigate the feasibility of containment or removal of phragmites, and report back to Council within the first quarter of 2017; and
 - (b) That a public education strategy be developed regarding phragmites, dog-strangling vine and Japanese knotwood.

The Program Manager, Environmental Initiatives provided an Invasive Plant Species Update memo to EAC on June 15 2017. This Memo included a preliminary summary of staff research including a list of which Municipalities had developed invasive plant species strategic plans and implemented Public education and awareness campaigns. An attachment to the memo contained photos and descriptions of invasive species hot spots located within Aurora that had already been documented by the citizen advocate.

Analysis

Best management practices for the control of Phragmites

Phragmites is highly invasive and difficult to control due to its ability to grow and spread easily, quickly out-competing native species for water and nutrients. Using Integrated Pest Management (IPM) practices has had the most success in controlling phragmites, in the long term. IPM involves the use of multiple techniques over several years. These techniques include:

- **Prevention:** measures include cleaning equipment before moving it to prevent transportation via equipment, avoiding purposely planting or composting invasive phragmites, and promoting public education and awareness.
- **Early Detection Rapid Response:** this is the best initial option. Once established, phragmites are much harder to control and require much greater investment of resources.

- **Mapping:** helps to establish areas to prioritize for treatment.
- **Control/Management:** options include the use of cutting and crushing by mechanical means, herbicide and/or prescribed burn.
- **Monitoring:** helps to gauge progress and evaluate the success of management actions over time.
- **Long-term Commitment:** maintaining the site is a very important step. Once removal is started, it is important to use different treatment methods annually over time.

There are currently numerous projects focusing on research, mapping and management of phragmites happening all around the Great Lakes region in Canada and the US. For more detailed information on how land stewards are recommended to manage Phragmites please refer to attachment 3, Ontario Ministry of Natural Resources, Invasive Phragmites- Best Management Practices.

Active Partnerships in Aurora working to combat invasive plant species

1. Invasive Species Control Projects within Aurora Community Arboretum

The Aurora Community Arboretum (ACA) has worked on removing invasive species since it's' inception in 1996. During the recent update to the approved 10-year plan for 2018-2028, ACA outlined objectives to eradicate, where possible, or to control the spread of three (3) invasive plant species within the Arboretum:

- Dog-Strangling Vine (DSV)
- Phragmites (European Common Reed)
- Buckthorn

Prior to the new 10 year plan, ACA had already identified in 2015 that phragmites was a threat within the ACA, specifically in the southwest section of the Arboretum, just north of the Tim Horton plaza on Wellington St E and east of the Maximilian Kolbe High School. They retained Urban Forest Associates (UFORA), a firm that specializes in control of invasive species, including Phragmites. UFORA prescribed an action plan and preformed the associated works:

- First manual cutting - July 2015
- Second manual cutting - Aug 2015
- Herbicide treatment - Aug 2015
- Herbicide treatment to regrowth - Sept 2016

The contract costs over the two (2) year span was \$9,775.

In the spring of 2017, ACA planted willow cuttings to establish a tree canopy that would shade out the phragmites as it will not grow in shade. Initially the willows looked good but they did not survive over the summer. In October 2017 it was observed that the phragmites had started to regrow, though sparsely and were hand-treated by ACA with herbicide under the guidance of Town parks staff. ACA will continue to monitor the area in 2018 but it is evident that far more funding will need to be allotted to successfully control phragmites over the long term.

Many other patches of phragmites have been identified within the ACA by their maintenance team of volunteers who have carried out limited control efforts since 2016, including removal of seed heads, cutting and controlled herbicide application. Their efforts have been limited due to volunteer capacity and sheer volume of the species. See Attachment 7 for the Arboretum's Invasive Species Location Map.

In 2017 ACA initiated a project to look at various control methods for phragmites within the Arboretum. This was a detailed plan developed to study the effect of seven (7) different control methods in designated test plots. These plots are highly visible as they are adjacent to many of the trials being utilized within the arboretum, this resulted in an opportunity to provide an education and awareness component for the public through signage located along the trial.

Attachment 2 is a table, provided by the ACA which outlines the methods used, resources and equipment and the results as of end of 2017. The outcomes will be monitored in 2018 and 2019. This projects costs to date consist of many volunteer labour hours.

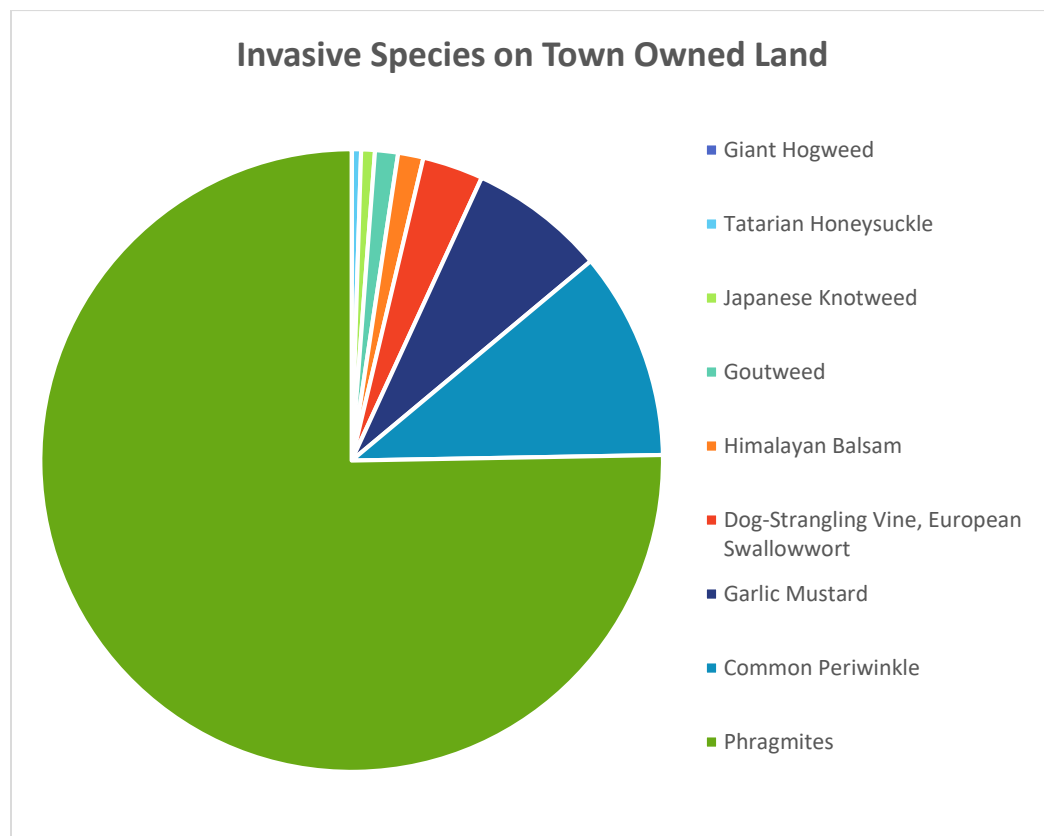
2. Citizen advocate partnership

Parks staff engaged Barry Bridgeford in 2017 to map the existing invasive plant species in the Aurora Community Arboretum (ACA), on town owned land and on private lands he was given access. The data collected was input into Early Detection and Distribution Mapping Systems (EDDMS). Please see Attachment 1 for the comprehensive EDDMS Summary chart which lists the Invasive species mapped to date, total land area occupied and ownership of land.

The following table and pie chart summarizes the total area of Town owned land which contains invasive plant species mapped to date. The total infected area for town owned

properties that have been mapped is 54,442 Square meters and 40,987 square meters or 75 percent mapped is the invasive plant species Phragmites. The Province of Ontario has categorized the three species with names in colour as “restricted” under the Invasive Species Act.

Invasive Species Totals for Town Owned Land	Square meters	Percentage %
Giant Hogweed	8	0.01
Tatarian Honeysuckle	257	0.5
Japanese Knotweed	388	0.7
Goutweed	650	1
Himalayan Balsam	715	1
Dog-Strangling Vine, European Swallowwort	1,717	3
Garlic Mustard	3,851	7
Common Periwinkle	5,869	11
Phragmites	40,987	75
Total Infected Area for Town Owned Properties:	54,442	100



3. Lake Simcoe Regional Conservation Authorities' management of Invasive plant species on the Sheppard's Bush Property

LSRCA has an invasive species monitoring program, which heavily relies on getting funding for a summer student from the Ontario Federation of Anglers and Hunters (OFAH). Obtaining funding for 3 months of staff time, allows them to monitor invasive species for that season. LSRCA typically inventories properties on a three year cycle. Sheppard's Bush was inventoried in 2015, and again in 2017 due to the Sheppard's Bush Management Plan Update. The priority species the LSRCA are targeting at Sheppard's Bush is Japanese knotweed and Dog-Strangling Vine (DSV).

In June 2017 the LSRCA Lands Division removed Japanese knotweed in the forest adjacent to the Sheppard Family House. Japanese Knotweed is a highly invasive plant that is strong enough to crack the foundation of houses. This was a critical project to ensure the safe keeping of this structure located on the Sheppard's bush property. Additionally LSRCA secured a Ministry of Natural Resources (MNRF) Stewardship Youth Ranger, enabling the removal of the vast majority of DSV on the property, as well as conduct a second removal of Japanese knotweed in the same season. See attachment 8 for Sheppard's Bush Invasive Species Map created by LSRCA.

4. MNRF Stewardship Youth Ranger Program

The Parks Department has supported the MNRF Youth Ranger program for many years, which focuses on providing environmental based educational work experience to 17 year old youth who are interested in pursuing a higher education in environmental studies. Each year the town retains the services of a crew consisting of five (5) youth and one (1) team lead for one (1) to two (2) weeks to assist with park projects. Some of these works during their tenure are dedicated to the removal of invasives from within our green spaces. The species targeted have been Buckthorn and Garlic Mustard as they can be dealt with by cutting or manual pulling. This partnership has been of great value to The Town of Aurora and MNRF as we have been able to receive assistance in controlling invasive species, as well as providing a valued hands on educational component for the youth.

5. Silv-Econ Ltd. research on biological control for Dog Strangling Vine

Silv-Econ has undertaken research about the detection, management and ecology of invasive species. Collaborating with researchers at Agriculture and Agri-Foods Canada and University of Toronto, Silv-Econ has been working on the rearing, release and monitoring of a new biological control agent (*Hyphenia opulenta*) for dog-strangling vine. The Parks Department has been in support of them by providing a fresh food source of DSV to feed the larvae in the laboratory as well as providing greenhouse space to grow

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pots of DSV and release test plot locations. This research project is still underway and data to date has been promising.

Public Education and Awareness

In 2016 staff posted information on the Town's website about invasive species along with informative links and photos to help residents with identification and education. This website information continues to be updated regularly.

<https://www.aurora.ca/Live/Pages/Environment%20and%20Sustainability/Invasive-Species.aspx>

As part of the Arboretum's test plot project to control phragmites, informative signage has been installed along side the plots regarding invasive species. Please see Attachments 4 and 5, signage communicating the phragmites partnership and project with the public in the ACA.

At Sheppard's Bush, signage has been posted by LSRCA to assist the public in identifying invasives and educating the public on the spread of invasive plants. Please see Attachment 6, to view the signage placed in Sheppard's Bush.

Municipalities at different stages in the process of dealing with invasive species

Municipalities across the province are all at varying stages of dealing with invasive species management. Some are in the planning stage, some trying to obtain funding and some have draft plans. Very few, formal Invasive Species Management Strategies have been developed and endorsed to date. The legislation is fairly new within the province and developing a strategy is extremely time consuming, as many municipalities do not have the staff or expertise in house to draft plans. As well, the funding to support a strategy is significant as it could involve dedicated staff, contractors and operating/capital budgets depending on spread and make up of the invasive in the municipality.

The nine (9) local Municipalities within York Region do not have invasive plant control plans. Most seem to be doing control and mapping housed within different departments and as unofficial random control efforts on an as-needed basis i.e. Giant Hogweed in Whitchurch-Stouffville, or Wild Parsnip in Markham based on complaints or identified hazards in parks. From recent correspondence with local Municipal staff there are two situations where they will make efforts to control invasive species on Town owned land.

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The first is to address noxious invasive species that pose a public safety threat such as Giant Hogweed. The second is during natural area restoration projects where Parks staff manage invasive species for a 3 to 5 year period in order to ensure their investment in native plant material has an opportunity to establish without the threat of invasive plants outcompeting them.

Building a management plan for invasive species in Aurora

In absence of a formal management plan for invasive species it is difficult to make informative decisions, secure funding and deal with legislative requirements. While there are many small initiatives underway within the Town of Aurora and some good work being done it is difficult to advance invasive species initiatives without a formal management plan or strategy. Items for consideration and advancement include:

- Development of an Invasive Species Management Plan/Strategy
- Establish an invasive species Best Management Practices (BMPs)
- Implement BMPs on Town-managed land
- Create invasive species management standards and specifications for the development or redevelopment of Town land
- Advance the Emerald Ash Borer Management Strategy
- Continue to promote and plant native species
- Pursue new and strengthen existing partnerships to manage invasive species
- Develop a community education and outreach program for invasive species management and native plant species promotion

Recommended priority treatment areas for Phragmites

Without the existence of a strategy and based on their locations, ongoing control initiatives and potential threat to the natural environment the following areas should be considered for control.

1. Mackenzie Marsh (EDDMS # 4757365) – very close to entering the water's edge where treatment then becomes very difficult. Approximately 128 square meters.
2. Wildlife Park (EDDMS #4759925) – only patch of phragmites identified within the future Wildlife Park. Approximately 149 square meters.
3. Existing Arboretum test plot (EDDMS # 4759925, North of Tim Horton's @ John West Way,) – after cutting and herbicide, the monitoring program is seeing the

phragmites growing back. Treatment should continue to ensure control is sustained. Approximately 2292 square meters, though entire area does not require full treatment. See Attachment 1 for the complete EDDMS Summary Table which lists all of the recorded invasive species, land ownership and infested area in square meters.

Conclusions

The information included in this report illustrates that control of all invasive species, not just phragmites is an immense undertaking that requires a formal management strategy in order to sustain our natural environment, through informed decisions as it relates to staffing requirements, funding and legislative requirements.

Attachments

Attachment 1: EDDMS Summary Table

Attachment 2: ACA Phragmites Test Plots Project Table

Attachment 3: Invasive Phragmites – Best Management Practices 2011, Ontario
Ministry of Natural Resources

Attachment 4: Signage for Arboretum - ACA

Attachment 5: Phragmites signage for Arboretum - ACA

Attachment 6: Signage for Sheppard's Bush - LSRCA

Attachment 7: ACA Invasive Species Location Map

Attachment 8: Sheppard's Bush Invasive Species Map - LSRCA

Previous Reports

Invasive Plant Species Update EAC Memo, dated June 2017

Pre-submission Review

Agenda Management Team review on May 31, 2018

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Report No. EAC18-001

Departmental Approval

A handwritten signature in black ink, appearing to read 'MR', with a long horizontal flourish extending to the right.

**Marco Ramunno
Director
Planning and Development Services**

Attachment 1: EDDMS Summary Table

Town of Aurora

Record_ID	Common Name	Date Verified (dd/mm/yyyy)	Ownership	Total Area (in sq. m.)	Percent Cover	Comments
4724029	Goutweed	27/06/2016	Town	650.000	Not Reported	
4724030	Garlic Mustard	27/06/2016	Town	1340.000	Not Reported	
4748417	European Common Reed	20/07/2016	Town	1255.400	High	
4748475	European Common Reed	20/07/2016	Town	17960.000	High	Portion on Hydro Corridor
4750229	European Common Reed	27/07/2016	Town	2010.000	High	
4750231	European Common Reed	27/07/2016	Town	723.831	High	
4757365	European Common Reed	04/08/2016	Town	128.457	High	
4759175	European Common Reed	09/08/2016	Town	966.302	High	
4759925	European Common Reed	10/08/2016	Town	148.524	High	
4759971	European Common Reed	11/08/2016	Town	730.000	High	
4761344	European Common Reed	16/08/2016	Town	179.662	High	
4761759	European Common Reed	18/08/2016	Town	1151.670	High	
4762325	European Common Reed	23/08/2016	Town	24.546	High	
4769969	European Common Reed	19/09/2016	Town	1034.340	High	
4769978	European Common Reed	19/09/2016	Town	78.812	Moderate	
4770037	Japanese Knotweed	19/09/2016	Town	6.348	High	
4770846	European Common Reed	08/09/2016	Town	252.649	Moderate	
4771049	Tatarian Honeysuckle	12/09/2016	Town	256.671	Moderate	
4772192	Dog-Strangling Vine, European Swallowwort	19/09/2016	Town	262.957	Moderate	
4776783	European Common Reed	13/10/2016	Town	1350.430	Not Reported	
4776967	European Common Reed	13/10/2016	Town	2581.450	High	Portion on Hydro Corridor
4777179	European Common Reed	13/10/2016	Town	710.470	High	
4777222	European Common Reed	13/10/2016	Town	103.726	High	
4778168	European Common Reed	14/10/2016	Town	267.238	High	
4778350	European Common Reed	18/10/2016	Town	1050.420	High	
4778357	Dog-Strangling Vine, European Swallowwort	18/10/2016	Town	1391.450	Moderate	
4778358	European Common Reed	18/10/2016	Town	136.237	High	
4778359	European Common Reed	18/10/2016	Town	2292.42	Low	
4778372	European Common Reed	18/10/2016	Town	176.671	Moderate	
4779670	European Common Reed	26/10/2016	Town	710.345	High	
4780007	Japanese Knotweed	31/10/2016	Town	36.985	High	
4780636	European Common Reed	10/11/2016	Town	291.801	High	
4780659	European Common Reed	09/11/2016	Town	961.221	High	
4791816	Garlic Mustard	01/12/2016	Town	7.820	Moderate	
4791817	Garlic Mustard	01/12/2016	Town	55.622	Moderate	
4791818	Garlic Mustard	01/12/2016	Town	4.851	Moderate	
4873015	Common Periwinkle	14/03/2017	Town	5869.280	High	
4882195	Dog-Strangling Vine, European Swallowwort	29/03/2017	Town	62.994	Low	Near Mosley St - Town Road
4882467	Japanese Knotweed	04/04/2017	Town	134.125	High	
4887084	Japanese Knotweed	05/05/2017	Town	4.744	High	
4887306	Japanese Knotweed	05/05/2017	Town	161.548	High	
4909624	Himalayan Balsam	07/07/2017	Town	423.014	High	
4912285	Himalayan Balsam	17/07/2017	Town	181.803	High	
4912291	Giant Hogweed	17/07/2017	Town	8.194	Moderate	
4912292	Himalayan Balsam	17/07/2017	Town	53.068	High	
4912293	Himalayan Balsam	17/07/2017	Town	57.175	High	
5160348	Japanese Knotweed	11/09/2017	Town	44.235	High	Near Water Well Lane - Town Road

Total Infected Area (sq. m.): 48289.506

Town of Aurora, Region of York and/or Private

Record_ID	Common Name	Date Verified (dd/mm/yyyy)	Ownership	Total Area (in sq. m.)	Percent Cover	Comments
4769976	European Common Reed	19/09/2016	Town/Regional/Private	1393.080	High	Near Leslie St - Regional Road
4779743	European Common Reed	26/10/2016	Town/Regional	273.526	High	Near Bayview Ave - Regional Road
4780001	European Common Reed	31/10/2016	Town/Private	496.523	High	
4780688	European Common Reed	09/11/2016	Town/Private	830.868	High	
4780711	European Common Reed	09/11/2016	Town/Private	716.224	High	
4905010	Garlic Mustard	28/06/2017	Town/Private	2442.390	Moderate	Near Brookland Ave - Town Road

Total Infected Area (sq. m.): 6152.611

Private

Record_ID	Common Name	Date Verified (dd/mm/yyyy)	Ownership	Total Area (in sq. m.)	Percent Cover	Comments
4724031	Garlic Mustard	27/06/2016	Private	1770.000	Not Reported	Near to Town Property
4742084	Dog-Strangling Vine, European Swallowwort	06/07/2016	Private	2910.000	Not Reported	Provincial Building - 50 Bloomington Rd W
4750230	European Common Reed	27/07/2016	Private	1230.000	High	Near Wellington St E - Regional Road
4750233	European Common Reed	27/07/2016	Private	1000.000	High	Near Industrial Parkway N - Town Road
4750234	European Common Reed	27/07/2016	Private	134.869	High	
4754576	Dog-Strangling Vine, European Swallowwort	02/08/2016	Private	2.500	Moderate	Close to Town Property
4757410	European Common Reed	04/08/2016	Private	693.460	High	Near Yonge St & St. John's Sdrd - Regional Roads
4760952	Japanese Knotweed	15/08/2016	Private	1279.790	High	Near Yonge St - Town Road
4761095	Japanese Knotweed	15/08/2016	Private	293.079	High	
4766019	Japanese Knotweed	31/08/2016	Private	1047.480	Moderate	Near Yonge St and Irwin Ave - Town Roads
4776724	European Common Reed	13/10/2016	Private	5576.490	High	
4777492	European Common Reed	11/10/2016	Private	540.040	High	
4781008	European Common Reed	14/11/2016	Private	761.157	High	
4791992	European Common Reed	01/12/2016	Private	20.442	High	
4845379	Japanese Knotweed	30/01/2017	Private	41.646	High	
4882465	Japanese Knotweed	04/04/2017	Private	46.550	High	
4905011	Japanese Knotweed	28/06/2017	Private	35.945	High	
4911496	Japanese Knotweed	13/07/2017	Private	67.471	High	Near to Town Property
4911513	Japanese Knotweed	13/07/2017	Private	20.861	High	Near Mill St - Town Road
5160329	Japanese Knotweed	11/09/2017	Private	73.329	High	

Total Infected Area (sq. m.): 17545.109

Region of York and/or Private

Record_ID	Common Name	Date Verified (dd/mm/yyyy)	Ownership	Total Area (in sq. m.)	Percent Cover	Comments
4769972	European Common Reed	19/09/2016	Regional/Private	3105.230	High	Near Wellington St E & Leslie St - Regional Roads
4771055	Japanese Knotweed	12/09/2016	Regional	474.019	High	Near Bathurst St & Bloomington Rd - Regional Roads
4776960	European Common Reed	13/10/2016	Regional	118.158	High	Near Bayview Av & Wellington St E - Regional Roads
4777039	European Common Reed	13/10/2016	Regional/Private	1330.750	High	Near Bayview Ave - Regional Road
4777181	European Common Reed	13/10/2016	Regional/Private	802.699	High	Near Bayview Ave - Regional Road
4777485	European Common Reed	12/10/2016	Regional	655.119	High	Near St. John's Sdrd - Regional Road
4777490	European Common Reed	11/10/2016	Regional	18.525	High	Near Bathurst St - Regional Road
4778167	European Common Reed	14/10/2016	Regional	31.026	High	Near St. John's Sdrd - Regional Road
4778370	European Common Reed	18/10/2016	Regional	105.207	High	Near Bayview Ave - Regional Road
4778371	European Common Reed	18/10/2016	Regional	137.686	High	Near Yonge St - Regional Road
4778373	European Common Reed	18/10/2016	Regional	259.768	High	Near Leslie St - Regional Road
4779752	European Common Reed	26/10/2016	Regional	411.084	High	Near Bayview Ave & Bloomington Rd - Regional Roads
4780002	European Common Reed	31/10/2016	Regional/Private	946.105	High	Near Leslie St - Regional Road
4780005	European Common Reed	31/10/2016	Regional	1204.680	High	Near Bloomington Rd - Regional Road
4887298	Japanese Knotweed	05/05/2017	Regional	118.247	High	Near Yonge St - Regional Road

Total Infected Area (sq. m.): 9718.303

Overall Total Infected Area: 81,705.529 sq. m. (20.19 Acres)

Attachment 2: ACA Phragmites Test Plot Project Table

	Plan	Description	Resources, Time commitment	Reference Area	Actions	Sept. 21 - Oct 15 2017
1	Designate a control area	Trim plants then Measure, and monitor, 3 times during summer	Line trimmers with cutting blade, tape measure, camera, 1 person 1/2 hour each time	231 N 20 Sq. Meters N. of 231 S	Work completed on Aug. 16	Photo taken
2	Trim and cover with 4 by 8 plywood	Trim plants in designated area, cover with 4 by 8 sheets of plywood for one year, measure results	Line trimmers with cutting blade, plywood, T bars 3 people 2 hours	231 S 15 Sq. Meters W. BD # 3	Work completed on Aug. 17, plywood installed Aug. 17 sign installed Aug. 20	Photo taken, Line trimmed, replacement plants
3	Trim and cover with 4 by 8 plywood	Trim plants in designated area, cover with 4 by 8 sheet of plywood for two years, measure results	Line trimmers with cutting blade, plywood, T bars 3 people 2 hours	659 15 Sq. Meters S of Storm Pond	Work completed Aug. 16, plywood installed Aug. 20, no sign posted	Photo taken, Line trimmed, replacement plants
4	Trim and cover with black plastic	Trim plants in designated area, cover with black plastic 10 by 20 ft. for one year, measure results	Line trimmers with cutting blade, black plastic , 3 people 2 hours	231S 45 Sq.Meters W. BD # 3	Work completed on Aug. 16, tarp installed Aug. 17, sign installed Aug. 20	Photo taken, Line trimmed, replacement plants Photo taken of tarp blown off, planted Dogwood, Sycamore and Witch Hazel
5	Trim and cover with black plastic	Trim plants in designated area, cover with black plastic 10 by 20 ft. for two years, measure results	Line trimmers with cutting blade, black plastic, 3 people 2 hours	659 45 Sq.Meters S of Storm Pond	Work complete Aug. 16, tarp installed Aug. 17, no sign posted	Photo taken, Line trimmed, replacement plants
6	Trim several times in season	Trim plants and repeat throughout summer, with shovel (follow Lynn Short Procedure)	Line trimmers with cutting blades , shovel 2 or 3 people initially 2 hours, 1 hour for follow up	372 15 Sq. Meters W. side of main trail N. of Berkshire Pond	Insufficient resources to do as other areas took a longer time to complete. Will look to do in future if resources available.	
7	Trim and treat with herbicide	Trim plants and apply herbicide in late summer, as we did with Tim Hortons area	Line trimmers, with cutting blade, herbicide, initial work 2-3 people 2 hours, 1 for follow up	636 20 Sq. Meters N W corner of Soccer	Work completed on Aug. 16, sign installed Aug. 20	Photo taken, sprayed regrowth with Garlon Planted Sumac, Dogwood, Witch Hazel

SYR=Stewardship Youth Ranger Program, MNRF

Attachment 3

Invasive *Phragmites* – Best Management Practices

2011



ontario.ca/invasivespecies

This document should be cited as follows: Ontario Ministry of Natural Resources, Invasive *Phragmites* – Best Management Practices, Ontario Ministry of Natural Resources, Peterborough, Ontario. Version 2011. 15p.

Front cover photo courtesy of Ontario Federation of Anglers and Hunters.

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Photo courtesy of Dave Featherstone.



Photo courtesy of Janice Gilbert, MNR.

These Best Management Practices (BMPs) are designed to help control the invasive plant *Phragmites australis* subsp. *australis* (common reed) and are based on the most effective and environmentally safe *Phragmites* control practices known from recent research findings, field trials, and experience. These BMPs are subject to change as new research findings emerge.

Introduction

Phragmites australis subsp. *australis* (Common reed) is an invasive perennial grass that was transported from Eurasia and is causing severe damage to coastal wetlands and beaches in North America. In 2005, Agriculture and Agri-food Canada identified it as the nation's "worst" invasive plant species. Invasive *Phragmites* was first introduced along the eastern seaboard but have since been identified and located farther west and north of the original point of introduction. In Ontario, invasive *Phragmites* has been identified across the southern part of the province, with scattered occurrences as far north as Georgian Bay and Lake Superior. Invasive *Phragmites* is currently sold through the horticultural trade as an ornamental plant and spreads through various methods, including by wind and

water. Stands of invasive *Phragmites* decrease biodiversity and destroys habitat for other species, including Species at Risk. The Ontario Ministry of Natural Resources works with several partners towards controlling and managing invasive *Phragmites australis*.

The name *Phragmites* is derived from the Greek term *phragma*, meaning fence, hedge, or screen. Invasive *Phragmites* is a subspecies known as *Phragmites australis* subsp. *australis*, and is closely related to the native subspecies *americanus*. Much of the biomass of invasive *Phragmites* is found underground, in an intricate system of roots and rhizomes. This aggressive plant grows and spreads easily, quickly out-competing native species for water and nutrients. Invasive *Phragmites* releases toxins from its roots into the surrounding soil which impedes the growth of and even kills off neighbouring plants. It thrives in disturbed habitats and is often among the first species to colonize a new area. This plant prefers areas of standing water but the roots can grow to extreme lengths allowing the plant to survive in low water areas. Invasive *Phragmites* is sensitive to high levels of salinity, low oxygen conditions, and drought, all of which can limit the viability of seeds or rhizome fragments.

Life Cycle of Invasive *Phragmites*

In general, growth of invasive *Phragmites* follows these timelines however exact timing will be site-dependent:

- Dormant: November–March
- Germination: April–May
- Primary vegetative growth: June–July
- Flowering: August–September
- Translocation of nutrients: September–October

Reproduction

Invasive *Phragmites* reproduces by dispersing seeds, by roots via rhizomes, or by stolon fragments. Dispersal can be natural through water, air, or animal movement, as well as through human actions and equipment such as horticultural trade, boats, trailers, or ATVs. Invasive *Phragmites* rhizomes can grow horizontally several metres per year and this is the most common method of reproduction. Vertical plant growth can reach 4 cm per day and plants can produce thousands of seeds annually.



Figure 1: A native *Phragmites* stand (left) and an invasive *Phragmites* stand (right). Note the varied vegetation and lower density of native *Phragmites* stalks on the left and the taller, higher density invasive *Phragmites* stalks on the right.

Native stand photo courtesy of Erin Sanders, MNR. Invasive stand photo courtesy of Janice Gilbert, MNR.

Invasive vs. Native *Phragmites*

The invasive subspecies (*australis*) of *Phragmites* is similar to a native species (subspecies *americanus*), and it is imperative that a stand be identified before implementing a management plan. When large-scale control is planned any stands of native *Phragmites* should be protected because unlike the invasive strain, native *Phragmites* rarely develops into monoculture stands, does not alter habitat, has limited impact on biodiversity, and does not deter wildlife.

It can be difficult to tell native and invasive *Phragmites* apart, and genetic analysis may be necessary. Some identifying characteristics that may help tell the species apart are:

- Stand height
- Stand density
- Stem colour
- Leaf colour
- Seedhead density

	Native <i>Phragmites</i>	Invasive <i>Phragmites</i>
Stand height	No taller than 2 metres	Up to 5 metres (15 feet)
Stand density	Sparse, interspersed with native vegetation	Dense monoculture, up to 100% invasive <i>Phragmites</i>
Stem colour	Reddish-brown	Beige, tan
Stem texture	Smooth and shiny	Rough and dull
Stem flexibility	High flexibility	Rigid
Leaf colour	Yellow-green	Blue-green
Leaf sheaths	Fall off in fall, easily removed	Remain attached, difficult to remove
Lower glume	3.7–7 mm	2.6–4.2 mm
Flower timing	Early (July–August)	Intermediate (August–September)
Seedhead density	Sparse, small	Dense, large



Figure 2: A native *Phragmites* stem (left) and an invasive *Phragmites* stem (right). Note the reddish brown native stem on the left, and the tan/beige invasive stem on the right.

Native stand photo courtesy of Erin Sanders, MNR. Invasive stand photo courtesy of Janice Gilbert, MNR.

Invasive *Phragmites* stands can grow up to 5 metres tall (15 feet) in very dense stands with up to 200 stems per square metre. These near-monoculture stands can consist of 100% invasive *Phragmites*. In comparison, native *Phragmites* does not grow as tall, and does not out-compete other native species, so there is more diversity within a stand (Figure 1).

Invasive *Phragmites* stems are generally tan or beige in colour with blue-green leaves and large, dense seedheads, in contrast to the reddish-brown stems, yellow-green leaves, and smaller, sparser seedheads of native *Phragmites* (Figure 2, 3, and 4). Cross-breeding between invasive and native *Phragmites* plants has not been confirmed in the field, but has been produced in laboratory studies. Where the plant is found in certain environmental conditions such as those that occur along sandy coastal shorelines and deep water systems, the morphological differences described above are not definitive. If it is not clear whether a *Phragmites* plant is invasive or native, it is recommended that a *Phragmites* expert be consulted.

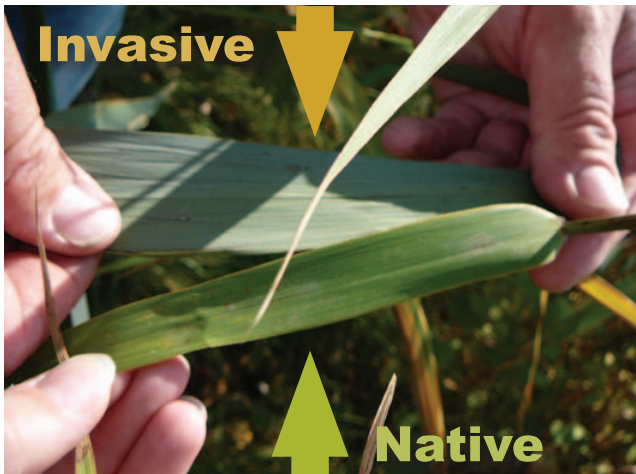


Figure 3: A native *Phragmites* leaf (bottom) and an invasive *Phragmites* leaf (top). Note the yellow-green native *Phragmites* leaf, and blue-green invasive *Phragmites* leaf above.

Photo courtesy of Erin Sanders, MNR.



Figure 4: A native *Phragmites* seedhead (top) and an invasive *Phragmites* seedhead (bottom). Note that the native *Phragmites* seedhead is smaller and sparser compared to that of the invasive *Phragmites*.

Photo courtesy of Erin Sanders, MNR.

Control Measures

Controlling invasive *Phragmites* before it becomes well-established will reduce the environmental impacts, time, and costs. The effectiveness of early detection and reporting is greatly increased through public education. Proper identification of the plant is critical. Once invasive *Phragmites* is confirmed, a control plan should be developed and implemented taking into consideration any site specific conditions such as native plant diversity, wildlife usage, and water table fluctuations. A detailed inventory of each site is strongly recommended prior to initiating control efforts to help ensure the proper control methods and timing are selected to minimize negative impacts to the system. The inventory should identify the flora present and wildlife usage so there is minimal impact to them resulting from the control measures. Recreational usage and the presence of people and domestic animals around control sites should be minimized when herbicides are being used.

The presence of Species at Risk flora or fauna at the site is a key consideration in control planning. There are a number of mitigation efforts that can be used to reduce potential harm to plant Species at Risk, including timing. Further information is available from a local Species at Risk Biologist in the MNR district office.

Due to the extensive underground rhizome system created by invasive *Phragmites*, the use of a single control measure is not always effective, and disturbance to an area may actually increase the density and spread of an invasive *Phragmites* stand. The Ontario Ministry of Natural Resources recommends using an integrated pest management (IPM) plan, which combines two or more methods into a long-term plan that follows up initial treatments with frequent monitoring and re-assessment, and subsequent treatments if necessary. Case-by-case assessments will help determine which combination of control measures will be most effective in a given area.



Photo courtesy of Francine MacDonald, OFAH.



Figure 5: A study site at MacLean's Marsh, using 5% glyphosate. Before: Pre-treatment, 2007. After: Post-treatment, 2008. Note: There was no standing water in this area at the time of treatment.

Photos courtesy of Janice Gilbert, MNR.

Management options for control include mechanical excavation, flooding, herbicide application, and prescribed burning. The most effective approach for most situations is a combination of herbicide application, cutting/rolling and prescribed burning. Herbicide label restrictions may prohibit the use of the herbicide in or over water and sites that are flooded for the entire growing season cannot be controlled using the available herbicides.

The success of any control project is dependent upon a number of factors including stand density, accessibility, and the control options employed. Complete eradication of invasive *Phragmites*, particularly in well-established stands, is rarely achieved after one treatment. Depending upon the site, annual visits and touch up control work will be required for several years. Post-treatment assessments are recommended to track control efficacy and guide future management.

Regeneration of native plants from the residual seed bank should be seen in the growing seasons following control measures, but some sites may require seeding or planting particularly if plant diversity historically was low.

Herbicide Application

While using herbicides is not always an ideal solution, in some situations the detrimental effects of allowing invasive *Phragmites* to flourish can far outweigh the negative effects of pesticide use.

Ensure all necessary permits are obtained and regulations followed when using herbicides. In Ontario, herbicide storage, use, transport, and sale is regulated under the Pesticides Act and Regulation 63/09 (information available at www.e-laws.gov.on.ca/html/source/regs/english/2009/elaws_src_regs_r09063_e.htm#BK37)

Section 33 under Regulation 63/09 provides an exception for Class 9 pesticides (i.e., pesticides that are prohibited for cosmetic use purposes) to be used for natural resource management purposes.

Class 9 pesticides can be used by the following persons, if they hold the appropriate exterminator license:

- an employee of MNR;
- an employee of a Conservation Authority;
- an employee of a body having a written agreement with MNR to manage natural resource features; or

- a licensed exterminator providing a service to MNR, a Conservation Authority, or a body responsible for managing a natural resource management project under a written agreement with MNR.

If the extermination is done by a body not mentioned above, a written Letter of Opinion is required from the Branch or Regional Director of the Ministry of Natural Resources. Depending on the site, other agency approvals may also be necessary. Proper public notification signage as prescribed in Regulation 63/09 is required to be posted at all treated areas.

Herbicide type:

When selecting an herbicide, it is best to choose one specifically designed for use on grass species. Herbicides with high animal LD50 values indicate low acute toxicity levels for wildlife. Herbicides that are broken down microbially into harmless compounds have a short half-life, and are preferred. Herbicides used for *Phragmites* control should be able to translocate from the application site (usually the leaves or stems) down to the roots, effectively killing the entire plant.

In North America, there are two herbicide active ingredients shown to be effective in *Phragmites* control: glyphosate and imazapyr. Both are formulated into products under a range of common or brand names. Imazapyr is a more effective herbicide, but is also more expensive than glyphosate.

Management plans that combine the two herbicides can decrease costs while maintaining high levels of efficacy. Alternating herbicide active ingredients can decrease the chances of *Phragmites* developing resistance to one or the other herbicide.

Information and regulations regarding the use of herbicides, including precautions, storage, disposal, solution concentrations, and buffer zones can be found at: <http://pr-rp.pmra-arla.gc.ca>.



Photo courtesy of Janice Gilbert, MNR.

Methods of application:

Herbicides can be applied to a stand of invasive *Phragmites* through a variety of methods, including spraying and wicking. Choosing an appropriate method will depend on the characteristics of the site, as well as the logistics of the overall management plan for the area. Because the herbicides are broad spectrum, it is important to target monocultures or stands that are composed of a large fraction of invasive *Phragmites* and limit application to the upper canopy, avoiding native vegetation growing in the understory. Even in lower-density stands, the use of herbicides can be effective, since less chemical is needed to control a stand and native species often respond well once the invasive *Phragmites* is removed.

Spraying herbicides is effective for dense monoculture stands and spraying directly onto the leaves using high pressure is common, but a small backpack sprayer or a larger boom sprayer attached to an all-terrain vehicle (ATV) or similar vehicle will work. Backpack spraying allows for targeted spraying and is effective in areas where a boom sprayer cannot easily gain access, and in mixed vegetation or previously treated stands.

Larger sprayers effectively target dense stands in larger areas. When spraying, take into consideration weather and wind conditions and limit any non-target drift to plants or wildlife present in the area.



Photo courtesy of Janice Gilbert, MNR.

Wicking or daubing is effective for small stands, and allows herbicide application to specific plants, while avoiding native vegetation. Hand-wicking involves direct contact with each individual stalk using an absorbent glove soaked in herbicide, while daubing uses an applicator to directly apply the herbicide to the plants. Hand-wicking is labour-intensive and difficult on tall stands, but can be done where wind and weather conditions do not allow for spraying.

Concentration:

The concentration of the herbicide in a spray or wicking treatment will affect the ability of the pesticide to enter and control the plant. Following the label directions is required by federal legislation, the Pesticides Act and Regulation 63/09.

Timing:

The optimum window for *Phragmites* control using an herbicide occurs between early spring, when plants begin to emerge, until late fall, when the first heavy frost causes significant die off. Take into account surface water and habitat usage when planning herbicide applications. Wildlife is rarely observed in the centre of large *Phragmites* stands, but is commonly observed in smaller, narrower stands, or at the edge of stands. Depending upon the type and density of wildlife usage, controlling *Phragmites* may be best left for late summer or fall when young animals are mobile and wildlife usage is generally far less.



Photo courtesy of Darren Jacobs.

By postponing spray events until late summer/early fall, most native plants will have become dormant or died for the season and/or their seeds will have matured. At this time, invasive *Phragmites* will still be translocating nutrients into the root system, and is capable of transporting the herbicide into the roots. The invasive *Phragmites* remains active much later into the fall and is one of the last herbaceous plant species observed to mature and for stalks to die off naturally.

Mowing

Mowing of an invasive *Phragmites* stand using tools or by hand-cutting stems and seedheads will not affect the root system and if used as a standalone control method, cutting may stimulate growth and increase the density of a stand. Consider soil moisture and other conditions that allow the soil to support heavy mowing equipment, as these can impede the ease and efficacy of mowing, and may be unsafe. Mowing should be conducted in late July/early August, when most of the carbohydrate reserves are in the upper portion of the plant (i.e., during seed production or flowering). Mowing is relatively low-cost, and can be easily performed with minimal training. All clothing, boots, and equipment should be cleaned on-site to avoid the transportation and dispersal of invasive *Phragmites*.

As part of an IPM plan: Mowing or cutting an invasive *Phragmites* stand is an important component of an IPM plan. Mowing compacts the dead biomass, allows for a more effective and efficient prescribed burn to follow,



Photo courtesy of Janice Gilbert, MNR.

removes dead biomass, and allows for spot treatment of new invasive *Phragmites* growth, and for new native plants to grow. Herbicide treatment prior to mowing can help in reducing the moisture content of stalks and leaves. When combining mowing with herbicide application, mowing should occur at least two weeks after herbicide treatment, to allow for translocation of the herbicide to the roots.

As a standalone control method: This is not an advisable method as it has shown to be ineffective in controlling invasive *Phragmites*. However, if cutting is necessary, herbicides can still be applied to a mowed stand at the appropriate time of year. In low-nutrient sites it may be possible to stress the plants enough to dampen re-growth under a repeated cutting regime. If the seedheads of a plant are removed before nutrients can be provided to the root system, it may be possible to effectively exhaust the root reserves, causing the plant to die. Cutting must occur several times throughout the entire growing season and over a course of several consecutive years for any improvements to occur.

When considering mowing as a standalone control method, it should be limited to areas that contain predominantly invasive *Phragmites*, to avoid broadscale mowing of other native vegetation. Invasive *Phragmites* stalks should be cut to a maximum height of 10 centimetres. Avoid soil disturbance and the distribution of seeds or rhizomes which may increase growth and spread of the stand. Remove cut debris and leftover dead biomass to allow native vegetation to grow, and dispose of in the proper manner.

Compressing or Rolling

Compressing or rolling dead stalks using a roller acts in a similar manner to mowing or cutting and is not effective as a standalone control method. Compressing compacts the dead biomass, allows for a more effective and efficient prescribed burn to follow, and makes plants easier to see and spot treat new growth. Compression or rolling may occur at any time after the plant is dead, once the herbicides have had an opportunity to translocate throughout the plants, killing the rhizomes and root system, and after any wildlife using the stand as habitat have vacated the area.

Prescribed Burning

Prescribed burning is the planned and deliberate use of fire by authorized personnel, and it can be used as part of an integrated management plan, following herbicide application. Ensure all necessary permits are obtained and regulations followed. Burning can be extremely dangerous and should only be undertaken by trained and authorised personnel. The role of fire is to remove biomass that prevents establishment of native vegetation and to provide a source of material for vegetative reproduction. The maximum benefit from fire is obtained when it is done a minimum of two weeks after herbicide treatment, following mowing or rolling of the dead stalks. Prescribed burning without the prior use of herbicides is not an effective control method, and may encourage rhizome growth, leading to the spread or increased growth of a stand. It is strongly



Photo courtesy of Ric McArthur.

recommended that burning does not occur on standing dead *Phragmites* stands because fire containment is difficult and may risk personal safety. Prescribed burning should be used as a way to remove excess above-ground biomass and seeds, promoting native plant growth, and allowing for easier spot treatments of residual plants the following season.

Hand-pulling or Mechanical Excavation

Hand-pulling or mechanical excavation is not an advisable method, as it is very labour-intensive, and is ineffective in controlling invasive *Phragmites*. Mechanical removal is only advisable when it can be assured that no plant material remains on-site. When hand-pulling is the only option, it is most effective on plants that are less than two years old and found in dry, sandy soils. Ensure all portions of the rhizomes are removed from the ground and all parts of the plant are disposed of properly (see section on "Disposal").

Flooding

Flooding stands has varied results and is difficult. For an effective flood, the stand must be in an area in which water levels can be easily controlled and the stand should be cut to as low a height as possible. Flooding should occur in late summer to maintain and promote native vegetation, while avoiding the reestablishment of invasive *Phragmites*. Water levels must be maintained at a minimum of 1.5 metres taller than the entire stand, and levels must be kept at this height for a period lasting at least 6 weeks, over the course of the growing season. In wet sites where this is not feasible, it may be possible to drown newly emerging plants in the spring with shallower water levels. In order for drowning to be effective, all standing dead biomass from previous years must first be removed either by cutting, rolling or burning. Removing all the remaining dead stalks, which normally extend above the water surface, reduces oxygen diffusion to the root system.



Photo courtesy of Michigan Sea Grant.

Tarping

Tarping or solarization of invasive *Phragmites* stands has shown varied results, and is not recommended because it is non-selective and will affect all native vegetation and damage soil biota populations. Tarping works best in *Phragmites* stands that are found in areas of direct sunlight. Before tarping, cut plants to less than 10 cm, and remove or flatten dead biomass. Black plastic tarp or geotextile sheets are then anchored over the area using stakes or weights; the tarps should cover a large buffer area beyond the perimeter of the *Phragmites* stand. Sunlight will cause high temperatures to develop under the plastic, which will eventually kill the plants. While this method is not labour-intensive, continual and frequent monitoring of the *Phragmites* plants along the perimeter is necessary, as there may be runners that grow out from beneath the tarp. The plastic tarp must stay in place for a minimum of six months, in order to ensure complete suppression of the invasive *Phragmites* stand.

Biological Controls

Invasive species that are new to an area do not generally have the same predation pressure that they would in their native habitat. There are no biological controls available for invasive *Phragmites* but researchers at Cornell University in New York are investigating several insects for feasibility in future as biological controls.

Disposal

Care is needed when transporting and disposing of trimmings from mowing or cutting of invasive *Phragmites* stands because stands can establish from the dispersal of seeds or stolon fragments from the rhizome. Invasive *Phragmites* clippings should not be composted; cut plants should be bagged in thick plastic bags, and allowed to dry out or decay in the sun to kill all viable seeds and rhizomes. Dried and dead *Phragmites* plants can be burned or the bags must be disposed of at an appropriate municipal staging or disposal location. Contact local municipalities prior to disposal. All clothing, boots, and equipment should be cleaned on-site to avoid the transportation and dispersal of invasive *Phragmites*.

Effects of Invasive *Phragmites*

- **Loss of biodiversity and species richness:** Invasive *Phragmites* causes a decrease in biodiversity by creating monoculture stands. *Phragmites* stands crowd out native vegetation and hinder native wildlife from using the area, resulting in a decrease in both plant and animal biodiversity.
- **Loss of habitat:** Monoculture *Phragmites* stands result in a decrease in available natural habitat and food supply for various wildlife species, which may include Species at Risk. Invasive *Phragmites* stalks are rigid and tough, and do not allow for wildlife to easily navigate through or nest in a stand.
- **Changes in hydrology:** Invasive *Phragmites* displays very high metabolic rates, which can lead to changes in the water cycles of a system. Monoculture stands of invasive *Phragmites* have the ability to lower water levels, as water is transpired at a faster rate than it would be in an area of native vegetation.
- **Changes in nutrient cycling:** Invasive *Phragmites* stalks are made of a very inflexible structural material which breaks down very slowly. This slows the release of nutrients and leaves a high proportion of recalcitrant biomass (carbon) in the standing dead stalks.
- **Increased fire hazards:** A stand of invasive *Phragmites* is composed of a high percentage of dead stalks, with a lower percentage of live growth. Dead stalks are dry and combustible, increasing the risk of fires.
- **Economic and social impacts:** Invasive species such as *Phragmites* can have many negative effects on economic and social issues. Effects on agriculture and crops can lead to economic losses, while monoculture stands can affect property values, and raise aesthetic concerns.



Photo courtesy of Janice Gilbert, MNR.

How to Prevent the Spread of Invasive *Phragmites*

- **Do not purposely plant it:** Invasive *Phragmites* is available for purchase at garden and horticultural centres, but gardeners should consider using only native plants in their water gardens. By choosing to not plant invasive *Phragmites* in a garden, the risk of spread is limited.
- **Avoid transportation via equipment:** When leaving an area containing *Phragmites*, be sure to brush off clothing and clean off equipment on-site to avoid the transfer of seeds to new sites.
- **Do not attempt to compost invasive *Phragmites*:** Seeds and rhizomes can survive and grow in a compost heap, creating a new stand or dispersing to other areas. In order to dispose of invasive *Phragmites*, plants should be dried and burned or disposed of in the garbage or at a landfill.

Control Method	Pros	Cons	Timing	Notes/Cautions
Herbicide Application	<ul style="list-style-type: none"> Most effective method Can be cost-effective 	<ul style="list-style-type: none"> Must be used in conjunction with other methods Can only be used in dry areas Non-specific 	<ul style="list-style-type: none"> Spring to late fall (pre-senescence) 	
Mowing/Cutting	<ul style="list-style-type: none"> Low cost 	<ul style="list-style-type: none"> Can be labour-intensive Not effective when used as a standalone method Non-specific 	<ul style="list-style-type: none"> If using as part of an IPM: At least 2 weeks after herbicide application If using alone: when the plant is flowering/producing seeds 	
Compression/Rolling	<ul style="list-style-type: none"> Low cost 	<ul style="list-style-type: none"> Non-specific 	<ul style="list-style-type: none"> If using as part of an IPM: At least 2 weeks after herbicide application If using alone: when the plant is dead and dried 	
Prescribed Burning		<ul style="list-style-type: none"> Not effective when used as a standalone method Non-specific 	<ul style="list-style-type: none"> If using as part of an IPM: At least 2 weeks after herbicide application Should be conducted when conditions are as dry as possible 	<ul style="list-style-type: none"> Should always be performed by authorized personnel, following federal and provincial guidelines and regulations as necessary.
Hand-pulling / Mechanical Excavation	<ul style="list-style-type: none"> Can easily target specific <i>Phragmites</i> plants More effective on small, isolated stands of plants less than 2 years old Good for dry, sandy soils 	<ul style="list-style-type: none"> Very labour-intensive Not effective for large stands 		<ul style="list-style-type: none"> Caution regarding soil disturbance Must ensure all portions of the rhizomes are removed from the ground
Flooding	<ul style="list-style-type: none"> Minimal effects on wildlife 	<ul style="list-style-type: none"> Can be used in areas where water levels can be controlled or are naturally prone to floods Non-specific 		
Tarping	<ul style="list-style-type: none"> Minimal effects on wildlife 	<ul style="list-style-type: none"> Not always effective Large impact on soil flora Non-specific 		
Biological controls	<ul style="list-style-type: none"> Target specific plants 	<ul style="list-style-type: none"> Very long timelines Not yet available 		<ul style="list-style-type: none"> More research needed

Table 1: Summary of Control Methods.

Best Management Practices for Invasive *Phragmites* Control in Ontario

In *Phragmites* stands where there is standing water present:

- Herbicides CANNOT be applied.
- Cut/mow the stalks as low as possible.
- Tarping/solarization is another option, but may not be as effective in standing water.

In *Phragmites* stands where the water level can be controlled:

- Cut/mow the stalks as low a height as possible.
- Maintain the water level so that it remains a minimum of 1.5 m taller than the entire stand for a period of at least 6 weeks.

In *Phragmites* stands where there is no standing water present:

- Perform wildlife assessments.
- Time herbicide application appropriately.
- If necessary, mow or roll the stand to compact the dead biomass.
- If appropriate, perform a prescribed burn in the area.
- Monitor and perform follow-up treatments as necessary.

Partners and Resources

- Ontario Ministry of Natural Resources
www.mnr.gov.on.ca
- Ontario Ministry of the Environment
www.ene.gov.on.ca
- Environment Canada
www.ec.gc.ca
- Government of Canada Invasive Species
www.invasivespecies.gc.ca
- Ontario Federation of Anglers and Hunters
www.invadingspecies.com
- Ontario Invasive Plant Council
www.stewardshipcentre.on.ca/index.php/oipc_pages
- Ontario Parks
www.ontarioparks.com
- Turkey Point Provincial Park
www.ontarioparks.com/english/turk.html
- Wasaga Beach Provincial Park
www.wasagabeachpark.com
- Rondeau Provincial Park
www.rondeauprovincialpark.ca
- Parks Canada
www.pc.gc.ca
- Ontario Stewardship
www.ontariostewardship.org
- Conservation Ontario
www.conservation-ontario.on.ca
- Canadian Wildlife Service
www.cws-scf.ec.gc.ca
- Lake Huron Centre for Coastal Conservation
<http://lakehuron.ca>



Attachment 4

PUBLIC NOTICE

Invasive *Phragmites* or European Common Reed (*Phragmites australis* subspecies *australis*) is a perennial grass, native to Eurasia though invasive in North America. This tall grass, reaching over 3 metres in height, has large “broom-like” flower heads and has spread into several areas in the Aurora Community Arboretum.

Invasive *Phragmites* out-competes and displaces native wetland plant species such as cattails, bulrushes and sedges, which results in a loss of biodiversity. The native wildlife lose food sources and cannot find shelter successfully once invasive *Phragmites* has taken over.

The Aurora Community Arboretum is working with the Town of Aurora Parks Department and Lake Simcoe Region Conservation Authority to control the spread of invasive *Phragmites* within its boundaries. Maintenance activities will be undertaken in this area to remove and control the spread of this plant.

Later in the year and next spring, the open areas will be replanted with appropriate native plant species.

For more information, please:

- email trees@auroraarboretum.ca,
- contact us through Auroraarboretum.ca,
- or reach us through the Town of Aurora Parks Dept.

Aurora Community Arboretum

Town of Aurora, Parks Department



INVASIVE

Attachment 5

Phragmites

European Common Reed
Phragmites australis subspecies *australis*



Invasive *Phragmites* or European Common Reed (*Phragmites australis* subspecies *australis*) is a perennial grass, native to Eurasia. In North America, it grows to 3 or more metres with large “broom-like” flower heads. It is increasingly common in Southern Ontario.

Invasive *Phragmites* spreads quickly, often displacing native wetland plants such as cattails. This grass secretes toxins into the surrounding soil, slowing or even killing neighbouring plants creating a monoculture of very dense grass.

Many wildlife creatures are adapted to a diverse habitat and cannot forage or find shelter successfully once invasive *Phragmites* has taken over. The resulting loss of biodiversity is often irreversible.

The Aurora Community Arboretum is working with the Town of Aurora Parks Department to control the spread of invasive *Phragmites* within its boundaries.



Attachment 6

HELP TRACK THE SPREAD OF INVASIVE PLANTS

REPORT SIGHTINGS TO
www.EDDMapS.org/Ontario

INVASIVE PLANTS TO WATCH OUT FOR



Garlic Mustard



European Buckthorn



Dog-strangling Vine



Japanese Knotweed

EDD **MapS** Ontario

Early Detection & Distribution Mapping System



Scan to visit
www.EDDMapS.org/Ontario



INVADING SPECIES

HOTLINE

1-800-563-7711

In Partnership With



Lake Simcoe Region
conservation authority



Ontario
Invasive Plant Council

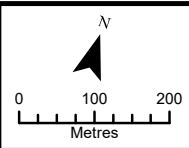
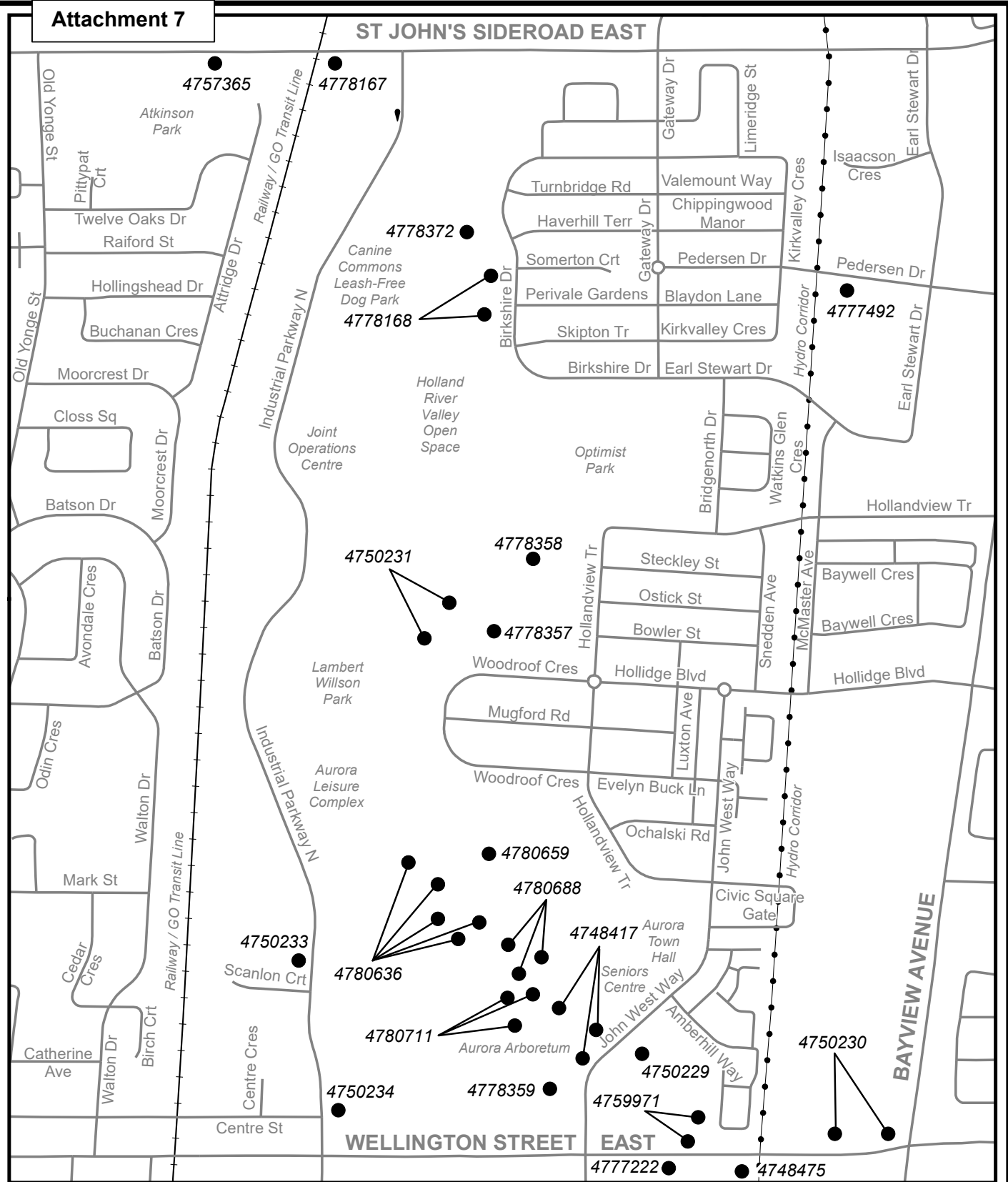


ONTARIO'S
INVADING SPECIES
AWARENESS PROGRAM



Ontario

Attachment 7



KEY PLAN
AURORA COMMUNITY ARBORETUM
INVASIVE SPECIES LOCATION MAP



EAC18-001

Map created by the Town of Aurora Planning and Development Services Department, April 24th, 2018. Invasive Species Information provided by Barry Bridgeford. Base data provided by York Region and Aurora - GIS. This is not a legal survey.

Sheppard's Bush Invasive Species Inventory



Legend

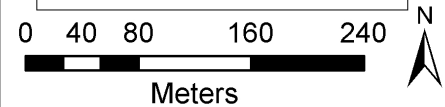
InvasiveSpecies

- <all other values>

SPECIES

- Dame's Rocket*
- Dog Strangling Vine
- Garlic Mustard
- Goutweed*
- Himalayan Balsam
- Japanese Knotweed
- Lily of the Valley*
- Periwinkle*
- Poison Ivy*

- Trails
- Watercourse
- LSRCALands



This product was produced by the Lake Simcoe Region Conservation Authority and some information depicted on this map may have been compiled from various sources. While every effort has been made to accurately depict the information, data / mapping errors may exist. This map has been produced for illustrative purposes only. © LAKE SIMCOE REGION CONSERVATION AUTHORITY, 2016. All Rights Reserved. Some data layers used are © Queens Printer for Ontario, 2016. © J.D. Barnes Limited, 2014 Orthophotography.



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Town of Aurora
Planning and Development
Services

Memorandum

Date: April 5, 2018
To: Environmental Advisory Committee
From: Christina Nagy-Oh, Program Manager, Environmental Initiatives
Re: CEAP Progress Report 2017

Recommendation

- 1. That the memorandum regarding the CEAP Progress Report 2017 be received for information.**

Background

The Environmental Advisory Committee provided support and strategic guidance throughout the development of the Town's Corporate Environmental Action Plan (CEAP). In accordance with the Plan, staff have prepared a progress report outlining the progress made between 2011 and 2017 toward achieving the objectives laid-out in the Plan. The following is a listing of CEAP related initiatives that have either been completed or which have been approved by Council in 2017. This is the final CEAP progress report for the original version (2010 CEAP edition).

- Held Eco Festival at the Stronach Aurora Recreation Complex on Saturday, April 29 from 10 a.m. – 3 p.m. More than 800 attendees with 30 participating organizations with educational booths on-site. Event featured:
 - Electric vehicle and indoor electric bicycle test drives
 - 3 live event Yoga classes; Kids, family and laughter yoga
 - Children's interactive activities and crafts
 - Free tree saplings for attendees
 - Innovative green products and organizations

Speaker Series Topics*:

- Wonder Of Worms
- Your Guide To Owning An Electric Vehicle
- A Demonstration Of How And What To Recycle In Aurora
- Blue Dot – Your Right to A Healthy Environment

CEAP Progress Report 2017
April 5, 2018

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- Yoga talk for gardeners
- Organic Lawn Care that won't cost the Earth

*Please visit the following webpage with a link to videos of speaker series talks and an Eco Festival montage Video. <http://www.aurora.ca/ecofest>

FIRE (Energy) Goal – Reduce the Town's overall energy consumption through energy efficiency measures and the use of renewable energy sources.

- Retrofitted all pathway lighting in parks with LED bulbs. (Objective F1)
- Installed LED sports lighting on new artificial turf field at Stewart Burnett Park. (Objective F1)
- Installed a Fuel Management System at the JOC to monitor fuel consumption, usage and improve future fleet fuel efficiencies across all departments. (Objective F1)
- Retrofitted shower and plumbing fixtures at SARC for pool change room and dressing room showers, sinks, faucets and toilets to resulting in a reduction of water and energy consumption. (Objective F1, Action 2.2.3)
- Upgrade of existing ice rink controller at SARC (ice plant programming), replacement of two screw compressors with energy efficient models resulting in decreased energy consumption and operating costs. (Objective F1, Action 2.2.3)
- Upgraded ACC's current ice plant motor controls center panel, replaced shell and tube brine chillers in both arenas, including brine pumps with more energy efficient models; and replaced reciprocating ammonia compressor with a more efficient model. (Objective F1, Action 2.2.3)
- Upgraded SARC pool deck and ice rink lights with LED lighting. (Objective F1, Action 2.2.3)
- Upgraded ACC arena lighting to LED over the ice surface. Replacing the fixtures with the appropriately sized and designed LED. fixtures will increase light levels, require less maintenance and decrease electrical usage. (Objective F1, Action 2.2.3)
- Installed new condensers and hot water boilers at the ACC, improving the efficiency and reducing energy usage and water usage. (Objective F1, Action 2.2.3)
- Replaced the SARC pool liner which should reduce both water and energy consumption in the heating of lost water. (Objective F1, Action 2.2.3)
- Twenty-two solar panel applications were submitted: eighteen for residential homes, and four for non-residential properties. (Objective F2)

CEAP Progress Report 2017
April 5, 2018

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EARTH (Land) Goal – Plan and manage Aurora’s ecology by protecting wildlife habitat, promoting alternate modes of transportation and utilizing sustainable land use planning.

- Continued ongoing ecological integrity monitoring of natural heritage areas within 2C development lands. (Objective E1)
- Continued detailed design phase for Community Wildlife Park. (Objective E1)
- Initiated ongoing vegetation management and protection initiatives for new subdivision development areas. (Objective E2)
- Planted more than 1500 trees and shrubs on municipal lands in association with Neighbourhood Network and local school groups. (Objective E2)
- Planted more than 1000 trees and shrubs on municipal lands in association with Aurora Community Arboretum. (Objective E2)
- Planted more than 500 street trees on municipal boulevards in new development areas. (Objective E2)
- Town Hall recycled a total of 627 mercury containing lamps with mercury contaminant removed and reprocessed in accordance with regulations set out by the Ontario Ministry of Environment. (Objective E3)
- The Algonquin & Haida road reconstruction project used 150mm depth of recycled concrete in place of 150mm depth of 19mm crusher run limestone for the road bases. (Objective E4)
- Aurora hosted 3 electronic recycling events: Jan 21; May 27; and Oct 14 and 1 Annual Clean-up day: April 22 and 1 Free Compost giveaway day: May 6. (Objective E7)
- Aurora introduced monthly Clutter collection – textiles collected at the curb every 1st Monday of the month *pilot for 2017. (Objective E7)
- Aurora introduced Multi-residential clutter collection from 15 Apartments/Condos along with E-waste, compact fluorescent light’s and batteries. (Objective E7)
- Aurora collects E-waste (electronics), batteries from 7 of our facilities (Library, Community Centres-ACC, ALFC, SARC, Town Hall, Seniors Centre, and the JOC). (Objective E7)
- 2017 Waste Diversion Figures:
 - Textile -1191.28 kgs collected and diverted from landfill
 - Electronic Waste – 20909.60 kgs were collected and diverted
 - Scrap Metal – 8670 kgs were collected and diverted
 - CFL/lamps –211.48 kgs were collected and diverted
 - Batteries 340.70 kgs were collected and diverted

CEAP Progress Report 2017
April 5, 2018

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WATER Goal – Reduce corporate water consumption; and utilize stormwater management technologies to improve control of stormwater quantity as well as enhance stormwater quality.

- Algonquin Crescent and Haida Drive from Algonquin Crescent to Aurora Heights Drive Road Reconstruction project with Low Impact Development (LID) system, included: (Objective W2)
 - 3 bio-swales installed for a total combined length of 53m or 212 sq.m. with 0.37 ha draining to them;
 - 1 oil/grit separator-CDS Unit (Model #2025) treating 2.34 ha with a suggested 80.6% predicted net annual removal efficiency of suspended solids from storm water;
 - 10 - Catch basins (CB) with Goss Traps (Goss Traps allows CBs to separate oils and other floatables from storm water);
 - 309 m of exfiltration storm sewer system installed (allowing stormwater to exfiltrate into the ground through perforated pipes)

- The road reconstruction project has an overall drainage area of 3.8 ha. The LID system is expected to achieve the following within this drainage area: (Objective W2)
 - MOE categorized “Enhanced” Total Suspended Solids (TSS) removal (which is greater than 80% TSS removal) from storm water runoff;
 - 56 to 87% Phosphorus reduction in the storm water runoff;
 - 40 to 50% storm water peak flow and runoff volume reduction;
 - Over 3mm of every rainfall event is expected to be infiltrated.

- Brookland Avenue Road Reconstruction project. (Objective W2)
 - 1 Oil/Grit Separator 1.5m diameter installed treating 0.69 ha;
 - 1 Oil/Grit Separator 2.0m diameter installed treating 1.33 ha;

Attachments

None



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Town of Aurora
Planning and Development
Services

Memorandum

Date: April 5, 2018
To: Environmental Advisory Committee
From: Christina Nagy-Oh, Program Manager, Environmental Initiatives
Re: Wildlife Park Project Update

Recommendation

- 1. That the memorandum regarding Wildlife Park Project Update be received for information.**

Background

At the February 1, 2018 meeting the Committee recommended to Council that the Committee receive regular updates on the progress of the Wildlife Park project. The following was provided on March 2nd via email by Gary Greidanus, the Town's Senior Landscape Architect:

Further to the update provided at the previous Committee meeting, the Town has currently engaged Cole Engineering as the primary consultant for the design of the Wildlife Park. The design consists of two main components; 1) the creation of 3 new wetland habitat cells and realignment of Marsh Creek and 2), the creation of a system of trails, bridges, boardwalks and lookouts.

The wetland habitat portion of the design was previously on hold pending the resolution of issues associated with The Ministry of Natural Resources and Forests (MNRF). These issues have now been resolved. The wetlands have since gone through the detail design phase to the extent that now Lake Simcoe Region Conservation Authority (LSRCA) requirements have added complications to the completion of the design. To explain further, LSRCA policy is concerned with maintaining the flood capacity of the overall wetland system. Our current design includes importing earth fill into the wetland system to create the 3 wetland cells and to separate the wetland cells from the realigned creek. When importing earth fill into the floodplain, policy requires an equal

Wildlife Park Project Update
April 5, 2018

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and opposite cut to ensure floodplain capacity is not decreased. It is the location and extent of cutting within the floodplain that is problematic and cannot be resolved without some compromise. Staff has advised Cole Engineering to meet with the LSRCA to attempt to ease LSRCA policy and to allow the wetlands to be constructed as designed. Once the wetland component of the design is substantially complete there will still be a review and permitting process through the LSRCA.

The design for the trails component of the Wildlife Park is approximately 80% complete. Cole Engineering is responding to review comments from LSRCA regarding a previously submitted Trails Impact Study in order to complete this component of the design.

At present, the wetlands component of the Wildlife Park design and addressing LSRCA policy is delaying the process to get the entire design package complete. We are still hopeful to get the design completed and tendered out for construction of the first phase of the works later this year.

Attachments

None



Extract from
Council Meeting of
Tuesday, March 27, 2018

5. Consent Agenda

Moved by Councillor Thompson
Seconded by Councillor Thom

C1. General Committee Meeting Report of March 20, 2018

1. That the General Committee meeting report of March 20, 2018, be received and the following recommendations carried by the Committee approved:

(C8) Environmental Advisory Committee Meeting Minutes of February 1, 2018

1. That the Environmental Advisory Committee meeting minutes of February 1, 2018, be received for information.

Carried

6. Consideration of Items Requiring Discussion (Regular Agenda)

R5. Summary of Committee Recommendations Report No. 2018-03
(Formerly Item C1(R9))

Moved by Councillor Gaertner
Seconded by Councillor Thom

1. That Summary of Committee Recommendations Report No. 2018-03 be received; and
2. That the Committee recommendations of the February 1, 2018 Environmental Advisory Committee meeting, be approved; and
3. That the Committee recommendations of the January 10, 2018 Accessibility Advisory Committee meeting be referred to staff for further information.

Carried

Approved Recommendations from Environmental Advisory Committee Meeting Minutes of February 1, 2018

2. Memorandum from Program Manager, Environmental Initiatives
Re: Wildlife Park Project Update

- (a) That further work on the Wildlife Park be endorsed; and

Council Extract – Tuesday, March 27, 2018

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- (b) That the Environmental Advisory Committee receive regular updates on the progress of the Wildlife Park Project.