PE14.2
Attachment 1

BEACON ENVIRONMENTAL

Guiding Solutions in the Natural Environment

URBAN FOREST INNOVATIONS INC

Actions to Grow Toronto's Tree Canopy

FINAL REPORT

Prepared For:

City of Toronto

Urban Forestry

Parks, Forestry and Recreation

Prepared By:

Beacon Environmental Limited

with

Urban Forest Innovations Inc.

Date: **July 2016**

Project: **215329**

MARKHAM
144 Main St. North, Suite 206
Markham, ON L3P 5T3
T) 905.201.7622❖ F)905.201.0639

BRACEBRIDGE
126 Kimberley Avenue
Bracebridge, ON P1L 1Z9
T)705.645.1050❖ F)705.645.6639

GUELPH
373 Woolwich Street
Guelph, ON N1H 3W4
T)519.826.0419❖ F)519.826.9306

PETERBOROUGH
469 Water Street, 2nd Floor
Peterborough, ON K9H 3M2
T) 705.243.7251

OTTAWA
470 Somerset Street West
Ottawa, ON K1R 5J8
T) 613.627.2376

Acknowledgements

The Consulting Team would like to thank the numerous stakeholders and members of the public that participated in the consultations and provided input to this report. Their input has been carefully considered in the development of the recommendations contained herein. The Consulting Team would also like to thank Connie Pinto and Ray Vendrig from the City's Urban Forestry department for their input and insight throughout this project.

Executive Summary

Report Context and Rationale

Toronto's urban forest is a vital asset that contributes in many ways to the quality of life in Canada's largest urban centre. It is increasingly well-documented that trees in urban areas contribute directly and indirectly to human and environmental health. As a result of these numerous contributions, the urban forest is beginning to be recognized as a critical component of urban infrastructure (typically referred to as "green infrastructure") that, like "grey infrastructure" (such as roads and sewer pipes), must be protected from damage, maintained, installed and replaced on an ongoing basis.

Recognizing the need for strategic and comprehensive management of this critical asset, the City of Toronto recently produced *Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan* (2013) (SFMP). This Plan provides a vision, strategic goals, and a series of recommendations to guide overall urban forest management. This Plan's recommendations were based, in part, on the findings of *Every Tree Counts: A Portrait of Toronto's Urban Forest.* This study found (among other things) that Toronto's tree canopy cover is estimated to be between 26.6% and 28%, and that some of the greatest opportunities for expanding tree cover exist on private lands.

The City's current target for tree canopy cover is 40%. The City has been actively working towards further sustaining and enhancing its urban forest assets by implementing a variety of policies / bylaws / guidelines, programs and management activities. These activities have been guided by the SFMP, and have been related to both tree preservation and establishment, including annual plantings of approximately 100,000 trees on public lands since 2005. However, it has become apparent that planting trees on public lands alone will not meet community needs for expanded tree cover, or be sufficient to meet the City's tree canopy target. Furthermore, it has become evident that if the City wants to encourage more tree establishment on private lands, it will need to invest additional resources in fostering and supporting this kind of stewardship.

To address this gap, a decision was made to develop a Tree Planting Strategy that will build on the direction provided in the SFMP but focus on actions specifically targeted towards improving and expanding tree establishment, particularly on private lands, throughout the City. It was recognized at the outset that this Strategy would need to be developed in consultation with the community, as well as key stakeholders already involved, or who could become involved, in assisting with tree establishment on private property in Toronto.

Report Purpose

In the fall of 2015 the City retained Beacon Environmental Ltd. and Urban Forest Innovations Inc., two firms with expertise in urban forest planning / management and facilitating consultations, to undertake

two tasks that would directly support development of a Tree Planting Strategy for the City: (1) facilitate a series of workshops, and (2) develop and recommend a series of actions intended to foster and support tree establishment across the City. The workshops were intended, along with an on-line survey developed by the City, to solicit information from a broad cross-section of residents and other stakeholders on topics specifically related to improved and expanded tree establishment in Toronto, particularly on private lands.

The purpose of this report is to present: (1) the results of the consultations, and (2) the draft recommended actions that have been developed for the City based on:

- a review of the available and relevant background;
- Input from the various workshops as well as the on-line survey;
- input from the key partner organizations identified in this report (i.e., Evergreen, Local Enhancement & Appreciation of Forests (LEAF), Toronto and Region Conservation Authority (TRCA) and the Toronto Parks and Trees Foundation (TPTF);
- input from City staff, and
- the consulting team's experience in Toronto and in other comparable jurisdictions.

Conclusion and Next Steps

The recommended 16 actions included in this report provide, a comprehensive range of practical recommendations that are suited to Toronto's needs and leverage existing tools, programs and organizations to maximize the City's return on investment with respect to tree establishment, particularly on private lands. These actions, which are described in more detail in the report, are:

PRIVATE TREE ESTABLISHMENT PROGRAMS

1. Tree Planting and Support Program for Residential Landowners
2. Direct Tree Rebate Program for Residential Landowners
3. Tree Planting and Support Program for Industrial, Commercial, and Institutional Landowners
4. Direct Tree Rebate Program for Industrial, Commercial, and Institutional Landowners
5. Trees Planting and Support Program for Schools

PROMOTION, OUTREACH AND PARTNERSHIPS

6. Develop an "Every Tree Counts" Campaign
7. Leverage Partnerships to Expand Outreach and Promotion
8. Undertake Outreach and Education Events for the "Every Tree Counts" Campaign
9. Expand Street and Park Tree Adoption Programs

PLANNING AND MANAGEMENT

10. Develop Policies and Guidelines for Species Diversity
11. Comprehensive Review of Impediments to Tree Planting and Maintenance
12. Improve Young Tree Maintenance on Public Lands
13. New Tree Establishment Monitoring

IMPLEMENTATION RESOURCES AND LEADERSHIP

14. Create Staff Positions to Coordinate and Implement New Tree Planting Programs
15. Develop a Tree Planting Prioritization Tool
16. Form an Urban Forest Working Group

This report (including these actions) will be presented to the Parks and Environment Committee by City staff for their review and consideration. The actions, as approved by the committee, will then be incorporated into a broader Tree Planting Strategy to be developed by the City.

Table of Contents

List of Figures

Appendices

1. Introduction

Forest cover would start to decline if tree planting in Toronto stopped.

Every Tree Counts (City of Toronto 2013)

1.1 Project Context and Rationale

Toronto's urban forest is a vital city asset contributing in many ways to the quality of life in Canada's largest urban centre. It is increasingly well-documented that trees in urban areas contribute directly and indirectly to human and environmental health. Trees help clean the air and water, provide cooling and shading in the summer, provide windbreaks in the winter, help manage stormwater, increase property values, encourage outdoor recreation, reduce stress and stimulate creativity, among other benefits and functions. As a result of these numerous contributions, the urban forest is increasingly being recognized as a critical component of urban infrastructure (typically referred to as "green infrastructure") that, like "grey infrastructure" (such as roads and sewer pipes), must be protected from damage, maintained, installed and replaced on an ongoing basis.

Recognizing the need for strategic and comprehensive management of this critical asset, the City of Toronto recently produced *Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan* (City of Toronto, 2013) (to be referred to as the SFMP in this report). This Plan provides a vision, strategic goals, and a series of recommendations to sustain and expand Toronto's urban forest. This Plan's recommendations were based, in part, on the findings of *Every Tree Counts: A Portrait of Toronto's Urban Forest* (City of Toronto, 2013). *Every Tree Counts* is a more technical document that provided a baseline of the City's urban forest composition and health, as well as a tree canopy cover assessment, and (among other things) identified opportunities for increasing tree canopy cover on both public and private lands.

While there are many different metrics to assess the quantity and quality of a jurisdiction's urban forest, tree canopy cover[1] is one of the most commonly cited metrics. Toronto's tree canopy cover is estimated to be between 26.6% and 28%, while the City's target for tree canopy cover is 40%.

[1] *Tree canopy cover is a two-dimensional measure of the extent of tree cover in a given jurisdiction based on a "bird's eye" analysis of aerial photography when the trees are "in leaf". It provides metrics related to the extent of tree cover and its distribution across a jurisdiction, but does not provide information related to urban forest health, age structure or species diversity. These types of metrics must be collected using other techniques.*

Analyses undertaken as part of the *Every Tree Counts* (City of Toronto, 2013) study found that:

- Toronto's current tree cover is comprised of approximately 10.2 million trees in total, 40% of which are located on public property (34% in public parks and natural areas, 6% along public right-of-ways), with the remaining 60% on private property;
- Toronto's current tree cover is not distributed evenly across the city - parks and open space have an estimated 52% of the total tree canopy cover (with much of it associated with Toronto's ravines and valleys) while industrial, commercial and institutional lands have between 4% and 17% tree canopy cover, and the remainder on residential lands; and
- the greatest opportunities for accommodating more trees are found not on public lands, but rather on private residential, industrial, and commercial lands.

The City has been actively working towards sustaining and enhancing its urban forest assets through the implementation of a variety of policies, bylaws, guidelines, programs and management activities. Since 2013, these activities have been focussed by the guidance of the SFMP. Resources have been put towards supporting both tree preservation and establishment, including annual plantings of approximately 100,000 trees on public lands since 2005. However, efforts to date have not been focussed on opportunities for canopy expansion on privately owned lands in Toronto.

It has become apparent that planting trees on public lands alone will not meet community needs for expanded tree cover or be sufficient to meet the City's tree canopy target of 40%. Furthermore, it has become evident that if the City wants to encourage more tree establishment on private lands, it will need to dedicate additional resources to fostering and supporting this type of stewardship.

To address this gap, a decision was made to develop a Tree Planting Strategy focussed on actions specifically targeted towards improving and expanding tree establishment on private lands throughout the City. This document will build on the direction provided in the SFMP and help inform the future development of a Tree Planting Strategy.

It was recognized at the outset that the development of recommendations to expand tree establishment, particularly on private lands, would need to be developed in consultation with the community, as well as the key stakeholders already involved, or who could become involved, in assisting with tree establishment on private property in Toronto. Therefore, the City decided to retain a consulting team to facilitate these consultations and provide this feedback to the City.

1.2 Project Scope and Purpose

In the fall of 2015, the City retained Beacon Environmental Ltd. and Urban Forest Innovations Inc., two firms with extensive expertise in urban forest planning / management and facilitating consultations, to undertake two tasks that would directly support the development of a Tree Planting

Strategy for the City: (1) lead a series of workshops, and (2) develop and recommend a series of actions intended to foster and support tree establishment across the City.

The workshops were intended, along with an online survey developed by the City, to solicit information from a broad cross-section of residents and other stakeholders on topics specifically related to improved and expanded tree establishment in Toronto, particularly on private lands. Although it was recognized that mature tree preservation and maintenance are also important components of good urban forest planning, the scope of this project was to focus on ways to improve and expand tree establishment. Notably, a review of mechanisms to improve mature tree preservation and maintenance in Toronto is being undertaken by the City concurrently with this project, and separate recommendations to address this issue will emerge from that process.

Specific tasks undertaken by the Consulting Team for this project included: review of the relevant background materials and documents (including notes from prior consultations with City staff in Urban Forestry on this topic); preparation of all consultation materials (i.e., presentation, posters, workbook) in consultation with City staff; facilitation of the consultations (i.e., two workshops with stakeholders and three public workshops); and development of this report, also in consultation with selected key stakeholders[2] and City staff.

The scope of this project did not include: a review of City tree establishment protocols or methods; consideration of specific locations in which to expand tree establishment in Toronto; or targeted interviews with City staff or key stakeholders.

The purpose of this report is to present the results of the consultations and the recommended actions that have been developed for the City. This report will be presented to the Parks and Environment Committee by City staff for their review and consideration. The recommended actions, as approved by the committee, will then be incorporated into a broader Tree Planting Strategy to be developed by the City.

2. Methods

2.1 Background Review

Background documents reviewed prior to undertaking consultations and in order to develop a comprehensive understanding of the local context and the relevant work completed to date and included:

[2] *Key stakeholders identified as playing a significant role in the implementation of actions recommended in this report (namely LEAF, TRCA, Evergreen and TPTF) were given an opportunity to provide comments on this report prior to finalization.*

- *Every Tree Counts: A Portrait of Toronto's Urban Forest* (2013)
- *Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan, 2012 – 2022* (City of Toronto, 2013) (referred to as the SFMP in this report)
- City of Toronto Strategic Plan, 2013 – 2018 (2012)
- City of Toronto Official Plan, Section 3.4 (2012 consolidation)
- Information on-line related to the City's Ravine strategy (in progress)
- City of Toronto Parks Plan, 2013 – 2017 (2012)
- *Climate Change, Clean Air and Sustainable Energy Action Plan* (2007)
- *Climate of Concern: Climate Change and Health Strategy for Toronto* (2015)
- Various Toronto Public Health documents including: *Why Green Matters* (2012), *Creating Healthy Built Environments* (2012) and *Protecting Vulnerable People from Health Impacts of Extreme Heat* (2011)
- Tree bylaws found in the City's Municipal Code:
    - Chapter 813, Article III (known as the Private Tree Bylaw)
    - Chapter 658 (known as the Ravine and Natural Feature Protection Bylaw)
    - Chapter 608 (known as the Parks Bylaw)
    - Chapter 447 (known as the Fences Bylaw)
- Relevant City policies, guidelines and specifications including:
    - Tree Protection Policy and Specifications for Construction near Trees
    - Toronto's Shade Guidelines (2004) and Shade Policy (2007)
    - Toronto's Green Standard (last updated 2014)
    - *Tree Planting Solutions in Hard Boulevard Surfaces – Best Practices Manual* (2013)

In addition to reviewing the various background documents listed above, the Consulting Team was provided with summaries of current programs and protocols related to tree establishment developed by Urban Forestry, and notes from internal consultations with City staff in Urban Forestry undertaken in the spring and summer of 2015. The Consulting Team also met with key staff from Urban Forestry on several occasions to, among other things, discuss current City practices and challenges related to tree establishment.

2.2 Stakeholder and Public Consultations

Input and feedback from stakeholders and the public was central to developing the recommended actions in this report intended for the City's Tree Planting Strategy. Input was obtained through five facilitated workshops undertaken over November 2015, as well as a survey posted on the City's website and provided in hardcopy at the workshops.

The external consultations conducted by the Consulting Team over the fall of 2015 included two facilitated sessions for key stakeholders and three facilitated public workshops. City staff from Urban Forestry also conducted targeted interviews with specific stakeholders known to have an interest in

expanding tree establishment efforts (e.g., public and separate school boards), and shared their discussions and responses with the Consulting Team.

The basic format and content of the five workshops led by the Consulting Team, as well as overall levels of response, are described below. More details about these consultations, a summary of the feedback received, and the questions and responses from the survey, are summarized in **Appendix A**. This feedback has been carefully considered and integrated into the recommended actions presented in **Section 4**.

2.2.1 Project Website and Survey

A project website was set up to provide some basic project information and updates. Information posted included links to relevant background documents (e.g., the SFMP and *Every Tree Counts*), a digital version of the consultation presentation materials, and a link to the online survey which was posted from November 9 until December 14, 2015.

The survey was developed by the City with some input from the Consulting Team. The survey was specifically designed to gather quantitative feedback on receptiveness to different types of new programs to support tree establishment on private lands.

2.2.2 Consultations Sessions

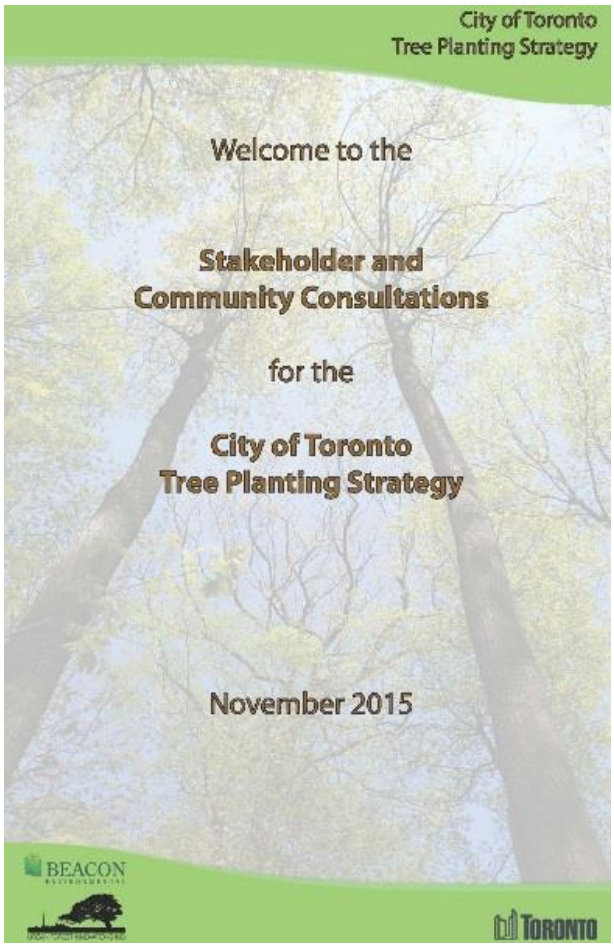
The first stakeholder workshop was held on November 2, 2015. Invitations to this session were extended to local non-profit organizations, local conservation authorities (both Toronto and Region Conservation Authority – TRCA – and Credit Valley Conservation – CVC), school board representatives, and City staff in Urban Forestry involved in tree planting initiatives. The session was held in the afternoon based on the assumption that for most of these individuals this meeting could be attended as part of their professional activities.

The second stakeholder workshop was held in the evening on November 3, 2015. Invitations to this session were extended to a wide range of local community groups and partners, including neighbourhood / ratepayer groups, as well as industry specialists and invitees to the first stakeholder session unable to attend on November 2.

The three public workshops were held the evenings of November 16, 17 and 30, 2015. Meetings were held at different locations across the city (i.e., City Halls in Scarborough, Etobicoke, and Toronto). The public meetings were advertised with a news release, on the City's website, and through the City's social media platforms/ Social media used including Twitter and Facebook, direct emails to the key stakeholders, as well as announcements at the two stakeholder sessions, where participants were informed of the public sessions and invited to circulate information about the public workshops to their respective groups and organizations.

The same materials and format were used for both the stakeholder and public workshops, with one exception - the presentation for the public meetings included a new slide summarizing key feedback from stakeholders (see examples provided in **Figure 1** and **Figure 2** below). Poster boards were developed to provide an overview of key background, current City initiatives related to tree planting, and key considerations for tree establishment.

The first 30 to 45 minutes of the workshops were dedicated to poster viewing. Introductions were then made by City staff, and the Consulting Team gave a short presentation. The remaining 105 to 120 minutes were spent in facilitated conversation with participants. While input on any aspect of urban forest management was accepted, the conversations were facilitated to focus on tree establishment, and particularly possible tools or mechanisms to improve and expand tree establishment in the City on private lands.



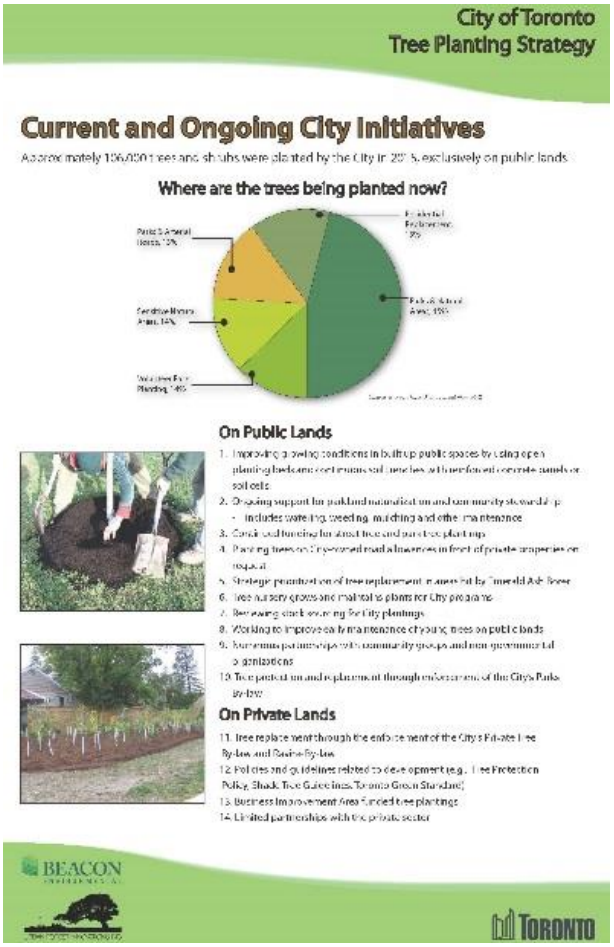


Figure 1. Poster boards developed for the stakeholder and public workshops.

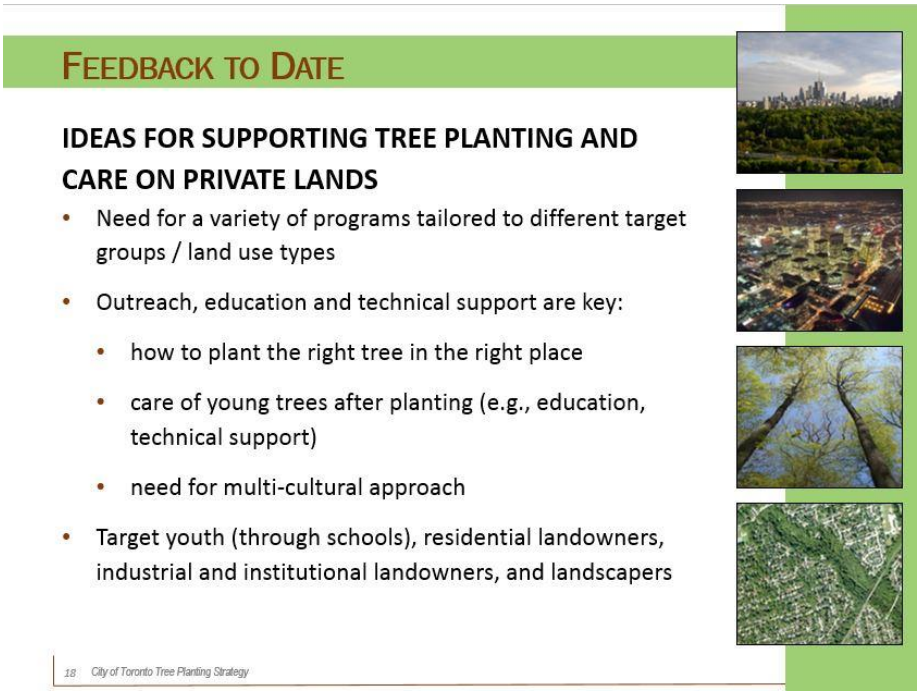


Figure 2. Presentation slide from the stakeholder and public workshops.

Following the presentation, participants were invited to: (a) ask questions or provide comments about the presentation, and / or (b) respond specifically to the following three questions:

1. Do you have any suggestions for City-sponsored programs, tools or services to encourage and support more tree planting and maintenance on private lands?
2. Do you have any suggestions for approaches or considerations for targeting or prioritizing areas in the city for tree planting?
3. Do you have any suggestions for other mechanisms or activities that would encourage and support more tree planting and maintenance in the city?

Participants were provided with a workbook that included a project background page, a page with the three questions above, and a hardcopy of the survey. Participants were invited to complete and submit the survey prior to leaving the consultation session, or to complete the survey online. Participants were also provided with a contact at the City to whom comments could be provided directly via email.

3. Findings

This section summarizes the findings from both the background review and the consultations, which informed the selection and development of the recommendations presented in **Section 4**.

3.1 Key Findings from the Background Review

The following findings emerged based on the background review, which included a review of input from City staff (from the spring and summer of 2015) and additional consultations with selected City staff from Urban Forestry.

3.1.1 Expanded Efforts are Needed to Help the City Meet Its Canopy Cover Target

Based on the most current analyses, Toronto has a tree canopy cover of approximately 26.6% to 28%. Its current tree canopy cover target is 40%. In an urban area like Toronto in eastern North America, some natural regeneration does occur (mainly in remaining natural areas but also sometimes in unmaintained open spaces). However, this mechanism cannot be relied upon to sustain the existing urban forest because of all the impediments to natural tree establishment (e.g., extensive paved surfaces, maintenance of open spaces for sports fields and other uses incompatible with the presence of trees, etc.). Furthermore, in Toronto, as in other urban areas, trees continue to be removed as part of approved infill development and infrastructure projects.

Currently, the City plants approximately 105,000 trees and shrubs on public lands annually. In addition, approximately 25,000 trees and shrubs are planted annually by TRCA on their lands in Toronto and an estimated 25,000 are planted on private lands, mainly as a result of requirements through the planning process, but also through voluntary initiatives. Even assuming that most of these planted trees establish well and grow to maturity, it is estimated by City staff that more than twice as many trees need to be established annually to meet the City's canopy cover target of 40%. Natural regeneration cannot fill this gap.

City staff have indicated that finding relatively large areas in which to undertake community tree planting events is becoming increasingly difficult in Toronto, and that many of the remaining opportunities are on a smaller scale. In addition, the analyses completed for *Every Tree Counts* (2013) found that private lands (primarily residential, but also, industrial, commercial, and institutional) are where the bulk of the opportunities for tree canopy expansion exist in Toronto, as illustrated in **Figure 3** below.

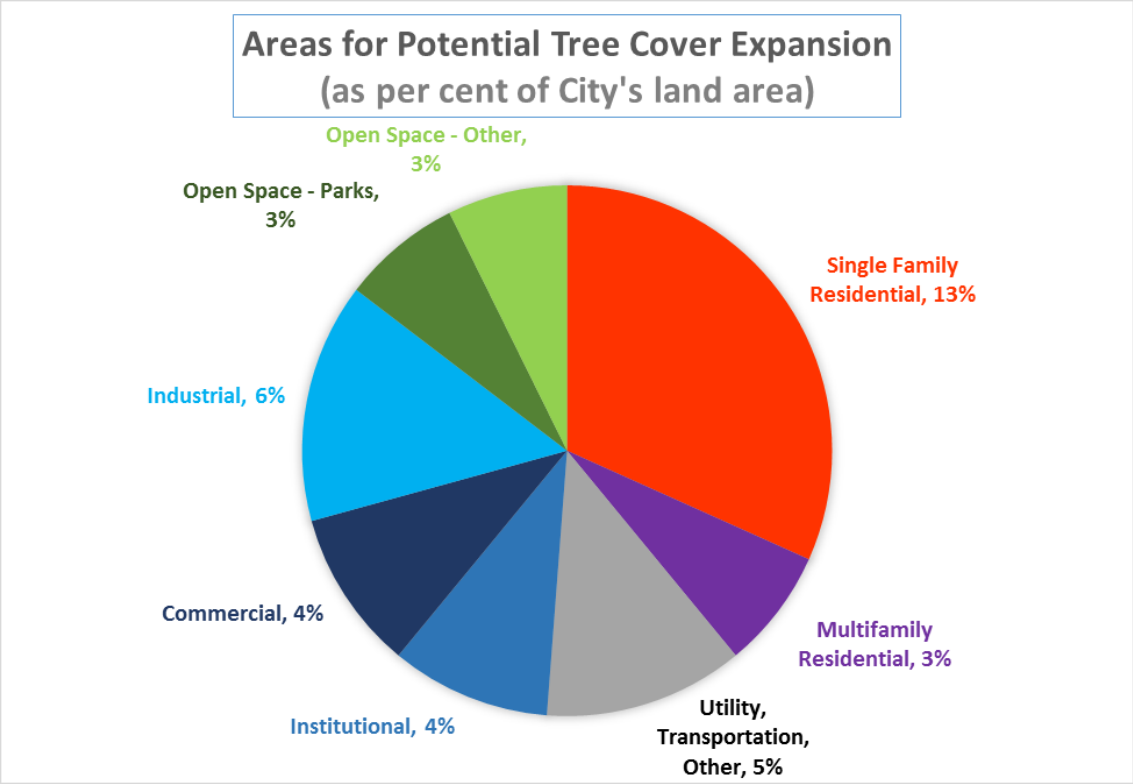


Figure 3. Relative amount of Toronto's potential canopy cover found within each of the city's land uses (Source: Table 11, Every Tree Counts)

Therefore, it is crucial to explore and pursue opportunities for tree establishment on private lands if the urban forest is to be sustained and expanded.

3.1.2 Most Current City Programs Target Public Lands

Urban Forestry leads and undertakes a wide range of programs related to urban forest planning and management on public lands. Of the entire service budget, currently approximately 12% is specifically dedicated to tree establishment activities on public lands.

Current program activities include:

- working with other City divisions and key stakeholders on policies to improve tree planting and protection, natural area preservation and growing conditions in the City;
- review of development and construction plans on City lands;
- planting trees on City-owned land and promoting and supporting tree planting on other lands;
- partnerships with other agencies and organizations related to tree planting and care;

- coordinating community engagement through volunteer planting;
- tracking existing tree assets on City lands (e.g., inventory); and
- ongoing tree maintenance (e.g., pruning, pest management) on City lands.

Specific tree establishment programs and intiatives include: the Community Planting Program, areas targeted by Toronto Water, maintenance and tree establishment work by Urban Forestry in high quality natural areas, plantings in both existing and new parks, the street tree planting program for residential right-of-ways, the Naturalization and Transformation Program, street tree plantings in Business Improvement Areas, the Integrated Pest Management Program (which currently removes and replaces ash trees), and the Newly Planted Tree Program. These programs and intiatives all target almost exclusively public, and primarily, City-owned lands.

3.1.3 Tree Establishment on Private Lands is Primarily Addressed through Regulation

In addition to operational and stewardship work related to tree establishment, Urban Forestry leads and undertakes work related to urban forest planning on private lands through the implementation and enforcement of existing policies, bylaws and standards. As noted in **Section 2.1**, there are already a number of City policies, bylaws and programs in place to support these efforts.

Current Urban Forestry activities include:

- review of development and construction plans;
- processing of permit applications; and
- bylaw compliance and enforcement.

These activities help ensure that trees are planted as part of the planning process. However, they only support tree establishment on private land where it is requested or required by the City in relation to some type of development activity. Although the City does support tree establishment in Business Improvement Areas outside of the planning process, these plantings target the City-owned portions of those areas. Outside of the planning process, there are currently no formal mechanisms whereby the City provides direct or indirect support for tree establishment on private lands on a voluntary or stewardship basis.

3.1.4 Available Resources are Limited

The City is committed to directing some additional resources towards programs and initiatives intended to maximize opportunities for tree establishment, particularly on private lands. However, these resources are limited and there must be consideration for actions that can build on existing programs or existing organizations, as well as cost-sharing programs.

Options suggested for consideration by City staff include: expanding public awareness of tree benefits and tree care already being undertaken by the City, partnerships with existing non-profit organizations already involved in tree establishment and related engagement, financial incentives for residents and business owners to establish trees on their properties, and possible adjustments to public policy and regulations to better support broader tree establishment.

The City has expressed a strong interest in partnering with established non-profit organizations (such as LEAF and TPTF) that would work directly with the Urban Forestry division to: (a) help coordinate and implement tree establishment programs, and (b) secure matching funding from higher levels of government and other sources. These partnerships, which would be under the direct supervision of Urban Forestry and subject to a formal agreement, could be a mechanism to take some of the resource burden off of the City while still helping to work towards its tree establishment goals.

3.1.5 There is a Need to Track Progress

City staff, and a number of the participants at the consultations undertaken in support of this project, recognized there is a need to track the progress towards meeting the City's tree canopy cover target. However, data collection and analysis, particularly in a city as large as Toronto, can be very costly and time-consuming. Therefore, a strategic approach is required that focusses on representative measures that can be obtained with data that is either already being collected, or can be readily obtained.

The SFMP lays out a monitoring framework that is both comprehensive and strategic which is based on a well-accepted model in the industry. Therefore, it makes sense to use this framework of criteria and indicators as they relate to tree establishment.

In addition, the City plans to start by implementing the various recommended programs that are approved on a trial basis for a period of three to five years to assess which are most effective. Metrics suggested by City staff, stakeholders and members of the public that should be tracked include:

- the number of trees planted
- tree survival rates, health and condition
- the level of interest in the program
- the cost of the trees and associated planting services provided (external to the City), and
- the amount of City resources required to support the program.

These metrics will allow the City to compare the success of the various programs, evaluate the returns for the dollars invested, and provide an indication of the proportion of trees planted that are becoming well-established, and therefore more likely to contribute to the City's canopy cover targets.

Different strategies should be tested through smaller pilot programs to confirm which will be most effective and yield the greatest results.

Feedback from Online Survey

3.2 Key Messages from Consultations

A total of 99 people participated in the five consultation sessions that were held over November 2015 (in addition to the City staff and Consulting Team) and a total of 853 online surveys were submitted. Key findings and feedback from these consultations are summarized below. A more comprehensive summary of the feedback from these consultations, including the survey results, is provided in **Appendix A**.

3.2.1 *Outreach and Education Must be Improved and Expanded*

One of the most consistent themes that emerged from the consultations was the need for: (a) better and broader outreach related to the services provided by trees (economic, environmental and social), and (b) more education related to how to plant the right tree in the right place. Non-profit organizations who have been involved in the promotion and implementation of tree establishment on private and public lands in the city for years (e.g., LEAF, Evergreen) indicated that, in their experience, as many resources need to be put towards outreach and education as the tree establishment itself to ensure a successful outcome.

You need to design an educational campaign aimed at the general public stating the benefits of trees in general and why increasing the tree cover in this city would be a great idea. This information needs to be in a number of languages ...

Feedback from Online Survey

Another theme that emerged from the consultations was the importance of changing the prevalent idea that just planting a tree and walking away is enough. Many participants agreed that there needs to be more emphasis on the importance of post-planting tree care, particularly for the first three to five years after planting. More education about species and site selection, to ensure that the trees being planted are able to grow to maturity and provide the numerous benefits for which they are valued, was also identified by many participants as a gap and an opportunity for improvement.

Tree Establishment vs. Tree Planting

Tree "establishment" means more than just planting the tree – it means creating a culture of tree protection and care including making sure the right tree is planted in the right place, and that once planted that the tree is provided with the needed care and maintenance.

Specific suggestions for outreach and education expressed by the participants included:

- a city-wide outreach campaign using engaging marketing techniques;
- education and training for private land property owners/managers and landscape contractors;
- online education and certification for tree planting should be required for City contractors and other groups receiving money from the City;
- a curriculum based outreach program that could be readily adopted by schools;
- a multi-cultural approach;
- target City staff from various departments as well as condominium and neighbourhood associations;
- clear information about:
    - the benefits of trees and links to climate change mitigation / adaptation;
    - appropriate species selection, site selection and planting techniques;
    - what can and cannot be done in regulated privately owned ravine areas regarding landscaping;
- clear information about tree roots and drains;
- reminders (via email if possible) for residents to water trees;
- recognition of stewardship efforts; and
- use of a tree planting prioritization tool (like the one developed for Peel Region, or by the TRCA as it relates to restoration plantings) to help educate people about the various benefits of trees, and how these benefits can be accrued to parts of the City most in need.

Create a simple but engaging campaign slogan that every Torontonian can support.

I believe a well promoted tree subsidy program for residential and business owners would help improve canopy cover

Feedback from Online Survey

3.2.2 Build on Existing City Programs and Tools

Achieve some quick wins by funding/expanding existing planting programs that have proven successful. For example, LEAF's Subsidized Backyard Tree Planting Program helps property owners to get the right tree in the right place.

Feedback from Online Survey

The City already has a number of programs for tree establishment on public lands (as described above), as well as a number of pages on its website that provide information related to tree care. However, based on the feedback from the consultations, it appears that this information is not well-known, even among those with a clear interest in the topic, and that there is a need for some different types of outreach and engagement.

One of the most frequently repeated suggestions at the consultations was that one of the biggest impediments to broader and more successful tree establishment is a lack of understanding of how to plant the right tree in the right place, and how to care for it post planting. Although the City already has some basic tree care information posted on its website, it was suggested that this be more widely advertised and be made more readily accessible to the public. In addition, making the link between trees and their health benefits could improve local interest in tree planting and tree stewardship programs.

Some initiatives are already underway. For example:

- a new poster (2014) developed by Urban Forestry (as shown in **Figure 4**) and posted in bus shelters in various locations across the city;
- a new residential street tree brochure near completion is aimed at increasing street tree planting in the residential right-of-ways; and
- a new brochure in development for the Adopt-A-Tree Program developed in partnership between the City's Urban Forestry branch and LEAF.

It was suggested that these initiatives, and others like them, be coordinated under a unified marketing "look" and approach, and built upon to reach a broader cross-section of the community.

Figure 4. Poster used by Urban Forestry to promote tree benefits

3.2.3 Build on Existing Partnerships and Organizations

Staff in Urban Forestry are already aware of a number of non-profit organizations and neighbourhood groups that are well-established and active in tree establishment. Some of these include groups and organizations that the City has partnered with in the past, or with whom the City is currently working on some type of tree establishment initiative. However, the consultations confirmed that many of these groups are interested in expanding their activities with some type of support from the City.

Although not an exhaustive list of potential partners, the primary non-profit organizations identified through the consultation process as suitable partners with existing programs to build on are:

- Toronto and Region Conservation Authority (TRCA)
- Evergreen (largely in association with the local school boards)
- Local Enhancement and Appreciation of Forests (known as LEAF), and
- Toronto Parks and Trees Foundation (TPTF).

These organizations expressed a keen interest in working with the City. In addition, other stakeholders, as well as members of the public, were in favour of the City extending support to these organizations. Other organizations such as the Association for Canadian Educational Resources (ACER) were also identified as potential partners by the Consulting Team, and others yet may still be identified once the City finalizes and implements the Tree Planting Strategy.

There are also a number of local neighbourhood groups that have been, or are currently, active in tree establishment, maintenance and protection efforts. Some of these groups, such as MoreTrees29, have already partnered with the City. Others such as TreesPlease in the Annex, the Leslieville-Riverdale Tree Project, and Harbord Village Residents' Association (which has been very active in local tree inventory, greening and care) are also known. Representatives of some of these groups who attended the consultations indicated that getting some support from the city would help them with outreach within their communities and with advancing their local tree-related projects.

Collaborate with community groups such as Cabbagetown ReLEAF, MoreTrees29, Annex Trees Please and Kingsway Tree Preservation to organize targeted neighbourhood blitzes that include street tree and institutional plantings, Adopt-a-Tree events, educational workshops and private property planting promotions.

Feedback from Online Survey

Some participants also noted that additional opportunities exist with other agencies and organizations that operate in the City of Toronto such as Hydro One and the Ministry of Transportation. Although enhancing the urban forest is not a primary objective of these organizations, they are required as part of their work to have regard for local tree assets, and are often open to working with local municipalities and others to undertake tree establishment as long as it does not create safety concerns. Toronto Public Health has also evolved into a strong advocate for urban greening in the city, and should continue to be actively engaged in support of tree establishment, particularly on public lands.

3.2.4 Include a Range of New Programs Targeted at Different Groups

One outcome that was unexpected from the consultations was that there was no strong preference identified for one or two types of new programs for supporting tree establishment. Rather, there seemed to be a recognition for the need for a range of different programs targeted towards different types of landowners and / or organizations, recognizing their unique needs.

Themes around this topic that emerged from the consultations included:

- more emphasis on planting few trees well, than many trees improperly;
- requiring some type of resource commitment from the private party to help ensure their engagement in the process; and
- ensuring the process includes education and / or support for post-planting tree care, perhaps even some form of maintenance agreement in exchange for the subsidy.

While participants generally recognized that tree establishment in areas with open grass and / or soil would be easier, many also commented that in an urban area like Toronto there is also a need to support tree establishment in areas that may currently be paved and need to be retrofitted to accommodate trees, such as parking lots.

> ***All mall, city and other large parking lots should have trees and permeable surfaces instead of deadly asphalt which is all we see. For example, study the Toronto Botanical Garden's permeable and tree-planted parking lot.***
>
> **Feedback from Online Survey**

In the responses to the on-line survey, participants expressed general support (i.e., between 57% and 96%) for all of the options presented for supporting tree establishment on private lands. These included: direct one-time rebates, a cost-sharing program, and partnerships through a local non-profit organization. Details are provided in **Appendix A**.

Specific suggestions for incentives and / or programs targeting private landowners from stakeholders and the public included:

- subsidies to homeowners for large shrubs as well as large trees, including for homeowners who have Ash trees that need to be replaced;
- matching funds dedicated to tree establishment provided by corporations, or obtained by non-governmental organizations through grants and / or donations;
- building on established and successful non-government organizations already doing this work in the city (e.g., LEAF, Evergreen) who have developed a cost effective model;

- offering tax incentives to plant trees on private property related to the preservation of pervious surfaces (e.g., like Mississauga's stormwater management tax rebates), or requiring a certain proportion of pervious area be retained;
- funding partnerships with commercial landowners (e.g., Home Depot) to demonstrate good tree planting and tree care practices in commercial parking lots;
- providing free or subsidized trees directly to landowners, and / or through established non-governmental organizations (e.g., LEAF) (note this was mentioned by a number of participants); and
- providing funding / support to local grassroots community groups already working to promote tree establishment, care and preservation on private lands.

3.2.5 There is Room for Improvement in the Current Planning Framework

As outlined in **Section 2.1**, the City already has a number of policies, regulations and guidelines that support tree establishment on both public and private lands. It was recognized by some City staff as well as some participants of the consultations that there are aspects of these policies and / or regulations that could be improved to better support tree establishment.

One interesting example raised with respect to the City's current Fences Bylaw (Chapter 447 of the City's Municipal Code) is that it may inadvertently discourage tree planting or require the topping of large statured trees or shrubs by failing to distinguish between vegetated and constructed fences, and imposing height limits of 1.2 metres to 2 metres on fences. Review of this bylaw to ensure it is supportive of tree establishment and growth was suggested.

Another theme noted by the public that emerged related to the planning framework, was the recognition of a lack of coordination among different departments with respect to both tree establishment and protection. Specific opportunities for improvement that were suggested include:

- Urban Forestry should work more closely with City Planning to address design/landscape development related to tree planting;
- Develop policy to encourage 'temporary' shorter term planting sites (e.g., for 10 to 20 years) that allow industries to plant without giving up the ability to develop land or change land use down the road;
- Undertake more follow-up on required tree plantings on private lands to assess compliance and encourage early tree care;
- Reduce requirements and options for expanding impervious surfaces (e.g., re-examine municipal standards for parking areas, do not equate hardscaping and landscaping, take away City Councillors' ability to issue front yard parking permits);
- Explore opportunities for tree planting associated with building permits, even where no tree removals are proposed;
- Impose minimum tree canopy cover on industrial, commercial, and institutional lands; and

- Increase tree planting requirements through the planning and bylaw process.

Some City staff also noted that there are other policies, regulations and practices that may inadvertently make proper tree establishment and growth difficult or impossible. It was suggested by some that a comprehensive review of relevant policies / regulations / guidelines is warranted to identify such barriers to tree establishment.

In addition to feedback related to the current policies and regulations themselves, a number of participants from the public expressed frustration with what they perceived to be inadequate enforcement of these tools with respect to tree preservation. Recommendations related to this aspect of urban forest management are not included in this report, which is focussed on tree establishment. However, the City is currently undertaking an internal review of its practices related to tree preservation concurrent with this project, and will be making recommendations focussed on this topic as part of a separate report.

4. Recommended Actions

The recommended actions presented in this section have been developed based on:

- The findings from the background review and consultations (as described in **Section 3**);
- Consideration of Toronto's current land use and planning context, as well as current practices, policies, regulation, and programs (including those run by local non-profit organizations);
- Consideration of existing partnerships, as well as organizations and agencies with whom partnerships could be developed;
- Consideration of appropriate precedents from other jurisdictions; and
- Input on a draft version of this report received from City staff in Urban Forestry, as well as LEAF, Evergreen, TRCA, and TPTF.

Recognizing the significant contribution of private landowners to the existing tree canopy, and the opportunities that exist for tree canopy expansion on private lands, many of the recommended actions target the promotion and implementation of tree planting and tree care support programs designed to encourage tree establishment on private (residential, industrial, commercial and institutional) lands. There are also several recommended actions to support improved and expanded tree establishment on both public and private lands.

Although an effort has been made to identify as many cost effective solutions as possible (e.g., building on well-established programs and organizations with frameworks in place), many of the recommended actions will require a commitment of additional financial and / or human resources for their implementation from the City, and will also benefit from matching funds and / or resources from other governmental and non-governmental sources.

The recommended actions are organized into the following four categories:

- **Private Tree Establishment Programs (Section 4.1) (Actions #1 to #5)**
- **Promotion, Outreach and Partnerships (Section 4.2) (Actions #6 to #9)**
- **Planning and Management (Section 4.3) (Actions #10 to #13)**
- **Implementation Resources and Leadership (Section 4.4) (Actions #14 to #16)**

Each action includes the following components:

- Purpose: A brief statement of the purpose of the action.
- Description and Rationale: One or two statements summarizing the rationale for the action.
- Current Practices: An overview of current practices related to this action in the City of Toronto.
- Best Practices: Selected examples of relevant best practices or precedents from other municipalities.
- Consultations Input: Input from the consultations relevant to this action.
- Lead(s) for Implementation: Organization(s) anticipated to lead the action.
- Implementation Guidance: Guidance specific to the recommended action to facilitate implementation.
- External Partners: Other organizations or groups who may be able to support implementation.
- Target: The anticipated target for this specific action, including a quantitative value if possible (e.g., 1000 trees planted per year).

This format highlights relevant input received from stakeholders and the public, provides concise implementation guidance, identifies potential partners (where applicable), and identifies the preliminary target (or measure of success) for the given action. Target setting, including measures for success, may be refined through the development phase with input from key partners.

4.1 Private Tree Establishment Programs

The following section focuses primarily on new programs intended to increase tree establishment on private lands. These new programs are meant to be implemented as “pilot” programs for the five year term of the Tree Planting Strategy (scheduled to be finalized in 2016 / 2017). These new initiatives are to be re-evaluated towards the completion of this period (e.g., by 2021) in terms of their success in meeting established targets and overall effectiveness in fulfilling their established purpose.

Notably, recommended actions, as described in the City's Strategic Forest Management Plan (SFMP), include encouraging the stewardship of privately owned sites adjacent to public sites by private partners as a means of maximizing contiguous tree canopy cover.

ACTION #1: TREE PLANTING AND SUPPORT PROGRAM FOR RESIDENTIAL LANDOWNERS

Purpose: To build upon an existing and successful program that provides both tree planting support and education in order to expand tree establishment on residential lands across the city.

Description and Rationale: Sixty per cent of the City's current tree canopy is on private property, both residential and non-residential. Compared to other land use categories, single family residential lands are among lands with the greatest potential for tree canopy expansion. Expanding tree planting and support services beyond current City programming on public parks and right-of ways can help take advantage of these opportunities.

Current Practices: The City does not currently offer or support a program targeting residential backyard tree planting. However, such a program is operated by Local Enhancement and Appreciation of Forests (LEAF), a local non-profit that has been operating in Toronto for over a decade. LEAF's Backyard Tree Planting Program offers native trees and shrubs to homeowners across Toronto at a subsidized cost. The program has a "full service" option and a "do-it-yourself" option.

- The "full service" option includes a site consultation with an arborist, a five to eight foot tall tree (two to four feet for evergreens), delivery and planting. The full value of the service is subsidized by funding partners through grants.
- The "do-it-yourself" option requires completion of an online survey to assist with tree selection, and includes delivery of a five to eight foot tall tree (two to four feet for evergreens) and mulch.

Currently, the number of customers that LEAF can service in Toronto is limited by the organization's ability to secure a consistent and an adequate amount of funding in order to meet customer demand.

Best Practices: LEAF's Backyard Tree Planting Program (see **Figure 5**) has evolved over 20 years with continual improvements made through lessons learned in the field, and is now considered one of the best programs of its kind in North America. The program's success lies in the fact that it (a) requires some payment toward the tree service, which encourages a sense of ownership, and (b) provides a comprehensive educational component with the tree planting service which helps property owners get the "right tree in the right place". The success of every tree and shrub planted is tracked, and participants get free after-care advice following installation.

Figure 5. Backyard tree planting installed by LEAF (Source: LEAF 2015)

Consultation Input: Many participants who attended the project consultations were familiar with LEAF and were supportive of both the City building on well-established and successful programs, and providing resources to expand tree establishment on private residential lands. A number of participants were particularly supportive of tree planting programs accompanied by an educational component and technical advice on pre-planting site preparation, tree selection and placement, and post-planting care.

Lead(s) for Implementation: Urban Forestry and LEAF

Implementation Guidance:

- Subsidize existing Backyard Tree Planting Program operated by LEAF by providing a portion of the tree cost;
- Dedicate funding for a period of five years, based on a contract with fixed terms and conditions, to be reviewed annually;
- LEAF to provide the same type and level of service as it currently does, but to an expanded customer base across Toronto;
- Urban Forestry to identify priority neighbourhoods, including those with the greatest need in terms of tree canopy;
- LEAF to pursue private and public sector funds to match City funds at a ratio of 2:1 as per City Council direction;
- LEAF to provide summary data to Urban Forestry in terms of the numbers of participants and success of planted trees; and
- LEAF to consider expanding its scope to include front yards where appropriate conditions exist.

External Partner(s): LEAF

Target: up to 2,000 trees per year

ACTION #2: DIRECT TREE REBATE PROGRAM FOR RESIDENTIAL LANDOWNERS

Purpose: To provide direct support to residential landowners who want to plant a tree independently, or with a contractor of their choosing, prioritizing landowners who are replacing trees lost to emerald ash borer (EAB).

Description and Rationale: This incentive program follows a similar model used by many municipalities. This direct rebate program would also be similar to other programs previously offered by the City, such as rebates for low flow toilet installation as a means of reducing water consumption.

A direct rebate program for tree planting on residential lots would help remove potential financial barriers and, together with an education and outreach program, would provide an incentive to residential property owners to consider tree planting on their own property. Single family residential lands have the highest potential for increasing tree canopy cover of any land use category in the City.

Current Practices: The City does not currently offer or support a program targeting residential tree plantings on private lands. The City's strategy for addressing EAB has, to date, focused on the impacts and need for replacement on City parks and right-of-ways. The loss and replacement of trees lost to EAB on private lands cannot be addressed with current resources.

Best Practices: Few municipalities have programs that provide subsidies to residents to plant trees on their own property, although some have tried different types of pilot programs. In 2013 LEAF partnered with the City of Guelph to offer a rebate of up to a $100 towards the purchase of a native tree or shrub at participating nurseries. The City of Port Colborne provides a rebate of up to $50 for the purchase of a native tree or shrub from the local conservation authority's list of native plants. These rebates are limited to one rebate per property and require proof of purchase to be submitted along with the application form.

Virtually all municipalities in southern Ontario that have developed EAB strategies have focused their efforts for selective retention, removal, and replacement on municipally-owned lands. However, New Tecumseth, does subsidize tree planting on private land specifically to replace ash trees (up to $200 per year per property), and the City of Peterborough has recently launched a program in partnership with Tree Canada to subsidize up to half the cost of inoculating their trees against EAB, but not to plant replacement trees.

Consultation Input: While a number of participants expressed support for providing subsidies through established programs, some participants indicated their preference would be for a direct subsidy or rebate. Several participants also asked about the possibility of the City providing some type of subsidy or support for either ash tree removal and / or replacement. Others also noted the need to prioritize tree establishment efforts on both public and private lands in areas hardest hit by EAB.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- City to provide a direct subsidy to residents for the purchase and installation of a native tree on their property;
- City to prioritize applications for trees intended to replace removed ash trees;
- City to determine a maximum rebate value per tree;
- Applications are to include proof of purchase as well as confirmation that the tree or shrub purchased is a native species (ideally from an approved list of species suitable for the Toronto region);
- The rebate is to be provided following proof of tree purchase (e.g., receipt and picture of tree planted on property), and where applicable, proof of Ash tree removal;
- City to direct participants to the newly developed online materials related to tree planting and care;
- City to develop a brief online training lesson on tree planting and care, and require participants to complete this successfully before becoming eligible for the rebate; and

- City to explore partnerships with non-profits such as Tree Canada to match City funds being dedicated to ash tree replacement on private lands and potentially increase the number of rebates offered; and
- City (or a partner organization) to perform in-person follow up visits to assess tree planting technique, location and tree health in order to assess program success assuming participants agree to visit, ideally 2 years after planting.

External Partner(s): potentially Tree Canada, other non-profits

Target: up to 2,000 trees per year

ACTION #3: TREE PLANTING AND SUPPORT PROGRAM FOR INDUSTRIAL, COMMERCIAL, and INSTITUTIONAL LANDOWNERS

Purpose: To build upon an existing and successful program in order to expand tree establishment on private industrial, commercial, and institutional lands across the city.

Description and Rationale: Industrial, commercial and institutional lands are the second largest category for potential tree canopy expansion, second only to the single family residential land use category. A new corporate partnership program offered to landowners and property managers to encourage conversion of 'industrial pervious' or `industrial impervious' to tree cover would help expand the tree canopy cover as well as provide local benefits. Benefits to the property owner, employees and the community include: helping to manage storm water on a property, erosion control, providing shade and aesthetic benefits (e.g., to an outdoor lunch area), and improving local air quality.

Current Practices: Currently the City has some limited partnerships with local businesses to support tree care activities on commercial streets (e.g., through the Adopt-A-Street-Tree pilot project being developed in partnership with LEAF), but there are no established City-sponsored programs to support tree establishment or young tree care on private industrial, commercial, or institutional lands.

However, LEAF's Multi-Unit and Business Plantings Program offers native trees and shrubs to businesses across Toronto at a subsidized cost along with technical support. The cost is between $150 and $220 per tree, and includes a site consultation with an arborist, a five to eight foot tall tree (two to four feet for evergreens), delivery and planting. The full value of the service is approximately $350 to $400 per tree with the difference paid by funding partners. Currently, the number of businesses that LEAF can service in Toronto is limited by public awareness of the program, as well as their ability to secure an adequate amount of stable, ongoing funding.

Figure 6. Commercial site naturalization plan for IMAX by Credit Valley Conservation (CVC) as part of their Greening Corporate Grounds program (Source: CVC 2015)

Best Practices: Although many municipalities recognize that opportunities exist for tree establishment on private industrial, commercial, or institutional lands, few have the resources to allocate to this opportunity. CVC, in partnership with TRCA and Evergreen, offers an innovative program called Greening Corporate Grounds (see **Figure 6** and **Figure 7**). This program is targeted to local businesses and corporations in the City of Mississauga and the City of Brampton. The program provides, in exchange for a fee, a site concept plan for naturalization (including native tree planting), technical advice and guidelines for maintenance, assistance with planting and maintenance, workshops and educational resources, and program recognition (e.g., signs, web listings and awards).

Consultation Input: Participants of the consultations were generally very supportive of tree establishment on private lands, both in residential areas and on commercial, industrial and institutional properties. Specific suggestions related to non-residential lands included the provision of funding to support tree planting in parking lots, as well as subsidies for plantings and young tree care elsewhere on non-residential properties.

Figure 7. Example of naturalization completed under CVC's Greening Corporate Grounds program (Source: CVC 2015)

Lead(s) for Implementation: Urban Forestry and LEAF
Implementation Guidance:

- City to subsidize existing Multi-Unit and Business Planting Program operated by LEAF by providing the equivalent of a discount per tree cost;
- City to dedicate funding for a period of five years, based on a contract with fixed terms and conditions, and then reviewed annually;
- LEAF to pursue an expanded customer base across Toronto and consider changing scope of program to include industrial and commercial lands;
- LEAF to explore partnership opportunities with Evergreen and TRCA for expanding this customer base;
- Property owners would contribute a portion of the fee for service;
- LEAF to pursue sponsors to match City funds;
- LEAF to provide summary data in terms of the numbers of participants and success of planted trees; and
- LEAF to explore and potentially prioritize opportunities for conversion of impervious industrial lands to tree cover and incorporation of trees into parking lots.

External Partner(s): TRCA, Evergreen, the Toronto Association of Business Improvement Areas, and others

Target: up to 3,000 trees per year

ACTION #4: DIRECT TREE REBATE PROGRAM FOR INDUSTRIAL, COMMERCIAL, and INSTITUTIONAL LANDOWNERS

Purpose: To build upon an existing and successful program in order to expand tree establishment on private industrial, commercial, and institutional lands across the city.

Description and Rationale: Industrial, commercial and institutional lands are the second largest land use category for potential tree canopy expansion, second only to the single family residential land use category. A new corporate partnership program offered to landowners and property managers to encourage conversion of 'industrial pervious' or `industrial impervious' to tree cover would help expand the tree canopy cover as well as provide local benefits. Benefits to the property owner, employees and the community include: helping to manage storm water on a property, erosion control, providing shade and aesthetic benefits (e.g., to an outdoor lunch area), and improving local air quality.

Current Practices: Currently the City has some limited partnerships with local businesses to support tree planting and care activities on public lands (e.g., through the Adopt-A-Street-Tree program in partnership with LEAF). However, there are no established programs to support tree establishment or young tree care on private industrial, commercial or institutional lands. TPTF has been working in the City since 2002, and is currently directing its efforts to help the City meet its tree canopy target of 40% through fundraising and awareness. Further to Council direction, TPTF will be seeking donations / matching funds to support new programs.

Best Practices: Many municipalities recognize opportunities exist for tree establishment on private industrial, commercial, or institutional lands (e.g., Atlanta, Georgia), but few have directly allocated resources to support taking advantage of this opportunity. In Guelph, the Healthy Landscapes Program (which provides free advice and planning, but not actual plant material or planting support) is available to both residents and small businesses.

Consultation Input: Participants of the consultations were generally very supportive of the need to subsidize tree establishment on private lands, both on residential and on industrial, commercial and institutional properties. Specific suggestions related to non-residential lands included the provision of funding to support tree planting in parking lots, as well as subsidies for tree planting and young tree care elsewhere on non-residential properties.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- City to dedicate funding for a period of five years, based on one or more contracts with fixed terms and conditions, and then reviewed;
- City to require a minimum number of trees or shrubs to be planted on each non-residential property to qualify for the rebate; and
- City to prioritize non-residential properties in neighbourhoods with the greatest need where possible, although opportunities for large-scale collaboration anywhere in the City should be considered and, if feasible, showcased.

External Partner(s): Toronto Association of Business Improvement Areas, trade associations, property management companies

Target: up to 3,000 trees per year

ACTION #5: TREE PLANTING AND SUPPORT PROGRAM FOR SCHOOLS

Purpose: To build on existing partnerships and expand tree establishment on school grounds.

Description and Rationale: School grounds are found in neighbourhoods across the City and represent a significant land resource, as well as a public space used by children. To date, school boards have worked with non-profit organizations, and the City to a lesser extent, to improve the conditions of school grounds, including tree planting by contracted school board staff based on available resources.

Schools generally do not want actual tree planting support because they have staff to undertake this work. However, providing trees and technical support to these contracted staff in partnership with school boards and non-profit organizations can help ensure more trees are well-established.

Plantings on school grounds have multiple benefits including opportunities to: engage and educate youth about the benefits of trees; provide experiential learning; demonstrate stewardship and community building; and provide benefits such as shade and local air quality improvements to one of the sectors that is more vulnerable to the impacts of heat and asthma - youth.

Current Practices: The Toronto District School Board (TDSB) has been working with Evergreen for more than 12 years to identify and take advantage of opportunities for tree planting on its grounds. Currently approximately 400 trees are planted annually, with numbers limited by budget allocations and staff availability. Evergreen has three full-time staff working directly with the Board to assist with planting and communications. Due to union requirements, all trees planted on TDSB lands must be planted by TDSB union staff. The TDSB currently has two programs.

- The Large Tree Planting Program plants around 10 trees at approximately 40 schools each year, although roughly 100 schools apply. This program includes a site assessment, site plan, technical training and support.
- The Replacement Program plants trees that are removed at a 1:1 ratio, or more. This program involves no planning or technical support.

The City also works with the Toronto Catholic District School Board (TCDSB) and Evergreen to supply and install approximately 200 trees annually under a Memorandum of Understanding. The TCDSB provides all trees with protective caging. The Board's Evergreen consultant works with the schools to assess site conditions, suggest “the right tree for the right place”, and provide a board-wide workshop on tree maintenance and stewardship, as well as on-going stewardship support. Currently, planting is focussed on replacement of ash trees removed as part of a board-wide ash tree removal program in response to EAB.

Best Practices: Most municipalities with an active urban forestry branch strive to include the local school boards in their outreach and stewardship efforts, and recognize school grounds as high priorities for planting and shade, but few have resources directly dedicated to facilitating tree plantings on their lands. One well-funded example is the City of Ottawa which has a Schoolyard Tree Planting Program that provides grants of up to $10,000 for trees to be planted on school grounds, or provides City staff from Forest Services to supply and install trees up to the grant value.

TRCA's Living City Classroom Program brings mobile programs into classrooms at no cost, and has Ontario curriculum-based experiential education for Grades 1 through 12. While this model has been designed to be easily integrated with existing programming, it does not currently have any modules specifically related to tree establishment.

There are also several non-profit organizations with active and long-standing programs supporting school ground tree planting and naturalization including Evergreen, Tree Canada and ACER. ACER's Planting for Change (P4C) program (see **Figure 8**) helps classes create a living outdoor classroom by planting trees and then collecting data on their health and growth that can be tied to issues of climate change.

Consultation Input: A number of participants at the stakeholder and public meetings expressed strong support for broadening tree establishment on school grounds. Specific feedback included support for developing a curriculum based outreach program that could be readily adopted by schools, getting children involved in all aspects of tree establishment, and providing education and technical support to landscape maintenance staff, as well as local "tree teams" of volunteer parents.

Figure 8. Plantings at Tom Thompson School completed as part of ACER's Planting for Change program (Source: ACER 2015)

Lead(s) for Implementation: Urban Forestry, Evergreen

Implementation Guidance:

- Evergreen to continue to support planting of approximately 200 trees per year on TCDSB lands and 400 trees per year on TDSB lands;
- City to work with Evergreen and the school boards to expand current program with the TDSB and TCDSB to (a) provide additional free trees, (b) include planning and inspection support for tree planting on school grounds, and (c) provide support for structural pruning and summer watering;
- City to work with the TDSB and TCDSB to coordinate plantings on adjacent public right-of-ways to maximize impacts and benefits, including extended watering contracts to three years post-planting;
- City to gather data from the TDSB and TCDSB related to numbers of plantings and their survival and growth annually; and
- City and Evergreen to work with new partners (such as ACER and Tree Canada) and potentially private schools to expand educational plantings and programs on school lands.

External Partner(s): TDSB and TCDSB and potentially with support from Tree Canada, ACER, and others.

Target: up to 2,000 trees per year (including the 600 already being planted)

4.2 Promotion, Outreach and Partnerships

A continuing challenge for urban forest managers is communicating the value of trees as public assets. Many people do not recognize the significant dollar value of services provided by a mature tree or the indirect value of trees related to aesthetics, recreation, shade, and community health. Initiatives currently carried out by the City of Toronto to expand levels of awareness include information posted on the City's website, media advertising (see **Figure 4** *Plant a Tree* bus shelter ad), social media stories (e.g., **Figure 9**), public outreach and education events, and tours, talks and workshops for schools and community groups.

The SFMP recommended increasing public awareness through the production of marketing materials, website education, and coordination between City departments. The SFMP also recognized that raising public awareness would require additional staff resources to expand community stewardship programs to meet demand. Based on this direction, the City in partnership with TPTF and LEAF has started to develop a campaign called "Every Tree Counts".

The following four actions (#6 through #9) are related to developing and implementing different aspects of the “Every Tree Counts” campaign.

Figure 9. Twitter story on nature and health by Urban Forestry @TOtrees

ACTION #6: DEVELOP AN "EVERY TREE COUNTS" CAMPAIGN

Purpose: To develop a simple, clear and consistent framework and approach for engaging a broader cross-section of Toronto's community in tree establishment and care (website, social media presence and promotional materials).

Description and Rationale: The importance of raising public awareness regarding the value of the urban forest was recognized in the SFMP and the consultations undertaken for this project. Actions identified in the SFMP to address this challenge include: increasing public education through various marketing materials, website education, alignment with marketing being prepared by other City divisions, and providing staff resources to expand community stewardship programs to meet demand.

Making people aware of the numerous benefits and services trees provide is one of the best ways to help engage more of them in tree establishment and care. One tool that has been used successfully in other jurisdictions to help promote interest in tree planting across the city and engage various individuals and partners is a web-based tree planting tool.

Current Practices: The City currently has a number of pages on the Urban Forestry section of its website under the topics of "Tree Planting", "Trees Need Water" (see **Figure 10**), "How to Select and Buy Native Plants" and "Planting Techniques and Maintenance". These pages include downloadable sheets with watering and planting instructions. However, these pages are embedded within the City's broader Urban Forestry Branch section, and the materials associated with them do not have a consistent feel or look. In addition, some of the materials are outdated.

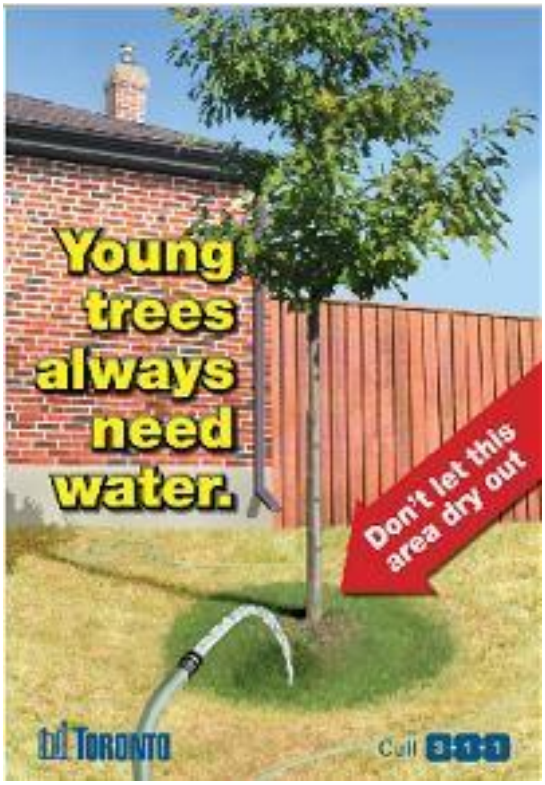


Figure 10. Example of current informational materials posted on the City's website.

Based on the direction of the SFMP the City, in partnership with TPTF and LEAF, has already started to develop components of a campaign called "Every Tree Counts" that includes a web-based application, social media and both on-line and print materials (including some previously developed materials that are being revised). This campaign will include the promotion of the #citytrees web-based application being developed by TPTF and Ryerson University which will be used to raise awareness and to track new tree plantings on both public and private lands on a voluntary basis. Urban Forestry already has the ability to track trees planted by City contractors on City-owned right-of-ways and by City crews in parks for management purposes. However, it is anticipated that the #citytrees app will primarily be an engagement tool, rather than a City urban forestry management tool. Anticipated users will include Toronto residents, businesses, schools and any organizations who undertake tree planting and would like to have their plantings recorded. This tool will provide metrics

related to the numbers of trees being planted on a voluntary basis on both private and public lands, which can be combined with tracking being undertaken by the City for management purposes, to get an estimate of the total number of trees being planted annually.

Outreach and education is expected to be based out of the Natural Environment and Community Program section of Urban Forestry and build on existing programs. These include the Parkland Naturalization Program, Community Stewardship Program, and Don Valley Brick Works Ambassador Program. Planned outreach actions also include the expansion of existing programs such as the Adopt-a-Street-Tree and Adopt-a-Park-Tree programs.

Best Practices: Most municipalities with active urban forestry departments have web pages that provide information related to urban forestry issues and activities. A few also have standalone websites dedicated to a targeted tree planting campaign. Two notable examples are the City of Mississauga and the City of London.

Mississauga's One Million Trees campaign (graphic shown in **Figure 11**) has a dedicated website which includes a simple "trees planted" counter, facts about the benefits of trees, details on the participants who have planted the most trees, information on how and what to plant, and guidance for post-planting care. These include links to resources already developed by LEAF and CVC.

Figure 11. Example graphic developed for Mississauga's One Million Trees program

The City of London's Million Tree Challenge differs in that it is a joint project between ReForest London, a local non-profit organization, and the City of London. However, the website is equally engaging and includes a simple tree counter (see **Figure 11**) and map, links to resources to help select, plant and care for trees, and opportunities for sponsorship and donations.

Figure 12. Example of London's online tree counter

Lead(s) for Implementation: Urban Forestry, Strategic Communications

Implementation Guidance:

General

- A campaign focussed on expanding the tree canopy should :
  - build on existing City resources and marketing tools (brochures, post cards, door-hangers) and social media such as Twitter (@TOtrees) and Facebook (Nature in the City);
  - develop a consistent look and feel for all materials related to this campaign;
  - use clear and simple messaging;
  - include a multi-cultural approach to materials development;
  - develop a new door-hanger, brochure, and after-care guide; and
  - develop and implement a new internal communication program focusing on providing brief descriptions of the actions and the various tree establishment initiatives recommended within it for distribution to Councillors and City divisions.
- Key messages should include: plant native and / or site appropriate species, trees need enough soil and space to grow, and young trees need water;
- Key materials should include: tree species-specific information sheets
- The campaign should establish a presence on Facebook and Twitter, and possibly other social media venues; and
- The City should ensure that resource materials are available for downloading online, and are also suitable for hardcopy distribution as required.

Tree Counter

- As part of the Every Tree Counts campaign, the City should promote the #citytrees tree counting application;
- The City should incorporate the tree counter being developed by TPTF and Ryerson University into the City's new website;
- TPTF should ensure the tool is simple, suitable for public use and requires entry of approximate locations for basic quality control;
- TPTF should ensure that the mapping is simple (e.g., link with Google Maps) and that the tool allow for summaries by ward and neighbourhood; and
- The City should develop mechanisms for reporting / tracking trees planted by the City (e.g., for capital projects, as part of forestry operations, naturalization projects) and for either combining this data with rhe counter or entering this data into the counter.

External Partner(s): TPTF and Ryerson University, LEAF, Evergreen, TRCA and possibly CVC (for some resource materials).

Target: Establish consistent look and feel for campaign materials, develop and launch website, establish social media presence, and complete materials. Complete and promote the online tracking tool #citytrees.

ACTION #7: LEVERAGE PARTNERSHIPS TO EXPAND OUTREACH AND PROMOTION

Purpose: To expand the City's ability to promote its "Every Tree Counts" campaign through partnerships in order to increase tree planting and stewardship on private properties.

Description and Rationale: A successful outreach campaign should take advantage of existing partnerships and include new partnership development. Working with internal and external stakeholders with mutual objectives will maximize the impact of the campaign.

Current Practices: Over the past decade or so, the City has engaged in a number of partnerships related to tree establishment (e.g., with TRCA, Toronto Public Health, TCDSB, TDSB, TPTF, LEAF). Most recently, Urban Forestry worked with the Canadian Forestry Association in the "National Forest Week" multi-platform campaign with a social media, event and partnership component, as illustrated in **Figure 13** below.

Figure 13. Twitter message by Toronto Forestry @TOTrees

Best Practices: Urban Forestry branches of municipal departments across southern Ontario, and North America, are always looking for cost-effective ways to expand their outreach. One of the most effective ways to accomplish this is to "piggy back" on (a) other City communications, and (b) the websites, social media feeds and materials developed by other partners who have their own networks of users and followers.

Consultation Input: Most participants of the consultations recognized the importance of broadening the City's outreach in order to gain wider appeal for tree establishment in the city, and a few specifically suggested the use of partners to help reach a broader audience.

Lead(s) for Implementation: Urban Forestry, Toronto Partnership Office, Strategic Communications

Implementation Guidance:

- City to leverage as many existing City communication tools as possible to promote public and private tree planting / care programs and initiatives (e.g., waste calendar, tax bills, newspaper advertisements, Councillor tweets or blogs and newsletters, press releases, etc.);
- Urban Forestry to engage other City departments (e.g., Toronto Water) who have opportunities to share information on the benefits of tree planting;
- City to network with suitable partners to promote the City's "Every Tree Counts" campaign through their related initiatives (e.g., Toronto Public Health, LEAF, Evergreen, TRCA, etc.);
- City to engage private sector networks and organizations (e.g., Landscape Ontario, Toronto Association of Business Improvement Areas, Ratepayers Associations, etc.); and
- City to explore and identify opportunities for outreach in different languages through local religious groups and association networks.

External Partner(s): To be determined

Target: Establish at least five public sector or non-governmental organization partnerships, and five private sector partnerships that can be leveraged.

ACTION #8: UNDERTAKE OUTREACH AND EDUCATION EVENTS FOR THE "EVERY TREE COUNTS" CAMPAIGN

Purpose: To engage a broad cross-section of Toronto's community in tree establishment activities, including events on private property.

Description and Rationale: In order to expand the tree canopy across the City, tree planting and stewardship efforts must engage stewards on both public and private property. The overarching "Every Tree Counts" campaign should be used to promote community tree planting on public land as well as tree planting and stewardship activities on private land.

Urban Forestry offers between 90 and 100 events (planting, stewardship, tours, and workshops) each year. The demand by individuals, community groups and corporate groups always outstrips available resources, therefore more resources are required to take advantage of these requests.

Current Practices: The City currently leads, or jointly participates in, approximately 100 events related to tree establishment and care annually. Examples of these include Earth Day events, local tree festivals such as Leslieville event, and a number of park naturalization events (see **Figure 14**).

Figure 14. Newly planted red oak seedling

Best Practices: The City of Toronto is one of several municipalities that participate in numerous tree establishment events annually. Going forward, the Every Tree Counts campaign will be the umbrella for all future tree establishment partnerships with the City, providing a unifying framework for these activities.

Other comparable examples include the City of Mississauga, which plants tens of thousands of native trees and shrubs annually through community tree planting and naturalization events. In addition, non-profit organizations in Toronto have existing programs that include outreach and education events. For example, LEAF offers guided Tree Tours, a 15-hour educational Tree Tenders Training course, and also organize and conduct various workshops and presentations. LEAF also attends approximately 30 public events each year where it promotes its activities with an educational display.

Consultation Input: Participants at the various stakeholder and public meetings generally agreed that outreach and education are critical to successful tree establishment, and some specifically suggested that the resources dedicated to outreach and education should be equivalent to resources dedicated to actual tree planting and maintenance of young trees. In particular, participants repeatedly indicated that there is a need for more and better technical support in terms of which species to plant and how to properly plant and care for them. In the context of expanding tree establishment on private lands, specific areas or groups identified as good targets for outreach include: condominium and neighbourhood associations, landscape contractors and youth.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- City to increase the number of tree establishment events across the city;
- City to improve the distribution of tree establishment events across the city so that a greater range of communities are targeted;

- City to identify opportunities for and introduce events that target tree planting on private lands (e.g., residential, industsrial, commercial and / or institutional) and are hosted by a private partner;
- Current successful programs such as the Parkland Naturalization Program, Community Stewardship Program and Don Valley Brickworks Ambassador Program are to be used as models, and where appropriate, expanded to meet demand; and
- The City could also support and leverage existing programs already being successfully run by non-profit organizations (such as LEAF and Evergreen) to incorporate the Every Tree Counts campaign messaging into their activities.

External Partner(s): To be determined

Target: Host or participate in up to 50 events annually

ACTION #9: EXPAND STREET AND PARK TREE ADOPTION PROGRAMS

Purpose: To build on an established program that targets tree planting and care by neighbourhood volunteers along City boulevards and in parks.

Description and Rationale: One of the challenges identified in the SFMP was the City's ability to undertake tree maintenance and manage expectations, particularly for the approximately 600,000 street trees in their care. Urban Forestry is moving towards a more proactive systematic maintenance program that will see an average 7 year pruning cycle applied city-wide, but the success of newly planted trees along boulevards and in parks could be further enhanced with community support.

Reducing street tree mortality can be positively affected care and stewardship provided by local business owners and neighbourhood groups. Local engagement in Adopt-a-Street Tree and Adopt-a-Park Tree programs can help reduce maintenance requirements and tree replacement.

Current Practices: The City currently has a well-established Adopt-a-Street Tree program which it undertakes both in partnership with LEAF (see **Figure 15**) and independently. This program encourages local volunteers to coordinate their efforts with local neighbours and/or businesses to provide basic care for newly planted street trees in order to improve their survival and growth. LEAF has developed an effective model that connects residents with newly planted street trees, and is currently working with the City to develop a comprehensive Adopt-A-Street-Tree Manual.

Figure 15. Flyer for an Adopt-A-Street-Tree event hosted by the City and LEAF

LEAF and Park People (a Toronto-based non-profit group), in consultation with the City's Urban Forestry and Parks departments, have also developed an Adopt-a-Park-Tree manual. Six Adopt-a-Park-Tree programs have been implemented under LEAF's leadership to date. With no funding to support Adopt-a-Park-Tree programs, LEAF created the Young Urban Forest Leaders Program and secured a small Toronto Recreation grant to have volunteers in place to help sustain existing programs and to support additional Adopt-a-Park-Tree programs.

Outside of Toronto, the Borough of Columbia, Pennsylvania ensures all new street trees are watered in the first three years of planting with a written commitment by the property owner and through the provision of educational materials and ongoing support (e.g., web tools, workshops, tree care kits).

Consultation Input: One of the most persistent themes that came across during the consultations was the importance of educating people about, and engaging people in, post-planting care. Suggestions for filling this need included: the provision of materials online, hands-on workshops and seminars. Some also noted the need to track the survivorship of young trees.

Lead(s) for Implementation: Urban Forestry, LEAF

Implementation Guidance:

- City to provide funding to LEAF to continue to develop and implement these programs
- City and LEAF are to complete and promote the new Adopt-A-Street-Tree Manual through the "Every Tree Counts" campaign as well as by using email lists and making hardcopies available in community centres and libraries along with flyers advertising where the manual can be found online;

- City and LEAF to provide hardcopies of the manual and related supporting informational sheets to community groups on request, as quantities permit;
- City to expand staff support for neighbourhood street and park tree stewardship activities;
- City to provide direct support (e.g., in terms of resources to support tree care such as mulch, watering cans) to established neighbourhood volunteer groups on request;
- City to consider providing some direct sponsorship to LEAF in support of their Young Urban Forest Leaders Program to support Adopt-A-Park Tree Programs; and
- City to work with local volunteers, and LEAF, to collect data on the survivorship of adopted trees.

External Partner(s): Potentially community and neighbourhood groups, other local non-profit organizations including Evergreen, and business associations

Target: up to 1,000 tress per year

4.3 Planning and Management

In addition to several new programs and an outreach campaign, a number of planning and management initiatives are recommended to help the City achieve its urban forest management goals and reach the 40% tree canopy cover target. These recommended actions relate to enhanced policies and guidelines, and the elimination of impediments to tree planting and more comprehensive young tree maintenance on City lands.

The SFMP identified a number of challenges to sustaining and growing the urban forest including forest health threats, tree maintenance, urbanization impacts and climate change. The following actions relate to internal processes and practices and are intended to help address these challenges.

ACTION #10: DEVELOP POLICIES AND GUIDELINES FOR SPECIES DIVERSITY

Purpose: To develop comprehensive guidance that will address both native species selection and invasive species management across Toronto's urban forest, and help build resilience to stressors related to climate change.

Description and Rationale: Recommended actions to address climate change, as described in the SFMP, include: increasing and adapting tree species planting lists; native seed sourcing and collection; promoting new standards for planting in hardscapes; and partnering with other agencies to achieve common objectives.

Climate change adaptation will require that municipalities consider planting tree and shrub species that: will be able to adapt to shifting climatic ranges; can tolerate stress imposed by the urban environment; require modest amounts of care and maintenance; have relatively low known risks of pests and pathogens; and are not considered to be invasive. A Species Diversity Policy and

associated Guidelines are necessary to give direction for species diversity as a means of building ecosystem resilience, and to address the changing growing conditions in the Toronto region, as influenced by global climate change. Proper species selection is also important to help ensure that this investment in Toronto's future urban forest is not wasted.

Invasive species management is an integral part of an Integrated Pest Management program. The proliferation and distribution of invasive plant species in the City's parks and ravines is a serious threat to the natural components of the urban forest, local biodiversity and potentially to broader ecosystem resilience. Dog-strangling vine is just one example (shown in **Figure 16**) of a serious and spreading threat in a number of Toronto's natural areas. The spread of invasive plant species affects the growth and distribution of native habitat and threatens native tree species, particularly in parks and natural areas.

Figure 16. Invasive species include the dog-strangling vine (DSV)

Current Practices: Currently, Toronto's tree population consists primarily of sugar maple (10.2%), Norway maple (6.5%), white ash (5.3%) and eastern white cedar (15.6%). More than 10% of the trees represent the maple (23.8%) and cedar (17.8%) genera.

Currently, Urban Forestry plants trees on City-owned right-of-ways based on a list of 34 species which was developed with consideration for the challenges of tree growth and survival along streets. This list is currently under review based on tree survival data. Toronto's Urban Forestry department is also currently developing a Tree Species Diversity Policy with the goal of improving the resiliency of the urban forest and responding to ongoing and anticipated climate change challenges.

In addition, Toronto is currently developing a Toronto Forest Health Care Strategic Plan which includes a means to control the introduction, establishment, spread and impact of present and potential forest pest invasions. This plan, while considering threats posed by forest pests, will not

specifically address invasive species management of herbaceous invasive plants such as, buckthorn, dog-strangling vine and garlic mustard.

Best Practices: The introduction and maintenance of a diversity of native species across the urban forest, and control of invasive plant species go hand in hand. Invasive terrestrial plants, both woody and herbaceous, are recognized as major threats to natural systems because they can reduce forest regeneration through direct competition with seedlings, resulting in reduced density and slowed growth rates. Reduction in forest regeneration can then result in the loss of wildlife habitat and decreased stand diversity, making forests more vulnerable to insects, disease, and climate change stressors. This vulnerability applies to trees both within and outside of natural areas.

The general best practice 'rule' for healthy diversity is the '5-10-20' rule which reflects no more than 5% of one species, 10% of one genus, and 20% of one family[3]. However, this rule can be difficult to follow in a built-up urban setting, particularly among street tree populations. Furthermore, while it is widely agreed that invasive species should be entirely avoided in an urban setting, there are situations where non-native but non-invasive tree species may be better adapted to withstand difficult conditions. It is important that in developing its policies and guidelines the City takes a balanced approach to managing and improving tree species diversity.

Consultation Input: A number of the participants at the consultations recognized the importance of planting native, locally adapted species. Suggestions from these individuals included providing information about sources of native shrubs and trees online, and providing species-specific information sheets on a range of native species suitable for planting in different conditions in Toronto.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- The policy and guidelines should include:
    - rationale, recommended approaches, and guidance for addressing stewardship opportunities;
    - support for proactive invasive species control to increase high quality tree planting sites on public lands, and encourage the same on private lands;
    - criteria for prioritizing management in different areas and different circumstances; and
    - distinct approaches for natural forested areas, street trees, and park trees.
- The policy and guidelines need to consider species that:
    - are at the northern limits of their ranges but may be gradually expanding further north with climate change;
    - can tolerate most stressors imposed by the urban environment and require modest amounts of care and maintenance;

[3] Santamour, F.S. 1990. Trees for Urban Planting: Diversity, Uniformity and Common Sense. Proceedings of the 7th Conference of METRIA: Metropolitan Tree Improvement Alliance 7:57-65.

  - have low known risks of pests and pathogens; and
  - are not considered to be invasive.

- Special consideration and education is required related to species that can be toxic to humans and pets.

External Partner(s): To be determined

Target: Tree Species Diversity Policy and Guidelines developed and implemented.

ACTION #11: COMPREHENSIVE REVIEW OF IMPEDIMENTS TO TREE PLANTING AND MAINTENANCE

Purpose: To ensure that relevant City policies and bylaws are supportive of tree establishment and maintenance to the greatest extent possible.

Description and Rationale: One of the challenges of protecting and expanding Toronto's tree canopy is the impact of urban intensification on the landscape. City-building can include neighbourhood revitalization and the installation of infrastructure within the right-of-ways which can have significant negative effects on the conditions necessary to maintain the existing canopy and to grow new trees. A comprehensive review of policies and practices is meant to identify those policies and processes that may be limiting the City's ability to meet its urban forestry objectives related to the protection and expansion of the tree canopy. Impediments to healthy tree growth include loss of potential growing space due to minimal development setbacks from City-owned right-of-ways or infrastructure interference, poor soil volume, and poor soil quality. However, city-building can also create opportunities to retrofit or improve conditions to make them suitable for tree planting. A review is required to ensure these opportunities are explored.

Current Practices: The City has a range of policies, bylaws and guidelines that support both tree protection and tree establishment. These include a private tree by-law and ravine by-law that require compensation for trees approved for removal through the permitting process, guidelines and specifications for tree planting in a range of conditions, including hardscapes, and Official Plan policies that strongly support the expansion of tree establishment on both public and private lands.

In 2013, the City produced Tree *Planting Solutions in Hard Boulevard Surfaces, Best Practices Manual*, which includes principles, approaches and detailed specifications for establishing trees in built-up settings such as sidewalks, parking lots and boulevards. Toronto also has the Green Standard, updated in 2014, which requires tree planting and specifications for soil volume as part of Site Plan approval. Furthermore, the City is currently developing a Green Streets technical guide to promote the use of 'green infrastructure' in streets with natural and human-made systems designed to minimize the environmental impacts of the urban built form. These documents all provide site-specific guidance for supporting the integration of trees in built environments.

Best Practices: Most municipalities with active urban forestry staff or sections have a range of policies, bylaws and guidelines to support both tree protection and establishment. Toronto is a leader in this area, and the City`s bylaws and guidelines (including an emerging Green Streets Technical

Guideline) and requirements under site plan approval are among some of the most progressive, and are sometimes used by other municipalities as references when they lack their own guidance.

Consultation Input: Although the focus of the consultations was on tree establishment and potential programs targeting private lands, a few participants expressed concern about clauses in some bylaws that seemed to impede tree planting. For example, the City's Fence Bylaw includes trees and shrubs in the definition of 'fence' making them subject to fence height restrictions.

A few others expressed the need for specific guidance about the types of planting that would be acceptable on private property, particularly guidance on species selection in regulated ravine areas, 40% of which are privately owned.

Some also expressed concern about the seeming lack of coordination among different City departments resulting in tree canopy losses.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- Urban Forestry to work with other City divisions (e.g., Planning, Municipal Licensing & Standards, and Transportation) to identify impediments to tree establishment in terms of both policy and practice, and to develop strategies to address them;
- Specific topics to examine should include: fence setbacks on public right-of-ways; above and below grade growing space in the public right-of-ways ; encroachment into the public right-of-ways; and, loss of potential growing space on private property due to front pad parking;;
- Urban Forestry to work with City and other implementation partners to identify impediments to private property planting and incorporate lessons learned into existing programs and communications/campaign messages;
- Urban Forestry to review and / or develop mechanisms to ensure effective inter-departmental coordination related to protecting potential growing space for trees on both public and private property ;
- Urban Forestry to provide support and input to Transportation Services in their review of environmental impacts from front pad parking further to the current moratorium;
- Urban Forestry to investigate the feasibility and policy implications of 'temporary' or shorter-term planting sites (e.g., for 10-20 year or longer commitments) that allow private landowners to plant 'temporary forests' without giving up the ability to develop their land or change land uses in the future; and
- Urban Forestry is to work with other City divisions to identify mechanisms to ensure better inter-divisional communication, and clarify divisional roles and responsibilities related to the City's trees.

External Partner(s): Internal City divisions and other key stakeholders

Target: Identify and address various policies and/or regulations to better support tree establishment.

ACTION #12: IMPROVE YOUNG TREE MAINTENANCE ON PUBLIC LANDS

Purpose: To improve the short and long-term success of young trees planted on public lands by improving watering and pruning practices.

Description and Rationale: Thousands of young trees are planted in parks and City-owned right-of-ways each year. The current survival rate of these new trees is not systematically monitored. However, experience and observation suggest that young tree growth and survival could be greatly improved through an intensive young tree maintenance program which would include regular watering, pruning and mulching in the first several years. In addition to the promotion of healthy tree growth, an intensive young tree maintenance program can reduce long term maintenance costs and minimize vulnerability to storm damage.

Current Practices: The Newly Planted Tree Program, undertaken by Forestry Operations, focusses on parks and street tree plantings on right-of-ways fronting onto residential properties. This maintenance program includes strategic pruning, watering, mulching and fertilization of newly planted trees to increase their rate of growth and increase their survivability.

Best Practices: Young tree maintenance, including regular watering and pruning to develop good structure, is one of the best investments in the future urban forest. Regular watering and mulching increases the likelihood of young tree survival and successful establishment, reducing costs for tree removal and replacement. Young tree structural pruning, or "training", provides trees with good structural form which greatly reduces the risk of branch failure in the future.

A leading example of a successful young tree maintenance program is York Region, which has seen a significant increase in the survival rate of newly-planted trees since implementing an intensive watering program. York Region has also recently implemented a young tree structural pruning cycle, with new trees receiving at least three pruning rounds in the first ten years following establishment and a three (3)-year watering contract, with the contractor visiting each tree up to 16 times per year.

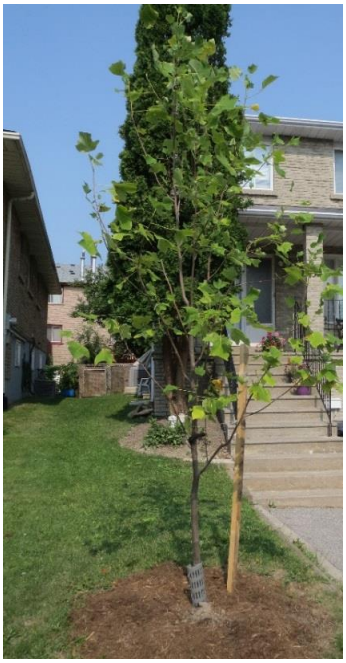


Figure 17. City-owned right-of-way street tree planting

Consultation Input: Young tree maintenance on public lands was not a primary topic of conversation. The main feedback received from participants on this topic was that it is critically

important for the City to set a good example in terms of implementing best practices with respect to young tree care if it is encouraging and supporting young tree planting and care on private lands.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- City to revise tree planting contracts to reflect the importance of consistent watering of all newly planted trees to increase tree survival, and consider separating watering contracts from planting contracts;
- City to finalize City tree pruning guidelines (under development);
- City to revise Tree Supply/Install Contract Specifications to better support tree establishment (e.g., require three year warranty);
- City to develop a new contract template for tree supply (seed stock) so that it can favour native seed source stock and assign Urban Forestry staff to inspect stock;
- City to collect representative data on survivorship and growth of new tree plantings, and if possible compare results in areas where different approaches are being implemented;
- City to address climate change adaptation with specific measures that include:
    - Increasing systematic tree pruning and maintenance (particularly near hydro lines) to promote healthy tree growth, reduce long term maintenance costs, and minimize vulnerability to storm damage;
    - Expanding parkland naturalization and naturalization of lands surrounding water and wastewater treatment facilities to decrease stormwater runoff and parks maintenance costs; and
    - Requiring continuous soil trench systems and other engineered solutions in commercial areas where trees are being integrated to increase tree life expectancy and shade, and reduce energy demands for cooling.

External Partner(s): Selected neighbourhoods through the Adopt-A-Street-Tree Program.

Target: Improved approaches to young tree watering, pruning and maintenance resulting in fewer and/or less frequent replacements of newly planted trees.

ACTION #13: NEW TREE ESTABLISHMENT MONITORING

Purpose: To develop a better understanding of newly planted tree health and survival rates under different conditions across the city, and to inform future management approaches.

Description and Rationale: A key factor in maintaining a healthy urban forest is adaptive management based on good monitoring information. New tree establishment is influenced by a number of conditions including species selection, site preparation, site suitability and early tree maintenance. Monitoring new tree survival rates under different growing conditions is essential to informing good urban forest management.

Best Practices: It is widely recognized by urban forest planners that it is very difficult to plan or

manage if there is little or no information about the asset being managed. Consequently, most urban forest management plans include actions related to monitoring the state of the urban forest (e.g., City of Guelph, City of Mississauga). Many jurisdictions, including the City of Toronto through its SFMP (2013), have adopted a monitoring framework based on the original work published by Clark *et al.* (1997)[4], and then revised by Kenney *et al.* (2011)[5].

Consultation Input: Several participants noted that there appears to be a lack of information about post-planting survival in Toronto, and that there is a need to monitor / track if planting required through planning process and permit conditions is being implemented as approved. In addition, City staff identified the need to have more data on the survival and success of trees planted on public lands.

Current Practices: The City of Toronto has conducted several studies (see *Every Tree Counts*, 2013) dedicated to understanding the cover, structure, and condition of the overall urban forest. However, no formal or systematic data collection with respect to newly planted trees is undertaken at this time, although Urban Forestry staff does have some understanding of new tree success based on their experience and incidental observations.

On private property, LEAF has data with respect to backyard tree plantings. The Toronto District School Board (TDSB) and the Toronto Catholic District School Board (TCDSB) have some data with respect to school ground plantings and both have recently completed a tree planting inventory.

Evergreen has participated in TRCA's Young Tree Monitoring Program in Peel Region. The results of this program should also be considered in the development of any new monitoring program.

Figure 18. Three year old tulip tree in Mossgrove Park

Lead(s) for Implementation: Urban Forestry

[4] Clark, J.R., Methany, N. P., Cross, G. and Wake, V. 1997. *A model of Urban Forest Sustainability*. Journal of Arboriculture 23(1): 17-30.

[5] Kenney, W.A., van Wassenaer, P.J. and A. Satel. 2011. C*riteria and Indicators for Strategic Urban Forest Planning and Management.* Arboriculture & Urban Forestry, Volume 37, Number 3 April 2011 pp 108-117.

Implementation Guidance:

- City to collect and synthesize data from various sources to track the success of new tree plantings on a range of private and public properties across the City;
- City to specifically analyze the number of warranty replacements when new trees are inspected at one month after planting versus two years after planting;
- City to develop mechanisms for collecting data from different City departments in terms of numbers of trees planted and survivorship, at least within the first five years;
- City to explore use of the public tree inventory for tracking the success rates of newly planted trees; and
- City to explore partnerships with local academic institutions (e.g., University of Toronto, Ryerson University, York University) to study the survivorship and growth of newly planted trees in different contexts (e.g., street trees versus park trees; front yards versus back yards) and conditions in the city, including surveys of newly planted trees for up to 10 years post-planting.

External Partner(s): LEAF, local school boards, local Universities and potentially others such as ACER.

Target: Monitor representative samples of newly planted trees across the City, and develop a summary report.

4.4 Implementation Resources and Leadership

Urban Forestry does not have the capacity to add new programs without additional resources as the level of service delivery is currently at capacity with existing programming. Successful development and implementation of new programs and support services, to help the City meet its tree canopy cover target of 40% (by encouraging tree planting and tree care on private property) will require new resources and staff with specific skill sets.

In addition to dedicated resources required to deliver new programs and services, an inter-departmental resource group is recommended to provide technical input and support. A tree planting working group can help oversee tree planting contract management, track planting success, and support promotion and outreach efforts. The need for a collaborative approach was broadly recognized through the public consultations.

ACTION #14: CREATE STAFF POSITIONS TO COORDINATE AND IMPLEMENT NEW TREE PLANTING PROGRAMS

Purpose: To address resource gaps in relation to the recommended actions, ensure that the recommended and approved actions are implemented as intended, and to address implementation issues that may arise.

Description and Rationale: Current Urban Forestry resources focus on publicly owned lands. Competition for public space limits the available space to increase the City's tree canopy on public lands alone. Based on recent land use analyses, private property has been identified as having the greatest potential for tree canopy expansion. To reach the City's established target of 40% tree canopy cover, the City must dedicate new resources for education and outreach as well as tree planting and stewardship, on both public and private property.

New, dedicated resources are needed to:

- coordinate and deliver new programs and initiatives;
- implement promotion and outreach activities designed to create a culture of tree protection and tree stewardship across the City;
- implement tree planting and tree care incentive programs for private landowners, both residential and non-residential; and
- implement planning and management actions, including monitoring and maintenance programs, that support urban forestry tree establishment objectives.

Current Practices: Urban Forestry is currently responsible for tree planting and tree maintenance programs on public lands, as described in the Forestry Service Plan. Increasing demands for public tree planting events and tree maintenance put pressure on existing resources, which are already at capacity. Additional programs cannot be delivered without a concurrent increase in resources.

Best Practices: Other municipalities in southern Ontario that have developed urban forest management plans, including components related to tree establishment, have typically identified the need for additional staffing resources (internal or contracted) as well as capital resources needed to implement their plans. While these requirements are varied and unique to each municipality (e.g., depending on their corporate structure, current urban forestry staffing and assets, etc.), a number of them have identified the need for a staff position to oversee and help implement stewardship activities, as well as other staffing to implement operational aspects of their plans (e.g., City of Burlington, City of Guelph, City of Mississauga).

Consultation Input: The need for new positions to coordinate and implement the actions recommended in this Strategy was not a specific topic of discussion at the consultations. However, the need for better communications between different City divisions related to both tree preservation and establishment, and the need for a range of new programs supporting broader tree establishment on private lands, were both broadly supported, as was the principle of additional resources put towards expanded tree establishment initiatives.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- Three new positions should be created to help implement the various recommended actions identified in this report as follows:

1. an Outreach and Stewardship Coordinator who would be responsible for:
    - working with community partners (such as LEAF and Evergreen) with funding support from the City (potentially through TPTF), to oversee implementation of the various new programs (i.e., Actions #1 through #5) and track their success; and
    - working with the City's Communications Department and others to develop and implement the Every Tree Counts Campaign (i.e., Actions #6 through #8)

2. an Urban Forest Planner with arboricultural skills who would be responsible for:
    - developing policies and guidelines for tree species diversity and invasive species management in wooded areas (Action #10), and helping to implement those policies and guidelines;
    - undertaking a comprehensive review of policies, guidelines and practices to identify impediments to tree planting and maintenance (Action #11); coordinating and undertaking new tree establishment monitoring (Action #13), and sharing the results with appropriate City staff to allow for adaptive management;
    - overseeing the development and use of a Tree Planting Prioritization Tool (Action #15); and
    - developing a tree health evaluation protocol with the implementation partners that would be used for all planting projects on public and private lands so that program success can be accurately and consistently compared over time.

3. a "Tree Establishment" Arborist who would be responsible for:
    - working with LEAF and other partners to further develop and expand the Adopt-a-Street Tree and Adopt-a-Park-Tree programs (Action #9);
    - working with appropriate staff in Urban Forestry and with implementation partners to help implement improved young tree maintenance (Action #12);
    - helping to remove impediments to tree planting and maintenance identified through the review of policies, guidelines and practices (Action #11); and
    - working with both the Planning Department and Urban Forestry, as well as key implementation partners, to help ensure new tree plantings are fulfilledas approved on both public and private lands, and assisting with new tree establishment monitoring (Action #13).

All three positions would be active members of and City representatives on the Urban Forest Working Group (Action #16).

External Partner(s): None

Target: Create and fill three new positions related to implementing the actions recommended in this report.

ACTION #15: DEVELOP A TREE PLANTING PRIORITIZATION TOOL

Purpose: To develop a mapping-based tool (using GIS) that will help refine the identification of priority planting areas.

Description and Rationale: A prioritization tool will focus limited resources and help increase the tree canopy where it is most needed, as determined by the users. Community partners could work with the City to deliver community-based planting, stewardship and educational programming in these priority areas.

Potential criteria for prioritization could include: neighbourhood improvement areas, areas with poor air quality, areas impacted by urban heat island effects, gaps in natural heritage system connections, and neighbourhoods with lower than average tree canopy levels. Such a tool will help in the prioritization of both private and public tree planting efforts, and serve as an education and outreach tool. This tool could also be used to help allocate resources such as community-led tree planting or stewardship initiatives in priority neighbourhoods throughout the city.

Current Practices: The City currently prioritizes certain areas based on single-variable analyses that are based on data collected as part of the work undertaken to support the SFMP (2013) and *Every Tree Counts* (2013). Available data currently being utilized to guide prioritization includes canopy cover by neighbourhood, neighbourhoods with relatively high proportions of ash trees, and natural area management opportunities in select parks. The demand for available large areas suitable for community tree planting events, together with identified local community interest are additional considerations for tree planting in parks. TRCA uses a tool that prioritizes restoration opportunities on a sub-watershed basis as they relate to potential habitat enhancement of the natural heritage system. However, the City does not have a multi-criteria city-wide tool at its disposal.

Best Practices: The development of a GIS-based prioritization tool to guide tree planting is a fairly new and progressive approach to urban forest planning. The Region of Peel was the first in Canada to work with its area municipalities (i.e., Mississauga, Brampton and Caledon) to develop a tool that considers environmental, economic and social measures in the identification of priority planting areas. Measures considered in this tool include air quality, areas with high urban heat island vulnerability, proximity to the natural heritage system, location within or proximity to core commercial areas, ability to support physical and emotional well-being, and areas of lower than average canopy cover.

The City of Cambridge and the City of Calgary have also recently developed tree planting prioritization mapping tools that consider variables such as proximity to public open space and proximity to water features for prioritization.

Consultation Input: Participants at the stakeholder and public meetings were asked if they thought the City should allocate additional resources to prioritizing tree planting areas, and if so, what those

priorities should consider. Although there was not an abundance of feedback on this topic, those who did respond supported the idea of prioritizing, and suggested that the City consider air quality, communities with lower than city-average canopy cover, and areas with high heat vulnerability as potential criteria.

Lead(s) for Implementation: Urban Forestry

Implementation Guidance:

- City to develop this tool in conjunction with updated urban canopy cover data for the City, along with updated plantable spaces data;
- City to develop the tool in consultation with representatives from the various City departments who could use it, as well as Toronto Public Health and TRCA;
- City to consult with experts at Peel Region and elsewhere who are working on or who have knowledge related to developing a tree planting prioritization tool; and
- City to include the following as potential measures for prioritizing areas: air quality, urban heat island effects, natural heritage system, neighbourhood canopy cover levels, and potentially others such as neighbourhoods with the highest risk due to urbanization, recreational pressures, climate change sensitivity, and pest infestations.

External Partner(s): Toronto Public Health, TRCA, LEAF, Evergreen and potentially other community partners

Target: Tool developed and in use by City departments and partners

ACTION #16: FORM AN URBAN FOREST WORKING GROUP

Purpose: To help the City ensure that all recommended and approved actions are implemented as intended, to provide technical input to addressing issues and challenges related to implementation, and to provide a standing body through which key stakeholders can provide input.

Description and Rationale: A number of new programs and support services designed to encourage tree planting and tree care on private lands are being recommended to help the City reach its tree canopy target. Following the example of other municipalities, a working group is recommended as a means of assisting the City in the implementation of new programs and support services.

Currently, Urban Forestry staff work with community organizations through established public tree planting and stewardship activities in an ad hoc manner. The delivery of new programs and support services for private landowners will require a mechanism for two-way communication that currently does not exist. An urban forest working group would provide a framework for valuable insight and two-way dialogue.

Current Practices: The City, at one time, had an internal tree planting working group to help oversee tree planting contract management, track planting success, and support outreach efforts. However, there is currently no such body in place.

Best Practices: A number of other municipalities in southern Ontario who have developed urban forest management plans and / or who have active urban forestry programs, have recognized the value of having an arm's-length advisory group with expertise in urban forestry to help guide the municipality in the implementation of various urban forestry objectives. For example, the City of London has a Trees and Forests Advisory Committee comprised of locals with expertise on various aspects of urban forestry who meet approximately six times per year and provide input to various City urban forestry initiatives. Recommendations for creation of such a group has also emerged from Urban Forest Management Plans developed for municipalities such as the City of Mississauga and City of Guelph.

Consultation Input: The need for an arm's-length advisory committee to help implement the actions being recommended in this Strategy was not a specific topic of discussion at the consultations. However, the need for a collaborative approach was broadly recognized through the consultations and LEAF specifically suggested the creation of such a committee to make implementation of this Strategy a "team effort".

Lead(s) for Implementation: Urban Forestry, other City divisions, and community stakeholders

Implementation Guidance:

Develop a Terms of Reference for this group that:

- Provides a forum to share updates and progress on actions, help address challenges as they arise, and provide input from external parties as appropriate;
- Includes representation from local non-profit organizations, academic institutions, local experts, professional associations, social agencies and neighbourhood / community groups that share a passion for and have experience with tree establishment in the city;
- Ensures that all members of the group have applied experience with respect to urban forest planning and / or tree establishment in the city;
- Requires meeting at least four times annually; and
- Ensures at least two key City staff should attend all meetings, including the individual who fills the new position described in Action #14.

External Partner(s): Toronto Public Health, TRCA, LEAF, Evergreen and potentially other community partners

Target: Create a Terms of Reference for and establish an Urban Forest Working Group.

5. Conclusion and Next Steps

The recommended 16 actions presented in this report provide a comprehensive range of practical recommendations that are suited to Toronto's needs and leverage existing tools, programs and organizations to maximize the City's return on investment with respect to tree establishment, particularly on private lands.

These actions are to be presented to the Parks and Environment Committee by City staff for their review and consideration. The actions, as approved by the committee, will then be incorporated into a broader Tree Planting Strategy to be developed by the City.

The Tree Planting Strategy is intended to be used primarily by the City and its tree establishment partners to help implement the approved actions of this report, and by extension, the vision and objectives of the broader Strategic Forest Management Plan (SFMP). The Strategy may also be a reference and a resource for residents, neighbourhood groups, and other interested parties.

Once completed, the Tree Planting Strategy is expected to be a working document, subject to a five year review. As part of the review process, the effectiveness of the recommended actions, as well as the various tree establishment partnerships, will be examined and assessed. In addition to assessing the status of recommended actions and partnerships in the Tree Planting Strategy, effectiveness will be measured in relation to the criteria and indicators identified in the City's SFMP related to tree establishment.

The approved actions are intended to be implemented over the next two years, with most of them continuing to be delivered over the full five year term envisioned for the Tree Planting Strategy, after which they will be reviewed.

Urban Forestry will be the lead for the implementation and review of the Tree Planting Strategy, as well as for any adaptive management responses. However, implementation of this Strategy will also require the support of many internal and external partners, particularly in the not-for-profit and private sectors, and especially the public. A number of partners have already been identified through the recommended actions. Additional partners may emerge through the implementation process.

Report prepared by:
Beacon Environmental

Margot Ursic, M.Sc.
Planning Ecologist / Facilitator

with input and review from:

Philip van Wassenaer
Urban Forest Innovations Inc.

Alex Satel
Urban Forest Innovations Inc.

Appendix A

Summary of Stakeholder and Public Consultations (November 2015)

Appendix A: Summary of Stakeholder and Public Consultations (November 2015)

A series of facilitated consultations with various stakeholders and representatives from the community was undertaken over 2015 in support of the development of this Tree Planting Strategy. These consultations consisted of:

- A Meeting with City staff on May 15, 2015
- A Stakeholder Meeting held on November 2, 2015 with representatives from the City, non-governmental organizations, and local agencies
- A Stakeholder Meeting held on November 3, 2015 with representatives from various ratepayer groups and neighbourhood organizations, as well as some local practitioners (e.g., Arborists, Landscape Architects) and academics
- A Public Meeting held on November 16, 2015 at the Scarborough Civic Centre
- A Public Meeting held on November 17, 2015 at the Etobicoke Civic Centre
- Stakeholder Meeting held on November 23, 2015 with representatives from the Toronto District School Board
- A Public Meeting held on November 30, 2015 at City Hall

Ninety-nine individuals participated in these various meetings (in addition to the City staff and Consulting Team members in attendance). A consolidated summary of the verbal feedback received, organized by themes, is presented below. The four themes – which were also used to organize and summarize the online survey comments – are: (1) Protection/Policy/Regulation, (2) Outreach and Education, (3) Opportunities/Constraints, and (4) Tree Maintenance and Aftercare.

In addition, a survey was provided to participants of all the meetings above, and was posted online from November 9, 2015 to December 14, 2015. A summary of the input received from this survey, as well as through additional written responses provided via email, is also summarized below and organized according to the survey questions.

Finally, a summary of the feedback received via social media (i.e., Twitter and Facebook) related to this Strategy is also provided.

Stakeholder and Public Verbal Feedback Summary

(1) Planning / Policy / Regulation

- Most participants expressed general support for putting additional resources towards tree planting, but a number of them expressed concern about the ongoing loss of mature trees in some areas both in relation to approved development, as well as some activities thought not to have been sanctioned by the City.
    - Several specifically noted the importance of enforcing existing tree and ravine protection by-laws, and demonstrating proper care for young trees on City lands so the City maintains its credibility and sets a good example with respect to urban forest protection and establishment.
- Other specific suggestions with respect to planning approaches and bylaws
    - Urban Forestry should work more closely with City Planning to address design/landscape development related to tree planting.
    - Develop policy to encourage 'temporary' shorter term planting sites (e.g., for 10-20 year or longer commitments) that allow industries to plant without giving up the ability to develop land or change land use down the road.
    - Need to undertake more follow-up on required tree plantings to determine compliance and encourage early tree care.
    - Re-examine municipal standards for parking area and reduce requirements for impervious surfaces. How much parking is really necessary?
    - Consider supporting partnerships between non-governmental organizations and landowners to help them with their tree planting requirements when imposed as a condition of permit.
    - Divert a proportion of development fees to private tree planting under the Planning Act Sections 37 and 42.
    - Take the discretion away from City Councillors to issue front yard parking permits, which reduces areas for planting.
    - Explore opportunities for tree planting for every building permit, even where no tree removals are proposed.
    - Implement new bylaw to impose minimum tree canopy cover on industrial / commercial and institutional lands.
    - Review clauses in the City bylaws that:
        - include shrubs in the definition of fences (see chapter 447-1 definition) and require them to be maintained at a certain height; and
        - consider hardscaping as landscaping.

- Increase tree planting requirements through the planning and bylaw process.

- Prioritization of areas for tree planting resources
  - TRCA has a tool for prioritizing restoration opportunities that is watershed-based based on environmental conditions (e.g., tree cover, impermeable surface, etc.).
  - Professor and some students at Ryerson University are also working on a prioritization tool that considers both environmental and socio-economic factors.
  - The City should consider the following in tree planting prioritization:
    - air quality data;
    - communities with lower than city-average canopy cover; and
    - areas with high heat vulnerability indices.
- Consider setting minimum canopy cover targets for all neighbourhoods.
- There is a lack of information about post-planting survivorship - need to monitor / track if planting required through planning process or permit conditions is being completed as planned.

(2) Outreach and Education

- Outreach and education are critical to successful tree establishment; at least as many resources should be dedicated to these as to actual tree planting and maintenance of young trees.
- Education and training for private property owners/managers should be provided as an integral part of all planting initiatives.
- Suggestions related to approach and messaging included:
  - undertake a city-wide outreach campaign and use engaging marketing techniques, including:
  - a unified look and feel to the materials
  - engaging visuals (e.g., a United Way style barometer of how many trees planted)
  - short video clips (e.g., how to plant a tree) online and / or as Public Service Announcements
  - social media
  - develop a curriculum based outreach program that could be readily adopted by schools;

  - target entire streets or neighborhoods rather than individual landowners;
  - focus on quality over quality of plantings;
  - include the broader notion of biodiversity, rather than just trees;
  - target condominium and neighbourhood associations, landscape contractors;
  - a multi-cultural approach will be required for Toronto;
  - need to include City staff from various departments in outreach efforts as well as Councilors; and
  - use local non-governmental organizations and neighbourhood / community groups as well as Councilors to help spread the word.

- Specific suggestions for information / outreach included:

  - more education about the benefits of trees;
  - provision of information sheet on species specific planting and care;
  - provision of easy sourcing for native trees and shrubs online;
  - prepare brochures that Councilors can send to homeowners associations;
  - education on the use of water bags;
  - education on the positive impact that street trees have on traffic calming;
  - consider changing the “adopt-a-tree” program name because it implies more work than is actually involved;
  - informing residents if they are allowed to maintain / prune trees on city lands;
  - online education and certification for tree planting should be required for City contractors and other groups receiving money from the City;
  - outreach linking tree planting with climate change adaptation and mitigation;
  - information on the use of native trees, and avoiding invasive species;
  - clear information about what can and cannot be done in regulated privately owned ravine areas regarding landscaping; and
  - clear information about tree roots and drains.

- Specific suggestions for incentives included:

  - need better promotion of the current ability to request a tree for the right-of-way in front of one’s house or business if there is space;
  - reminders (via email if possible) for residents to water trees;

- contests among corporations or neighbourhoods (e.g., who can have the most newly planted trees survive after 2 years);
- recognition of corporate sponsors (e.g., on City website, with signs);
- funding for businesses to plant trees in parking lots;
- support LEAF in their apprentice-type youth training program;
- recognition of community successes from local Councilors; and
- an event day in May for planting trees targeting private properties and / or a 'Tree Care' Day after Earth Day.

(3) Opportunities / Constraints

- Challenges and constraints identified by stakeholders and the public include:

  - people don't know how to get started, who to call, how much the cost will be, etc.;
  - finding areas to accommodate tree planting;
  - making sure trees aren't just planted for the short term goal of getting more trees in the ground – need to find ways to ensure the right tree is planted in the right place and provided with the right after care to ensure its successful establishment and growth;
  - the need to be careful regarding pruning – volunteers should not be undertaking some types of pruning, particularly on larger trees – this should be performed by professionals;
  - the growing shortage of pervious spaces; and
  - the need to have different approaches for different land uses types (e.g., residential versus school grounds versus commercial lands).

- Challenges identified by City staff at a workshop in May 2015 included:

  - Difficulty in ensuring all trees planted are planted properly, using good stock, and adequately maintained with existing staffing resources;
  - Some lack of communication between different departments;
  - Lack of data related to the effectiveness and survivorship of tree plantings;
  - Public perception of naturalization being "messy";
  - How best to prioritize tree planting projects;
  - Inconsistent stock quality and supply; and
  - Limited understanding in some communities about the benefits of having trees.

- Opportunities identified for private lands include:

    - a subsidy for homeowners that have an ash tree that needs to be removed and replaced;
    - subsidies to homeowners for large shrubs as well as large trees since not all yards have room for large-growing trees;
    - matching funds dedicated to tree establishment provided by corporations, or obtained by non-governmental organizations through grants and / or donations;
    - building on established and successful non-government organizations already doing this work in the city (e.g., LEAF, Evergreen) who have developed a cost effective model;
    - offering tax incentives to plant trees on private property related to the preservation of pervious surfaces (e.g., like Mississauga's stormwater management tax rebates), or requiring a certain proportion of pervious area be retained;
    - funding partnerships with commercial landowners (e.g., Home Depot) to demonstrate good tree planting and tree care practices in commercial parking lots;
    - create a City-funded tree planting service for industrial / commercial / institutional property owners for no fee, with a written commitment for after care by the property owners;
    - for industrial properties, offer a suite of services beyond just tree planting such as understorey planting, tree care advice and pruning/maintenance training;
    - connect institutional landowners with local high schools for tree planting and maintenance;
    - requiring some type of maintenance agreement be signed before a free or subsidized tree be provided;
    - providing free or subsidized trees directly to landowners, and / or through established non-governmental organizations (e.g., LEAF) (note this was mentioned by a number of participants);
    - the need to encourage planting in front yards (as LEAF focuses on back yards);
    - provision of funding / support to local grassroots community groups already working to promote tree establishment, care and preservation on private lands; and
    - auctioning off wood from fallen trees to subsidize tree planting programs.

- Opportunities identified for public lands include:

    - expanded City support for neighbourhood associations to 'adopt' street trees and park trees in their neighbourhoods;
    - working with schools and corporations on proper tree planting and care techniques by providing technical support;
    - requiring some type of maintenance agreement be signed before a free or subsidized tree be provided;
    - increasing efforts to plant trees on public boulevards / medians lacking trees;

  - working with City Planning to identify potentially removable impermeable surfaces (e.g., asphalt) on public land that could be transformed into small pockets of trees in neighbourhoods with low canopy cover and high impervious surface levels; and
  - more discretion on the part of City staff to plant in boulevards that don't technically meet the City's minimum standards when the homeowner wants a tree and is committed to caring for it.

- Potential partners with the City on tree planting efforts identified by City staff include: Scouts, Rotary Club, 'Friends of…' groups, Hydro One, Ministry of Transportation, Metrolinx, Toronto Transit Corporation, Landscape Ontario, LEAF, Evergreen, Public Health Unit, and school boards.
- Discussion about pros and cons of larger caliper versus smaller caliper stock

  - PROS: larger saplings (e.g., at least 60 mm caliper deciduous trees) could result in more larger trees (and tree canopy) faster and can be less prone to damage; larger trees are generally more appropriate in highly urbanized parts of the city where the community has some type of commitment to ensuring their care.
  - CONS: larger trees cost more, generally require more post-planting care, and depending on the site conditions and level of care, smaller saplings (e.g., 40 to 50 mm caliper) can be more successful in terms of establishment.
  - In general it was agreed that smaller trees are more suitable for residential properties and naturalization projects, while larger stock is preferred for school grounds, street trees and well-used institutional spaces as long as the after-care is provided.

- Provision of subsidized trees versus free trees

  - In LEAF's experience, there is more success if the landowner needs to pay for part of the tree because then they are more invested in its success.
  - In some cases – such as schools, churches, Toronto Community Housing Corporation, libraries – provision of free trees will help get more trees planted because of the lack of resources.
  - Irrespective of whether it is free or subsidized, provision of trees should be accompanied by education about how and where to plant it, and post-planting care.

(4) Tree Maintenance and Aftercare

- Comments related to tree care on school grounds included:

  - the suggestion to get kids involved through all aspects of tree planting (planning, implementation, after care) because they will be advocates at home and elsewhere;
  - that there is a need to communicate with and educate the contractors retained to do school ground landscaping regarding how to support tree planting work done by volunteers:
  - a specific suggestion by stakeholders who work with school boards to provide education and outreach to facility managers and landscape maintenance staff at schools focused on caring for planted trees;
  - the City could develop training material and offer technical workshops and advice to individual school;
  - create a tree care fund to support long-term maintenance of trees planted on school grounds once tree planting projects are completed; and
  - A suggestion for an "adopt a school tree" program to encourage tree maintenance and care by nearby residents.

- General comments related to tree care included:

  - one of the biggest impediments to broader and more successful tree establishment is a lack of understanding of how to plant the right tree in the right place, and how to care for it post planting;
  - the suggestion by multiple participants that the City provide technical advice and/or workshops on tree care and / or supplemental funds for tree maintenance, particularly in relation to ash tree removal and replacement;
  - the suggestion that the City provide training and certification related to tree establishment (e.g., seminars for OALA members to obtain CEUs, or for landscape contractors), and
  - the suggestion that City should undertake more young tree maintenance in-house, or improve methods for working with contractors.

- Several participants noted that there is a lack of information about post-planting survivorship - need to monitor / track the success of plantings in different settings and under different conditions.

Other Questions, Issues and Concerns Raised

- At the two stakeholder sessions, a representative from the Toronto Parks and Trees Foundation gave a presentation that, among other things, discussed the online tree counting tool which they have been working on. Some participants asked how accurate this tool would be. It was explained that the tool would be used primarily for outreach and education, not so much for accurate data, since opening it up to the public would make it difficult to quality control.
- A number of participants commented that the City needs more and better communication between departments (e.g., planning, urban forestry, by-law enforcement) with respect to tree preservation and establishment.

- Some concern was expressed at several meetings that the City does not have a good enough understanding of how much tree cover is being lost each year (e.g., as a result of development, emerald ash borer, natural causes such as wind and ice storms, etc.) to understand how much tree planting would be required to meet established targets.
- There was also a concern expressed that the City seemed unable to adequately enforce its own tree by-laws, and therefore there was some skepticism about diverting funds towards tree planting.
- Several participants also noted that in some parts of the City a lot (e.g., 60%) of the canopy cover is being lost to emerald ash borer and this is directly impacting communities, but recognized it is also an opportunity for outreach.

Hardcopy and Online Survey Summary

As part of this project a survey was developed for both use online and circulation at the various stakeholder and public meetings in November 2015. Between November 9 and December 14, 2015 Toronto's Parks, Forestry and Recreation posted this survey to solicit input on potential recommendations for the Tree Planting Strategy. This survey was also circulated in hardcopy to participants at the five stakeholder and public meetings over November 2015.

Public response to the survey was good, with 853 valid responses recorded online (95% of the respondents provided valid City of Toronto postal codes). Quantitative data was generated from 23 multiple choice questions and more qualitative input was generated from five open-ended questions with comment fields. In addition, a 32 completed hardcopy surveys and eight emails were also submitted during this time period – this feedback has also been integrated into the qualitative written feedback summary.

Below is a brief summary of the survey results as well as qualitative data excerpts. Please see the end of this section for the complete survey and a quantitative data summary of the online survey results.

Quantitative survey results:

- 43% of respondents were likely to plant a new tree on their property over the next year;
- 71% of respondents were likely to plant and maintain one or more trees on their property if a City-funded incentive program were available;
- 87.9% of respondents were likely to support a City-subsidized 'Adopt-a-Street Tree' program in their neighbourhood, while 79.2% of respondents were likely to participate in an 'Adopt-a-Street Tree' program in their neighbourhood if approached;
- 66% of respondents were likely to plant a tree on their property if a one-time rebate was offered for tree planting on private property;

- 57% of respondents would support a cost-sharing program between the city and the landowner for tree planting on private property; and
- 61% of respondents would support a city-funded partnership program with a not-for-profit organization for tree planting on private property.

Qualitative data and comments:

Respondents were asked to provide open-ended comments and ideas related to the Tree Planting Strategy. A total of 450 written comments were recorded. Comments were coded and grouped into the following four categories: (1) Protection/Policy/Regulation, (2) Outreach and Education, (3) Opportunities/Constraints, and (4) Tree Maintenance and Aftercare. Representative responses under each category are summarized below.

1. Protection/Policy/Regulation - Comments focused on the City's current policies and regulations to protect existing trees, enforce existing by-laws, and preserve existing canopy.

    - "Protect the trees you already have. Existing trees are more valuable than proposed trees".
    - "Increase the by-law to {protect} a tree 15 cm in diameter and greater".
    - "Protecting growing space for trees is an issue not talked about enough".
    - "I would also like to see more money spent on monitoring and enforcement of our existing tree-protection bylaws".
    - "When adding a second storey to an existing bungalow, make it mandatory for the owner to plant at least one tree in the front of the property on city allowance. Make it part of obtaining a building permit".
    - "Long-term planning of neighbourhood parks which would provide an alternative and a reprieve from the urban environment"
    - "Require developers to replace all the biomass of the trees that they are permitted to remove; right now as I understand it, a developer needs to only put in 3 small trees for every one tree they remove, even if the tree is very large".

2. Outreach and Education – Comments focused on the need for outreach and education for residential and non-residential property owners regarding tree planting, species selection and tree care.

    - "Educate homeowners (in person, in regular communications) on how to take care of trees".
    - "I think an insert in the waste collection calendar that goes out to all residents every year would be a good way to get the word out".

- “Have staff focused on supporting neighbourhood groups in their stewardship efforts; provide workshops on mulching, watering, pest and disease identification”.
- "You need to design an educational campaign aimed at the general public stating the benefits of trees in general and why increasing the tree cover in this city would be a great idea. This information needs to be in a number of languages and aimed at certain communities who feel that 'trees are messy”.
- “Create a simple but engaging campaign slogan that every Torontonian can support. We suggest building on the “Imagine a Greener Toronto: Help Grow the Urban Forest” campaign undertaken by the LEAF and City of Toronto in October 2015”.
- “Leverage all City communication tools to promote public and private tree planting/care programs - waste calendar, website, utility bills, newspaper ads, councillor newsletters, earned media, etc”.
- “Gain increased participation in planting/care programs by marketing through groups and networks such as, Greening Sacred Grounds, Toronto Association of Business Improvement Areas (TABIA), Ratepayers Associations, etc".

3. Opportunities/Constraints – Comments discussed opportunities and constraints to increasing the tree canopy. Identified barriers to tree planting include: lack of space to plant, competing land uses, long term maintenance concerns, and lack of knowledge about appropriate species to plant and tree care.

- “Achieve some quick wins by funding/expanding existing planting programs that have proven successful. For example, LEAF’s Subsidized Backyard Tree Planting Program helps property owners to get the right tree in the right place”.
- "Target plantings in neighbourhoods with no tree cover”.
- “Consider a tree nursery program operated by volunteers, supervised by City or out-sourced to professionals, using vast areas of unplanted valleys and floodplains”.
- "We need a strategy to get apartment owners/managers on board - suggest approaching the large property management companies who are trying to "green" their image. Groups of tenants would participate if long hoses were made available”.
- "Looking at your graphs, I am struck by the opportunities in the industrial and commercial sectors to plant trees. Do it!"
- "…a simple rebate program supported by targeted outreach in areas where the tree canopy is lagging behind targets may be the best approach”.
- "Different strategies should be tested through smaller pilot programs to confirm which will be most effective and yield the greatest results”.
- "I believe a well promoted tree subsidy program for residential and business owners would help improve canopy cover”.

- "The cost of maintenance and removal of hazard trees on my property makes me reluctant to plant new trees on my property. Creating a program that would help share the cost of maintaining the existing canopy of the private trees on my property would encourage me to help expand the canopy cover".
- "Surcharge condo developers to plant more trees around the neighbourhood, make sure you have enough park (WITH TREES) space when condos are being built/approved".
- "I would also like to see less impervious surfaces in the city and implementation of rain gardens for additional green space, planting space to help improve the likelihood of the survival of the trees".
- "All mall, city and other large parking lots should have trees and permeable surfaces instead of deadly asphalt which is all we see. For example, study the Toronto Botanical Garden's permeable and tree-planted parking lot".
- "Survey and approach industrial and commercial properties and offer a reduced cost of the tree and initial planting/maintenance for the business".
- "Engage youth through an advanced training program that builds on LEAF's Young Urban Forest Leaders Program".
- "Collaborate with community groups such as Cabbagetown ReLEAF, MoreTrees29, Annex Trees Please and Kingsway Tree Preservation to organize targeted neighbourhood blitzes that include street tree and institutional plantings, Adopt-a-Tree events, educational workshops and private property planting promotions".

4. Tree Maintenance and Aftercare – Comments mainly referenced tree maintenance as a concern or focus for future program direction.

- "Planting trees are great, I think equal focus on maintaining the health of existing trees is important too".
- "Planting trees to increase canopy cover is only a very small part of the equation. Steps must be taken to ensure that the trees actually have a good chance of thriving".

Social Media Summary

Urban Forestry promoted the Tree Planting Strategy and the online survey, among other means, using the City's "Nature in the City" Facebook page and Urban Forestry's @TOtrees Twitter account. The following is a summary of the responses and feedback received via those media:

Facebook Summary

- Number of posts = 6
- Post reach = 2027
- Post impressions = 4681
- Engaged users = 324
- Post comments = 2
- Post likes = 69
- Post shares = 15

A notable Facebook Post, published November 18, 2015, *"Wondering what to do with all that lawn?"* had 1200 people reached, 77 likes, comments, shares, and 125 post clicks.

Twitter Summary

- Number of Posts = 7
- Total impressions = 46682
- Total engagements = 770
- URL clicks = 193
- Media views = 166
- Retweets = 123
- Post likes = 91
- New follows = 6

Two notable Twitter tweets were:

- *"Toronto has a goal of providing 40% canopy cover. What can you do to help?"* published November 13, 2015 got 11,195 impression and 199 total engagements.
- *"Need some shade?"* published November 25, 2015 had 8,763 impressions and 122 total engagements.

Quantitative Data Summary of Online Survey

1. Did you know that trees provide many environmental, social and economic benefits to the community such as: increasing property value, supporting educational and recreational opportunities, providing cooling and shade and contributing to mental and physical health?

Response	Count
Yes	831 (98.6%)
No	12 (1.4%)
Total Responses	**843 (100%)**

2. Did you know that Toronto's Urban Forestry Branch plants 'Street Trees', free of charge, along the City-owned road allowances?

Response	Count
Yes	645 (76.5%)
No	198 (23.5%)
Total Responses	**843 (100%)**

3. How likely would you be to support a City-subsidized 'Adopt-a-Street Tree' program in your neighbourhood?

	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses
How likely would you be to support a City-subsidized 'Adopt-a-Street Tree' program in your neighbourhood?	525	202	46	32	22	827
	Sum 525+202=727					
	87.9%					

4. How likely would you be to participate in an 'Adopt-a-Street Tree' program in your neighbourhood?

	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses
How likely would you be to participate in an 'Adopt-a-Street Tree' program in your neighbourhood?	399	256	77	54	41	827
	399+256=655					
	79.20%					

WAYS TO SHARE COSTS FOR TORONTO'S URBAN FOREST GROWTH

5. Please indicate your level of agreement on three proposed cost sharing programs for tree planting that are currently under consideration for the Toronto Tree Planting Strategy.

	#1 Strongly Disagree	#2 Somewhat Disagree	#3 Neither Agree nor Disagree	#4 Somewhat Agree	#5 Strongly Agree	SUM of #4 and #5 = "AGREE'	Not applicable to me	Total Responses	% 'AGREE'
[Proposal #1] I support a City-funded cost-sharing program between the City and private property owners where the cost of trees is shared.	67	70	88	267	231	498	24	747	**67%**
[Proposal #2] I support a City-funded partnership program between a not-for-profit organization and private property owners where purchasing trees and/or tree planting services would be offered at a reduced fee.	65	62	77	237	284	521	23	748	**70%**
[Proposal #3] I support a City-funded rebate program for tree planting on private property in Toronto.	70	70	71	177	338	515	26	752	**68%**

6. Are you a Residential Property Owner?

Response	Count
Yes	541
No	236
Total Responses	**777**

7. Do you have at least one tree on your property?

Response	Count
Yes	500
No	46
Total Responses	**546**

RESIDENTIAL HOMEOWNERS

	Very Likely	Somewhat Likely	Sum of Very and Somewhat Likely = 'LIKELY'	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses	% 'LIKELY
8. Considering the many benefits that trees provide, how likely are you to plant a new tree on your property over the next year?	131	103	**234**	72	88	147	541	**43%**

9. Is there a 'Street Tree' in front of, or beside your home? A 'Street Tree' is a City-owned tree on the road allowance.

Response	Count
Yes	383
No	116
I'm not sure	42
Total Responses	**541**

10. Do you regularly water and mulch the street tree near your home?

Response	Count
Yes	163
No	138
Sometimes	81
Total Responses	**382**

RESIDENTIAL HOMEOWNERS – INCENTIVE PROGRAM	Very Likely	Somewhat Likely	Sum of Very and Somewhat Likely = 'LIKELY'	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses	% 'LIKELY
11. How likely would you be to plant and maintain one or more trees on your property if a City-funded incentive program were available?	227	148	**375**	54	44	56	529	**71%**

RESIDENTIAL HOMEOWNERS – REBATE PROGRAM	Very Likely	Somewhat Likely	Sum of Very and Somewhat Likely = 'LIKELY'	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses	% 'LIKELY'
12. How likely would you be to plant a tree on your property if a one-time rebate was offered?	198	149	**347**	68	46	68	529	**66%**

RESIDENTIAL HOMEOWNERS – CITY-FUNDED COST SHARING PROGRAM	Very Likely	Somewhat Likely	Sum of Very and Somewhat Likely = 'LIKELY'	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses	% 'LIKELY'
13. How likely would you be to participate in a cost-sharing incentive program where the cost of purchasing trees would be shared between you and the City?	119	173	**292**	90	63	71	516	**57%**

RESIDENTIAL HOMEOWNERS – TREE SERVICES PARTNERSHIP WITH A NOT-FOR-PROFIT ORGANIZATION	Very Likely	Somewhat Likely	Sum of Very and Somewhat Likely = 'LIKELY'	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses	% 'LIKELY'
14. How likely would you be to use tree planting services of a not-for-profit organization that was subsidized by the City to plant a tree on your property?	149	167	**316**	68	60	72	516	**61%**

15. Are there barriers, other than financial, that prevent you from planting and maintaining a tree on your property?

Responses	Count
Lack of plantable space (e.g., no space big enough - 3 metres by 3 metres)	191
Concern about the time and effort required for maintenance (e.g., mulching, watering, raking leaves)	57
Competing land use preferences for other uses (e.g., flower beds, vegetable gardens, pools, decks)	149
Concern about potential property damage caused by trees (e.g., roots, leaves clogging eaves troughs, problems with branches, nuts or fruit)	67
Other, please specify...	137
Sum of the checkbox items	**601**

Total Respondents	**402**

Other, please specify, 137 responses. Most were elaborations on the four barriers presented. Additionally, there were comments about already having enough trees/not enough space for more, condominium owners, concerns with tree planting and tree care costs, and costs for treatment/removal/replacement of ash trees.

INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL PROPERTY OWNERSHIP

16. Are you a non-residential property owner in the City of Toronto?

Response	Count
Yes	27
No	723
Total Responses	**750**

NON-RESIDENTIAL REBATE PROGRAM	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses
17. How likely would you be to plant a tree, or trees on your non-residential property if a rebate program were available?	13	6	2	1	5	27

NON-RESIDENTIAL CITY-FUNDED COST SHARING PROGRAM	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses
18. How likely would you be to plant a tree, or trees on your non-residential property if the cost of the trees was shared between you and the City?	9	8	3	2	5	27

NON-RESIDENTIAL TREE SERVICES PARTNERSHIP WITH A NOT-FOR-PROFIT ORGANIZATION	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely	Total Responses
19. How likely would you be to plant a tree, or trees on your non-residential property if the cost of purchasing the trees and the tree planting services were offered by a City-funded	11	8	3	1	4	27

20. Are there barriers, other than financial, that prevent you from planting and maintaining a tree on your property?

Response	Count
Lack of plantable space (e.g., no space big enough - 3 metres by 3 metres)	8
Concern about the time and effort required for maintenance (e.g., mulching, watering, raking leaves)	3
Competing land use preferences for other uses (e.g.,parking lot, building expansions)	4
Concern about potential property damage caused by trees (e.g., roots, leaves clogging eaves troughs, problems with branches, nuts or fruit)	5
Other, please specify...	3
Total Responses	**23**

Other, please specify, 3 responses. Concerns about the cost of tree removal and concerns about potential limitations to future development on the site.

21. Please provide any comments or ideas you may have related to a Tree Planting Strategy for the City of Toronto.

450 responses (see summary of these comments by theme above).

22. How did you hear about this survey?

Response	Count
City of Toronto Website	112
City of Toronto Twitter Message	36
City of Toronto Facebook Page	15
City Councillor Notice	141
Residential Neighborhood Group	70
Outdoor, Naturalist Group	17
Environmental Advocacy Group	34
Urban Planning Group	9
Personal Social Network	93
Other, please specify...	241
Total Responses	**768**
Total Respondents	**719**

23. Other, please specify

241 responses. Of these, other responses included direct email, newsletter, LEAF, Facebook, family/friends, news release and Twitter.

Best Way to Connect

Response	Count	
City web site	175	
City e-newsletter	193	
Email message	314	
City of Toronto Social Media (Twitter, Facebook)	179	
Media campaign and news releases	168	
Direct mail information	74	
Other, please specify...	91	
Total Responses	**1194**	
	Total Respondents	**77**

24. Other, please specify

91 responses. Of these, other responses included councillor newsletters, ratepayer associations, radio, and other media advertising.