

Toronto's Strategic Forest Management Plan

Date:	January 11, 2013
To:	Parks and Environment Committee
From:	Jim Hart, General Manager, Parks, Forestry and Recreation
Wards:	All
Reference Number:	P:\2013\Cluster A\PFR\PE18-012913-AFS#15815

SUMMARY

The purpose of this report is to introduce and seek approval for "Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan." The urban forest faces many challenges, ranging from insect infestation and the effects of climate change to pressures associated with human habitation and activities. The Plan identifies Toronto's specific challenges and identifies actions for achieving the City's objectives and goals for a healthy urban forest that can be sustained and enhanced for future generations.

The Strategic Forest Management Plan is informed by the results of the tree canopy study as documented in "Every Tree Counts: A Portrait of Toronto's Urban Forest," which was released in 2010. In developing the Plan, staff reviewed similar plans prepared for other jurisdictions and consulted with other City divisions, agencies external to the City, as well as other interested parties.

The Strategic Forest Management Plan covers a 10-year period and includes criteria and indicators of success against which achievements and progress will be measured. The plan will be reviewed after 10 years to determine if goals are on target, ensure new issues affecting the urban forest are addressed, and to revise the plan accordingly.

RECOMMENDATIONS

The General Manager of Parks, Forestry and Recreation recommends that:

1. City Council adopt Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan, Attachment 1 to this report.

Financial Impact

The strategy and vision of the Strategic Forest Management Plan are not dependent on the funding required to implement the plan. However, the Strategic Forest Management Plan cannot be implemented in its entirety without consideration of the Consolidated Funding Plan as detailed in the report entitled "Core Service Review – Revising the Timeframe to Achieve the City's Tree Canopy Goals". This report was adopted with amendments by City Council at its meeting of November 27, 2012.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.PE17.1>.

The financial impact as identified in that report is as follows below.

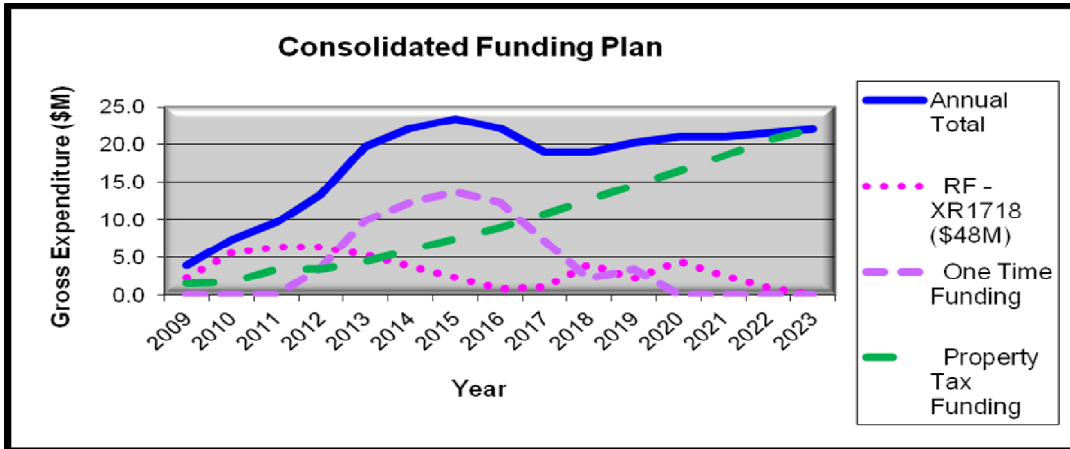
The Consolidated Funding Plan is a combination of the Emerald Ash Borer (EAB) funding plan and the revised Service Plan, which requires \$7.2 million less in funding from 2013 onwards when compared to the original Service Plan approved by Council in 2008 (\$231.1 million vs. \$238.3 million).

The Consolidated Funding Plan, as outlined in Figure 1 below, includes \$48 million in reserve funding from the Environment Protection Reserve Fund (XR1718) approved in 2008 and \$61.3 million in potential one-time funding from the Sustainable Energy Reserve Fund. In the report "*Repurposing of the Sustainable Energy Fund and New Funding Model for City Energy Projects*" (dated September 24, 2012) which is being considered as part of the 2013 Recommended Capital Budget for the Sustainable Energy Plan, it recommends that the "Sustainable Energy Reserve Funds be made available to fund the City's Tree Canopy program". The Consolidated Funding Plan also requires \$152.4 million in base budget property tax funding and results in an incremental increase in property tax funding of \$17.6 million phased in over 10 years reaching a base budget of \$22 million in 2023.

Figure 1: Funding Plan Comparison (Original Service Plan Funding vs. Consolidated Funding Plan)

FUNDING PLAN COMPARISON (Original vs. Consolidated)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total (2013- 2023)	Total (2009- 2023)
Original Service Plan	5.7	8.1	14.7	21.0	19.7	21.1	21.5	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	238.3	287.8
Reserve Fund - XR1718 (\$48M)	4.1	6.0	10.3	12.0	9.7	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6	48.0
Property Tax Funding	1.6	2.1	4.4	9.0	10.0	15.2	21.5	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	222.7	239.8
Consolidated Funding Plan	3.9	7.3	9.7	13.3	19.7	22.1	23.4	22.1	19.0	19.0	20.3	21.0	21.0	21.5	22.0	231.1	265.3
Reserve Fund - XR1718 (\$48M)	2.3	5.6	6.3	6.3	5.3	3.8	2.3	0.8	1.1	4.1	2.2	4.5	2.5	0.9	0.0	27.5	48.0
One Time Funding	0.0	0.0	0.0	3.6	10.0	12.4	13.7	12.4	7.1	2.2	3.5	0.0	0.0	0.0	0.0	61.3	64.9
Property Tax Funding	1.6	1.7	3.4	3.4	4.4	5.9	7.4	8.9	10.8	12.7	14.6	16.5	18.5	20.6	22.0	142.3	152.4
Difference	1.8	0.8	5.0	7.7	0.0	-1.0	-1.9	-0.1	3.0	3.0	1.7	1.0	1.0	0.5	0.0	7.2	22.5

*Note 1: 2009-2011 figures reflect actuals only for Consolidated Funding Plan



The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting of June 6, 2007, the Parks and Environment Committee considered the May 16, 2007, report entitled, "Achieving Tree Canopy Enhancement." Among other things, the Committee approved in principle the completion of a comprehensive canopy study to assess the current structure, distribution, health and diversity of the urban forest by recommending that funding for the study be included in the 2008 capital budget for Parks, Forestry and Recreation.

Parks and Environment Committee Decision Document PE5.4

<http://www.toronto.ca/legdocs/mmis/2007/pe/decisions/2007-06-06-pe05-dd.pdf>

The comprehensive canopy study was subsequently completed with the assistance of the United States Department of Agriculture (USDA) Forest Service, which specializes in international forest canopy studies, and the Spatial Analysis Laboratory at the University of Vermont. At the Parks and Environment Committee meeting of June 17, 2010, staff presented the results of the study in "Every Tree Counts – A Portrait of Toronto's Urban Forest – Toronto's Tree Canopy." The Committee requested the General Manager of Parks, Forestry and Recreation to report further on Toronto's tree canopy to the Parks and Environment Committee for the next term of City Council in 2011 when 2009 data becomes available.

ISSUE BACKGROUND

The urban forest is composed of trees along city streets, in parks, ravines and natural areas, in the front and back yards of homes, and in landscaped open spaces. In order for urban forests to be sustainable, urban forestry practitioners recommend that urban areas need between 30% to 40% tree cover to maximize the ecological, social and economic benefits derived from urban trees.

The natural environment policies as outlined in the City's Official Plan recognize that strong communities need a healthy natural environment. In particular, Official Plan policy 3.4.1(d) identifies the need for preserving and enhancing the urban forest by:

- i. providing suitable growing environments for trees,
- ii. increasing tree canopy coverage and diversity, especially of long-lived native and large shade trees; and
- iii. regulating the injury and destruction of trees.

In July 2008, City Council unanimously adopted the "Climate Change Adaptation Strategy" which identified both short and long term actions to manage the impacts of extreme weather on the City's services and infrastructure among other things. The strategy acknowledged that actions aimed at expanding the tree canopy through maintenance, protection and planting activities will provide shade, lessen the urban heat island effect and reduce storm water runoff and other effects of climate change.

COMMENTS

A liveable city includes elements of the natural environment, such as trees, parks, ravines and recreational areas, and clean air, soil and water that support the physical and mental well-being of the people that live and work in the city. Toronto has approximately 18,000 ha of urban forest canopy cover and approximately 10.2 million trees. The tree canopy study revealed the following facts about Toronto's Urban Forest:

- Toronto's tree canopy cover is 26.6% to 28%, which means that 26.6% to 28% of Toronto's land area is covered with tree canopy.
- of the total tree population, 6% (600,000 trees) are City owned street trees, 34% (3.5 million trees) are in City parks and natural areas, and 60% (6.1 million trees) are on private lands
- Toronto's tree inventory includes at least 116 different tree species
- the average tree diameter is 16.3 cm
- 68% of trees are less than 15.2 cm in diameter, 18% of trees are between 15.2 cm to 30.6 cm in diameter, and 14% are larger than 30.6 cm in diameter
- 49% of Toronto's street trees are in good condition
- 81% of Toronto's overall tree population is estimated to be in good condition
- the urban forest has an estimated structural value of \$7 billion
- the urban forest provides over \$28.2 million in ecological services each year
- the urban forest stores 1.1 million metric tonnes of carbon annually
- Toronto's trees are estimated to reduce energy use from heating and cooling of residential buildings by \$9.7 million per year
- trees also provide an additional \$483,000 in value per year by reducing the amount of carbon emissions released by fossil-fuel based power plants
- Toronto's trees intercept air pollutants equivalent to \$16.9 million per year

Benefits of the Urban Forest

In addition to ecological benefits, trees and natural areas provide immense health benefits. Trees remove small particulate matter from the air, while creating oxygen, providing some relief to those with breathing issues. Trees cool temperatures by providing shade, particularly important to hard surfaces such as concrete and asphalt where the heat island effect can significantly increase air temperatures. There is also evidence to suggest that well treed areas reduce crime, encourage better neighbour relationships, and reduce aggressive behaviour.

Large urban centres such as Toronto are subject to high levels of pollution which can create and aggravate health issues in the population, such as respiratory illnesses and severe allergies. Over the past several years Toronto has experienced higher summer temperatures which result in heat-related illnesses and in some cases, death. The Medical Officer of Health reported in July 2011, that due to climate change, Toronto is expected to experience more hot weather, increasing the possibility of extended heat emergencies.

Challenges to Maintaining a Healthy Urban Forest

The City of Toronto has been called “a city within a park” in recognition of our parks, trees and natural areas. However, there are threats to our natural environment that must be addressed and managed if the urban forest is to continue to provide benefits to society. Many factors can have a lasting impact which can influence the growth and development of the urban forest. This has been demonstrated in the past by the loss of American chestnut trees due to the Chestnut Blight, the continued loss of white elm trees due to Dutch Elm Disease, the more recent threat to a variety of tree species due to Asian Long-horned Beetle and the current threat to ash trees posed by Emerald Ash Borer (EAB). In addition to these factors, there are a host of other factors, such as those related to weather, temperature, water, and soil, in addition to human activities, that influence the urban forest.

Consultation

During consultations regarding the Parks Plan, residents were invited to participate in a series of workshops. Many comments pertaining to the Urban Forestry program were received and considered. Stakeholders were also contacted and invited to submit comments during development of the Strategic Forest Management Plan. Internally, meetings were held to discuss common initiatives with City Planning, Toronto Water, Public Realm (Transportation Services), and Public Health. The Strategic Forest Management Plan was also developed with input from the Clean Air Partnership and the Toronto Environment Office.

Externally, Urban Forestry consulted with the Toronto and Region Conservation Authority (TRCA), Local Enhancement and Appreciation of Forests (LEAF), the Toronto

District School Board and Trees for Life: the Urban Tree Coalition (for Toronto and surrounding area).

The Strategic Forest Management Plan aligns with the direction being taken in both the Parks Plan and the Recreation Plan, and supports delivery of services provided by the Parks and Recreation branches.

Measuring Canopy Cover

Canopy cover is one of many indicators for measuring the success of urban forestry programs. There are different methods to assess tree canopy cover and each may provide different results. An estimate of 20% canopy cover was previously identified as the baseline measure for Toronto. This measure has now been revised to 26.6% to 28% based on new information. The following provides a brief overview of methodologies used to determine canopy cover.

As part of Toronto's canopy study in 2008, a visual estimate of canopy cover was completed by field staff using 407 sample plots located throughout the city. Using this method, the estimated canopy cover was determined to be 24%. The USDA Forest Service also used manual, point sampling interpretation of 1999 and 2005 leaf-off aerial photos to estimate canopy coverage. Using this method, the canopy cover was estimated to be 20.6% and 19.9%, respectively.

The USDA Forest Service, in conjunction with the University of Vermont Spatial Analysis Laboratory, further used 2007 leaf-on satellite imagery that was manually corrected to develop a digital land cover map for the city. In addition to the land cover map, this exercise produced a different tree canopy cover estimate of 28%.

In 2010, high resolution colour leaf-on digital aerial imagery was acquired by City Planning and shared with Urban Forestry. Availability of the new imagery presented the opportunity to obtain a full 10 year canopy change analysis and the imagery was sent to the USDA Forest Service for analysis. A 10,000 random point sampling was completed using aerial imagery from three (3) time periods 1999, 2005 and 2009. The resulting canopy estimate was 26.6% with a known standard deviation of +/- 2%.

The researchers attribute the difference between this new result and the previous estimates of 20.6% and 19.9% to the new imagery. Leaf-on imagery is far superior to leaf-off imagery when assessing canopy as branch tips are easier to see. The increase in image resolution also assisted in correctly identifying canopy where canopy may have been missed in the earlier analysis of the 1999 and 2005 leaf-off imagery. The results of the further analysis suggest that the estimate of 28% canopy cover as determined using the 2007 satellite imagery was a more accurate and realistic measurement than first thought.

Since Toronto initiated its canopy study, several other municipalities within the Greater Toronto Area (GTA) have conducted similar studies which have been co-ordinated by the

TRCA. The USDA Forest Service, Urban Forestry staff and other GTA municipalities have concluded that leaf-on imagery provides a far more accurate visual analysis of tree canopy. Other regional municipalities have proceeded or plan to use satellite imagery across their jurisdictions to estimate canopy coverage.

A standardized methodology for canopy change analysis will have benefits for drawing regional comparisons and in assisting in regional level planning related to canopy and development trends. Urban Forestry will also use leaf-on satellite imagery in future for canopy change analysis and therefore we have reset our baseline measure of forest canopy from the previous 20% to between 26.6% to 28% (as determined by leaf-on digital aerial imagery and satellite imagery). Every Tree Counts is being revised to include this new baseline information as well as the results of further analysis completed by the USDA Forest Service.

Strategic Forest Management Plan

Successful management of forest resources requires a long term commitment of planning, resources and time. Forest management plans set out the required management actions to be taken to deliver specified outcomes decades into the future, and time horizons spanning 60-80 years are not unusual to realize the intended results. To ensure that Toronto has a healthy and sustainable urban forest for future generations, a plan has been developed that identifies the goals and objectives for management of the urban forest resource, strategies to address immediate challenges and a monitoring framework that identifies indicators of successful achievement of objectives that will ultimately help achieve longer term goals.

Overall, Toronto has a relatively healthy urban forest, despite the challenges inherent in an urban environment. The Strategic Forest Management Plan (hereafter referred to as the Management Plan) was developed as a means to identify the efforts required to ensure achievement of a healthy, sustainable urban forest with a goal of 40% canopy cover.

The Management Plan was developed in conjunction with and as a platform for the Urban Forestry multi-year Service Plan. The Management Plan identifies issues that are city wide in scope and are of interest to other City divisions, residents, business owners and other stakeholders. As such, successful implementation of all the strategies identified in the Management Plan can only be achieved in partnership and cooperation with other City divisions, the community at large and through the core programs and functions of Urban Forestry which include maintenance, protection, planting and planning.

The goals to be achieved through managing the urban forest as noted in the Management Plan are:

1. **Increase Canopy Cover:** Protect, maintain and expand the urban forest to achieve a healthy, sustainable forest with canopy cover of 40%
2. **Achieve Equitable Distribution:** Achieve equitable distribution of the urban forest, increasing canopy where it is most needed

3. **Increase Biodiversity:** Increase biodiversity to improve urban forest resiliency and respond to climate change
4. **Increase Awareness:** Increase awareness of the value of trees, the natural environment and the sensitivity of these resources
5. **Promote Stewardship:** Promote stewardship and education of the multiple benefits of the urban forest, and build collaborative partnerships in expanding the forest
6. **Improve Monitoring:** Improve information management systems and enhance the ability to inventory, monitor and analyze the urban forest

The Management Plan identifies six key forest management challenges to achieving a healthy, sustainable urban forest and provides solutions for meeting the challenges. The following summarizes Toronto's forest management challenges and strategic solutions as presented in the Management Plan.

I. Forest Health Threats

Through integrated pest management, Urban Forestry monitors and treats pests using the most appropriate method of control. Urgent forest health issues are addressed in partnership with other agencies. Currently, the most significant threat to the urban forest is EAB. As previously reported, Toronto will lose approximately 8.4% of the tree population, or 860,000 ash trees (2.2% to 2.3% canopy coverage) worth an estimated \$570 million in structural value. It is necessary to focus on implementation of the EAB management strategy in order to mitigate the impacts extensive tree mortality will have on the tree canopy.

While there is no way to eradicate this pest, individual trees may be protected through tree injection with products registered in Canada for use against EAB. The tree injection program using the pesticide TreeAzin™ against EAB has been expanded in Toronto. In 2012, over 4,000 ash trees (in select parks and along City streets) were injected. Thousands of additional candidate trees have been identified for potential injection in subsequent years. However, the City of Toronto will be required to remove thousands of dead and dying ash trees on streets, in parks and in natural areas. All street trees and a significant number of park trees lost to EAB will be replaced.

The European Gypsy Moth is an introduced defoliating insect that is considered a widespread pest in North America. The caterpillar (larval stage of the insect), eats the leaves of trees making them more susceptible to disease and damage from other insects. In 2007 and 2008, the City of Toronto undertook an integrated pest management program to control the European Gypsy Moth outbreak. This included aerial and ground spray programs to control the outbreak levels in selected areas of the city. Other control measures such as tree banding and vacuuming of egg masses with portable vacuum cleaners were also used.

European Gypsy Moth will always be present in the landscape at varying levels with populations rising and falling in cycles dependent on natural controls and the weather. In 2012, levels of European Gypsy Moth were seen to rise in some areas of the city and surveys completed in the fall of 2012 determined that population levels in several areas are significant. Planning is underway to implement control measures in 2013, including aerial spray. A report entitled "Control of European Gypsy Moth Outbreak in the City of Toronto," was adopted with amendments by City Council at their meeting of November 27, 2012.

Strategies to address forest health threats include continued communications and outreach programs; maintenance of consistent funding to a city-wide forest health care program; and monitoring the effectiveness of pest management programs and refining strategies going forward.

II. Tree Maintenance Requirements and Expectations

Urban Forestry is responsible for maintaining approximately four million trees in a healthy and safe condition. Maintenance of this important resource has largely been done on a reactive basis where members of the public request maintenance services when trees are suspected to be in need of attention. This type of complaint-based, reactive service is not efficient and does not adequately meet public expectations. Reactive maintenance reduces the opportunity to perform corrective pruning or other preventative maintenance activities thus resulting in more frequent storm breaks and shortened tree life spans.

A proactive systematic maintenance regime for trees based on geographic area is a best practice that enables operational efficiencies to be realized and provides tree maintenance that will mitigate risk and improve the long term health of trees. Urban Forestry's practice is currently in transition from reactive based maintenance to proactive area tree maintenance. The resources needed to proactively maintain trees city wide are not currently available and most maintenance is still currently done reactively.

Tree maintenance requirements and expectations will be addressed in part through progressive implementation of a city-wide proactive area tree maintenance program to bring the average pruning cycle to approximately 7 years; reducing tree service delay from the current 6 to 9 months, to 3 to 6 months; reducing tree mortality in new street tree plantings; and improving public awareness of proper tree care and maintenance techniques.

III. Balancing Urbanization Impacts and Sustaining the Urban Forest

Urbanization continues to have impacts on trees and the natural environment. Briefly summarized, some of the impacts are as follows:

- Increased development pressure results in fragmentation of available habitat for the growth of trees and other vegetation

- Increased density of development results in less soil volume for root growth and less aerial space for tree crown spread and development
- Salt levels in soils are increased as a result of de-icing salt use in winter months, causing dehydration in trees
- Conflicts with utilities and other service infrastructure result in less area for tree growth
- Increased urbanization also contributes to stream bed erosion and erosion of forest soils caused by increased volume and intensity of run-off
- Expanding areas of development also limits permeability and soil moisture available to support the growth of trees

Efforts to grow trees along city streets as well as in new subdivisions can be hampered by the severely altered soils following site development. The typical result is site conditions that may limit the growth of large-stature shade trees and many sensitive native species that support biodiversity in the city.

As stated in the City's Official Plan, protecting the natural environment and urban forest should not be compromised by growth, insensitivity to the needs of the environment or neglect.

One of the fundamental aspects of increasing tree canopy coverage across the city is protection of the existing resource. Tree protection is currently accomplished through implementation of various tree and natural feature protection by-laws which provide opportunities to educate the public on the benefits of trees. Efforts to protect trees need to be improved.

Some of the actions identified for addressing this challenge include developing mapping systems that support planting activities and facilitate effective communication of information to stakeholders; acquiring digital imagery and land cover classifications, and conducting field sampling in future to update information about urban forest species and size composition and monitor change in canopy coverage; continuing collaboration with City divisions such as Toronto Water and Transportation Services to identify strategic planting areas; prioritizing planting in areas of most need; increasing compliance with tree protection requirements through enhanced monitoring; and working with green community organizations to realize canopy targets in communities and neighbourhoods.

IV. Climate Change Impacts

According to Natural Resources Canada, some of the predicted impacts of climate change in the coming decades include warmer winters and longer growing seasons, changes in the seasonality of precipitation and extreme events such as droughts and heavy rainfall, expanded ranges of insects and increased over-winter survival rates, and increased frequency and severity of storm events including increased wind velocity.

The Toronto Environment Office recently commissioned a study (Toronto's Future Weather and Climate Driver Study) to support the City's climate change policies. The

study was aimed at providing the City of Toronto with a better understanding of what drives Toronto's current weather and climate and what weather and climate can be expected in the future. Some of the changes that are predicted in Toronto in the time period of 2040 to 2049 include:

- marked rainfall increases in July (80%) and August (50%)
- extreme rainstorm events will be fewer in number but more extreme
- average annual temperatures increase by 4.4°C
- the projected average winter temperature increase by 5.7°C
- the projected average summer temperature increases by 3.8°C

Although the exact nature of the impacts of climate change on the city's urban forest are not clear, certain management implications and related effects on required resources can be anticipated and strategies to adapt to climate change must be implemented.

Some of the actions for climate change adaptation include increasing and adapting tree species planting lists to include more species, particularly those that have demonstrated resilience to extreme conditions and native species from warmer climates; developing a database with mapping of robust populations of native species for seed collection and promoting continued biodiversity; promoting new standards for tree planting in hard landscapes that accommodate adequate soil volume, moisture retention and mature tree growth; and collaborating with Toronto Public Health on achieving common objectives such as reducing heat vulnerability in low canopy areas.

V. Recreational Pressures on the Urban Forest

Toronto's ravines and the city's natural heritage system are exceptional assets that support a diversity of wildlife and native plant species. However, increasing recreational pressures on the natural areas have degraded the natural environment and are impacting sensitive native species. Some of the challenges inherent to the effort to minimize or prevent degradation of parks and natural areas include:

- Lack of public awareness of the sensitivity of these areas
- Limited opportunities for public recreation in some areas of the city, leading to misuse and overuse of certain parklands
- Insufficient recreation/trail infrastructure to direct activity appropriately outside of sensitive sites to minimize disturbance impacts.

The effects of high recreational use in natural areas can include soil compaction from repeated human, bike and pet traffic. Tree saplings and groundcover vegetation are trampled, resulting in a loss of forest regeneration, disturbance to wildlife (especially during breeding season) and increased dispersal of invasive species. Habitat loss and the introduction of invasive species threaten native biodiversity in Toronto.

Urban Forestry staff, together with other City divisions and stewardship groups, are currently involved in the stewardship of many ecologically sensitive sites with a view to supporting and encouraging native biodiversity, restoring the natural integrity of sites and

maximizing habitat connectivity. Volunteer involvement is critical to increasing public awareness of natural environment sensitivity.

Examples of actions for managing recreational pressures on the urban forest include working with a range of partners to expand vegetation management in natural areas; maintaining existing stewardship programs and working with others to expand stewardship to enable more volunteer stewardship in public natural areas; developing policies to restrict inappropriate uses and prevent further habitat fragmentation in significant natural areas; and engaging the public through programs supporting private land and garden naturalization and education.

VI. Increasing Public Awareness of the Value and Sensitivity of the Urban Forest

Historically, there has been a lack of tools to evaluate and assign value to trees in the urban environment. This resulted in a lack of awareness of the value that the urban forest provides to the well-being of a city and its residents. This resource is not limitless. Everything humans do can have an impact on trees and natural features resulting in a reduction of ecological services they provide.

Through existing initiatives such as the volunteer planting, trail building and other stewardship events, volunteers and the diverse communities at large are educated about the natural environment and gain an understanding of the importance of restoration and how such activities contribute to enhancing the ecological value of the city's natural environment.

Actions presented in the Management Plan to improve awareness of the value and sensitivity of the urban forest resource include increasing public education regarding natural area management activities, trail systems and appropriate user conduct through a co-ordinated communication strategy; proceeding with a natural surface trail study; encouraging the stewardship of privately owned sites adjacent to public sites by private partners where there is opportunity for contiguous canopy benefits; and continuing to make data available to the public to facilitate studies of local forest conditions.

The work of addressing the forest management challenges and achieving the goals of the Management Plan will be achieved through Urban Forestry's core programs and functions, which are organized under four service pillars:

1. Maintenance of the Urban Forest
2. Protection of the Urban Forest and Natural Heritage
3. Planting to Expand the Urban Forest
4. Planning to Ensure Strategic Advancement of Forest Management Objectives

Measuring Performance and Progress

The long term vision as identified in the Management Plan is: "Toronto's diverse urban forest is the vital green infrastructure that creates healthy neighbourhoods, supports

habitat and biodiversity, promotes clean air and water, offers opportunities for recreation and education, fosters economic prosperity and enhances quality of life for everyone in the city."

The Strategic Forest Management Plan covers a period of 10 years, following which time a review will be conducted to determine if goals are on target, to ensure that any new issues affecting the urban forest are sufficiently addressed and to revise the Management Plan as necessary to continue work towards achievement of the long term vision.

The vision for the life of this plan is: "A healthy and expanding urban forest, incorporating sound urban forestry practices and community partnership." Staff will monitor the progress of the Management Plan and evaluate success in realizing this short term vision through a series of criteria and indicators of success. The criteria and indicators of success have been selected in consideration of factors such as simplicity, cost-effectiveness, reliability and effectiveness. For example, criteria and indicators of the health of the forest such as street tree species composition, overall tree condition, and tree size class distribution, among others will be assessed at stated time intervals. Criteria and indicators of effectiveness such as wait times for street tree maintenance, tree protection by-law permits and spatial distribution of the urban forest will also be assessed. These are but a few examples of the full list of criteria and indicators as presented in the Management Plan.

The Urban Forestry Service Plan

As demonstrated in the foregoing, management of Toronto's urban forest is very complex. It is therefore essential to have a plan with sufficient resources to meet the identified goals. Sustaining the Urban Forest: Toronto's Strategic Forest Management Plan is a necessary element of managing the urban forest.

CONTACT

Jason Doyle, Director, Urban Forestry, Tel: 416 392-1894, Fax: 416 338-2434, E-mail: jcdoyle@toronto.ca

SIGNATURE

Jim Hart
General Manager, Parks, Forestry and Recreation

ATTACHMENTS

Attachment 1 – Sustaining and Expanding the Urban Forest: Toronto's Strategic Forest Management Plan