

Trinity Bellwoods Urban Forest Management Plan

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In collaboration with:



— ossington community association



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1. Relevant Definitions

a. Sustainability: working to create positive change without compromising the future generations' capacity to meet their own future needs. There is a need for solid integration of social, environmental, and economic values for achievement of project goals. Environmental sustainability relies on maintaining healthy ecosystems, thereby mitigating impacts of environmental deterioration, and restoring environmental deterioration.

b. Adaptive Management: Adaptive management is a term used to describe management based on the most up-to-date science and knowledge, allowing for ongoing monitoring and evaluation, and adjusting initial plans based on new findings and changes in circumstances.

c. Urban Forestry: a specialized branch of forestry interested in the management, including planting, protection, maintenance and care of tree species and green spaces in urbanized environments. Urban forestry does not limit its objectives to an ecological or environmental aspect, but expands it to the social, public health and economic well-being of communities.

d. Stewardship: the promotion of community members willing to take responsible action towards the urban forest. This includes overseeing action and endeavoring to protect, maintain, and enhance the urban forest.

e. Tree/Shrubs: trees and shrubs both occupy green spaces but are functionally different. Trees are woody, perennial species. They typically have a single trunk with a variety of protruding branches and can grow to a considerable size. This is different from a shrub, which typically includes multiple stems and is located close to the ground as they are considerably smaller.

f. Canopy Cover: The upper leafy area of trees for a tree crown. The percentage of area within a community or a forest occupied by a leafy cover is calculated as the canopy cover.

g. Invasive Species: Animals, plants or other organisms that become established and spread in an area, generating a negative impact on the local ecosystem and species.

h. Native/Non-native trees: Tree species that were present in an area prior to human-settlement or those that have distributed without human-assisted dispersal since. In contrast, a non-native tree is one that has been introduced by man to an area outside of its native habitat.

2. Introduction

a. Mission and Goals of the Trinity Bellwoods Urban Forest Management Plan

The purpose of this plan is to develop a 20-year strategic management plan for the urban forest within the Trinity Bellwoods neighborhood, Toronto. It will incorporate the needs and values of the local community, apply scientific research and knowledge, and evaluate the existing urban forest to guide future management actions that are in-line with the 20-year strategic management plan goals and objectives.

The main objectives of the plan are based on sustainability principles and include:

1. Improving the diversity, health, and retention of the existing urban forest;
2. Increasing canopy cover;
3. Promoting community stewardship through education and outreach programs; and
4. Applying adaptive management to incorporate uncertainty and change.

b. Framework and Structure

The 20-year strategic plan includes four 5-year management plans, along with annual operating plans for each of the five years of implementation as shown in Figure 1 below.

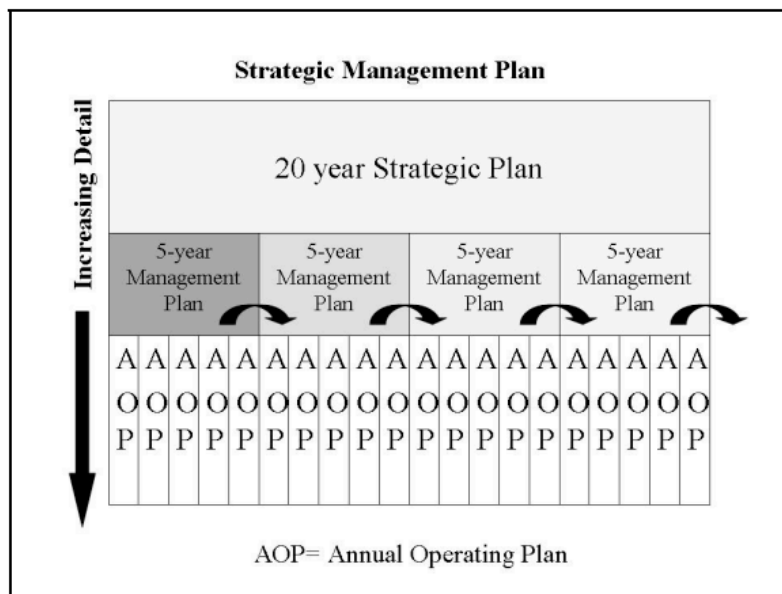


Figure 1. Temporal breakdown of a strategic urban forest management plan, such as the plan to be implemented in Trinity Bellwoods neighborhood.

The Trinity Bellwoods Urban Forest Management Plan will outline the strategic plan, the beginning of a 5-year management plan, and annual operating plans for first two years. Upon completion of a tree inventory, which will describe the current state of the Trinity Bellwoods

urban forest, a more detailed plan will have to be developed. The plans for the first two years will outline what activities should take place at the start of implementation in order to inform the remainder of the plan and to move forward effectively. The 5-year plans will outline what goals should be achieved at key intervals throughout the long-term plan and will categorize activities within the larger 20-year vision for the community.

Every five years the plan is updated, allowing for *Adaptive Management* and the incorporation of new information based on past failures, successes, or changes in circumstances. Annual operating plans are the most detailed parts of the strategic management plan, which outline the specific actions that need to be taken in a yearly sequence to reach the management plan objectives.

c. Community Boundaries

The Trinity Bellwoods Urban Forest Management Plan applies to private and public land within the Trinity Bellwoods neighbourhood boundaries as defined by the City of Toronto. The boundaries extend North-South from College St. to Queen St. West and East-West from Bathurst St. to Dovercourt Rd. (Figure 2).

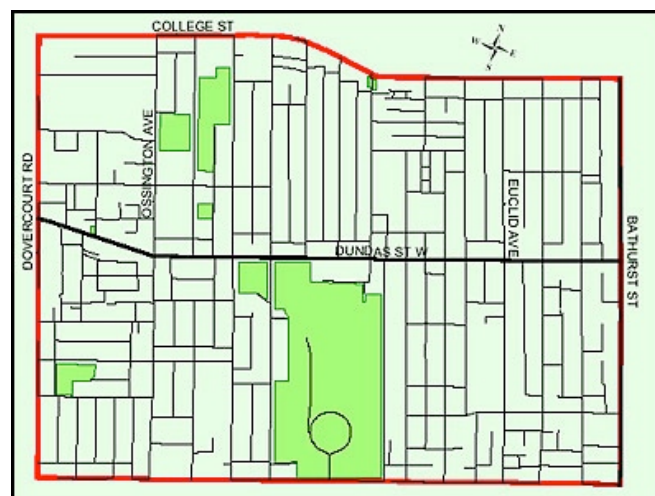


Figure 2. Boundaries of Trinity Bellwoods neighbourhood as defined by the City of Toronto. (source: City of Toronto)

d. Urban Forest: Benefits and Challenges

Why we need the trees and their benefits

The urban forest is an important part of a healthy community. Not only does the urban forest provide aesthetic and cultural values, but also reduces air and water pollution, and furthermore, provides habitat and natural corridors for wildlife. In addition, it increases the community's residential and business property values; reduces energy bills when trees are planted near houses,

and communities with greater canopy coverage have even been associated with a reduction in crime. Finally, trees provide shade and cool the air in summer and break cold winds in winter, acting as a community's natural thermostat.

Major challenges to urban forestry

The benefits gained by a community with a strong urban forest are indisputable. However, while, these benefits are well understood by many, urban development, climate change and other factors are making implementation an on-going challenge.

i) Urban Development:

The Greater Toronto Area (GTA) is the largest urbanized centre in Canada (Ministry of Finance 2012). The current population sits around 5.5 million and major developments proposed across the region will substantially increase this number. It is projected that by 2036 the GTA will reach a population of 9.2 million people. The population of Toronto alone (as of 2011) was 2,743,740 and by 2036 it is projected to reach 3,417,200 people (Ministry of Finance 2012). This rapid increase in population will place significant pressure not only on the maintenance and persistence of green space, but it may challenge the very presence of the urban forest as it competes with development for urban space.

ii) Climate Change:

Global climate change poses major challenges to urban environments; our ability to manage these changes is reduced due to its stochastic and unpredictable nature. While climate models can show possible trends, an overarching degree of uncertainty exists in their results. North America is expected to see a 2-5°C increase in air temperatures by the end of the century, exacerbated by random weathering events, and leading to major challenges such as increased tree mortality, through the increased onset of pests and pathogens. Trees have native ranges in which growth is optimal. Increased global temperatures have already pushed some tree species northward and others must adapt and acclimatize to novel environments, leaving them vulnerable to environmental stressors. Maintaining a healthy urban forest is becoming a greater challenge with more frequent and severe weather events.

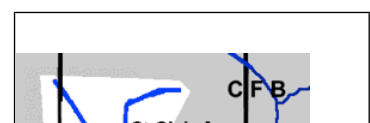
iii) Urban forest community perceptions:

This strategic urban forest management plan will rely highly on the willingness of the community to work together and cooperate on the implementation of the plan. There is therefore a need to educate the community and stress the benefits of the urban forest. This is inclusive of fostering community stewardship to support the maintenance and expansion of the urban forest and community engagement, particularly for private trees.

3. History of Trinity Bellwoods

a. People, Places Development

The physical and natural history of the Garrison Creek and Trinity-Bellwoods Park have had



significant influences on the development of this urban neighborhood. Trinity Bellwoods Park, which is bordered on the North by Dundas Street and on the South by Queen Street West, is situated in the historical Garrison Creek ravine, which still flows from the northwest to the southeast corners of the park in a buried city storm sewer beneath the park (Figure 3). The park has undergone various land-uses over the years.

The history of Trinity Bellwoods Neighborhood dates back to the late eighteenth century, when Lieutenant Governor John Graves Simcoe founded the Town of York (which is now modern Toronto), with the establishment of Fort York (City of Toronto n.d; Harstone 2005). The Fort was built at the mouth of the Garrison Creek, which at the time flowed in a deep ravine with several tributaries from north of what is now St. Clair Avenue to Lake Ontario. Dundas Street was built in different sections from 1793 – 1800 as a strategic military road. This road provided access to Trinity-Bellwoods – previously only accessible by the Garrison Creek by canoe or through the forest on foot since the area was largely forested at that time. Landowners used the opening of Dundas Street to clear the forest and start building farms (Harstone 2005). Some landowners were given property lots, which later encouraged road construction, including: Shaw, Halton, Dundas, Ossington, Givins, Crawford and Roxton Road. Of the estates that were built at the time, *28 Halton* was one of eight estates in the area that still remains today; the others (*Gore Vale*, *Dovercourt*, *Hayden Park*, *Rusholme*, *Foxley Grove*, *The Hall* and *The Willows*) have been redeveloped as schools, parks or hospitals (Harstone 2005).

Before 1850, Trinity Bellwoods was in the middle of the countryside, was owned by Captain Samuel Smith, and was largely agricultural. Suburban development in Trinity Bellwoods occurred from 1850-1875. In 1861, the street railway on Queen from Yonge to Dundas was constructed and the opening of the area encouraged rural development (Harstone 2005). Most of the houses built along Gorevale were built between 1901-1907.

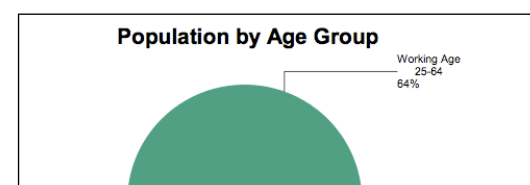
The Garrison Creek was known for its salmon fishing became developed with industries, residences, breweries, abattoirs, and market gardens (City of Toronto n.d) (Harstone 2005). By 1880, the clean water famous for its salmon fishing became contaminated and the ravine south of Queen Street was completely filled (Harstone 2005).

During the early 1950s, within the Trinity Bellwoods Park, the City of Toronto acquired and demolished the original Trinity College buildings. Today, the stone iron gates at the park entrance on Queen Street (which have been commemorated with a plaque), and St. Hilda's College situated on the north-western edge of the park (which has now become John Gibson House, a seniors' residence) now remain as historical reminders. A remnant of the ravine is now known as the dog bowl, a leash-free dog park (Trinity College 2012).

4. Current Community Structure and Environment

a. Demographics

As of 2011, the majority of the population (64%) falls within the cohort of “working aged”



people, falling between the ranges of 25-64 years old (Figure 4). When split up into 5-year cohorts, the greatest relative number of people in the Trinity Bellwoods community falls in the age cohort of 25-29 years old. Compared to the City of Toronto as a whole, fewer children aged 0-14 (32.9% less) and youth aged 15-24 (10.9% less) reside in this neighborhood although this is on the rise from recent years. An older, immigrant Portuguese population once dominated the community, recent studies are finding a significantly greater number of Chinese speaking and Canadian born residents. Moreover, when compared to recent years, this neighborhood has experienced a general gentrification with the average household income on a steady rise in the last decade (City of Toronto 2011).

b. Current Development

The currently existing demographics have facilitated development projects and commercial changes in the area, particularly with the up-and-coming Business Improvement Area (BIA) stretching through the middle of the community on Dundas Street. The project signifies a shift in community values with the onset of cafes, boutiques, Toronto-based designers and restaurants, all to meet local needs and moreover, to get the neighborhood to establish a distinct identity. Similarly, at the edge of the community, Queen Street has also seen a recent transformation, catering to local businesses and a more upscale crowd.

Trinity Bellwoods is currently facing new residential developments, which will result in a significant increase in population and will place more pressure on the urban forest. With a neighborhood population already at approximately 16,810, the community organizations are working hard to slow development and improve the green space within community boundaries.

With development set to happen in the area, namely condominiums, such as the Origami Condominiums (202 Bathurst Street), The Reserve Property Condominiums (109 Ossington Street) and the Nero Condominiums (856 Dundas St W), the community population will undoubtedly increase and urban green space could be affected.

Though parks and green spaces offer exceptional spaces for recreational activities, the increases in both population from development projects and visitor rates associated commercial changes, will inevitably place much pressure on community parks and green space, posing major challenges for urban forestry.

c. Ecology

The Trinity Bellwoods neighborhood falls into the larger ecoregion of the Lake Erie Lowlands. As the most southerly ecoregion in Ontario, it has some of the most moderate temperatures with a mean annual temperature of 8°C. Summers tend to be quite warm (mean summer temperature of 18°C) and winters are relatively mild (mean winter temperature of -2.5°C). Precipitation is relatively consistent throughout the year, with mean annual precipitation falling within the range

of 750-900 mm. In terms of tree species, this area hosts many trees found throughout the rest of Ontario, including Sugar Maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*). What differentiates this ecoregion from all others however, is the deciduous forest composition indicative of the Carolinian Forest, including tree species such as Shagbark Hickory, Black Walnut, Bitternut, and many nationally rare tree species, including the Kentucky Coffee, Cucumber, Sycamore and Paw Paw trees. The Lake Erie Lowlands has some of the most fertile soils in Ontario, making this region particular exceptional for agriculture; 7% of the region is dedicated to agriculture (Statistics Canada 2010; Ministry of Natural Resources 2007).

d. Parks and Green Spaces

The Trinity Bellwoods community is composed a myriad of greenspaces represented as parks, parkettes and playgrounds, accompanied by street trees and private trees intermittently placed throughout. Recognized recreational greenspaces within the boundaries include: Grace-College Parkette, Fred Hamilton Park, George Ben Park, Roxton Road Parkette, Trinity Bellwoods Park, Osler Playground, Lakeview Avenue Parkette. Though much greenspace exists within the community borders, the canopy cover only comprises 7.7% of the environment.

e. Community Groups

Many community groups are active within Trinity Bellwoods neighborhood on matters related to urban greening, sustainable development, and recreation. The community groups will be crucial in the implementation and overall success of the plan. The community associations include the Trinity Bellwoods Community Association, the Friends of Roxton Road Parks, the Friends of Trinity Bellwoods Park, and the Ossington Community Association.

Trinity Bellwoods Community Association (TBCA) “builds community awareness and facilitates civic discourse on such issues as city bylaws, community safety, building development and the quality and use of parks and public spaces.” Monthly meetings are held the last Monday of each month (Trinity Community Recreation Centre, 155 Crawford St., 2nd floor) <http://trinitybellwoods.org/>

Friends of Roxton Road Parks (FORRP) “together with our partners at Toronto City Hall, the Friends of Roxton Road Parks are developing a community-based vision for the revitalization of our parks into vibrant hubs of local social, recreational, and creative activity.” <http://roxtonroadparks.com/>

Friends of Trinity Bellwoods Park (FOTBP) “is a volunteer group that works together to improve the green space, cultural and recreational activities of Trinity Bellwoods Park.” <http://www.trinitybellwoods.ca/>

Ossington Community Association (OCA) is committed to “promoting the flourishing of the

Ossington strip–Dundas bend neighborhood and business districts”. <http://ossingtoncommunity.wordpress.com/>

Each community group, as well as a City Council, BIA, and Toronto District School Board (TDSB) representatives will have one member sit on the Trinity Bellwood Urban Forest Management Plan Steering Committee, designed to collaborate and share experiences in implementing the plan. See appendix A for future UFMP Steering Committee meeting dates.

5. Urban Forest Enhancement

a. Toronto’s Urban Forest – Canopy Cover and Projected Goals

The City of Toronto was surveyed as having approximately 17-20% total canopy cover (City of Toronto 2005). However, the Ministry of the Environment recommends a minimum 30% canopy cover. Urban forestry Toronto has recommended the city canopy cover reach a minimum of 30-40% in a 50 year time span. We support the increase of canopy cover in the Trinity Bellwoods community to help the City of Toronto reach this recommended minimum canopy coverage (City of Toronto 2012). The urban forest provides the equivalent of more than \$60 million dollars in ecological services each year, including benefits from energy savings and emissions reductions, air quality improvements and carbon storage and sequestration (City of Toronto 2012). The structural value of Toronto’s urban forest is estimated at \$7 billion (City of Toronto 2012). There are at least 116 different tree species in the City of Toronto. Maple species account for approximately 1/3 of the total leaf area of the urban forest, with 60% on private property, 34% in City parks and natural areas, and 6% along city streets. Land use affects both the quantity and quality of the urban forest (City of Toronto 2005).

b. Trinity Bellwoods Canopy Cover

In a study conducted by the Parks, Forestry & Recreation department at the City of Toronto, it was found that Trinity Bellwoods has a low average canopy cover at 7.7% (Parks, Forestry & Recreation, n.d.). Although, it may not be possible for Trinity Bellwoods neighborhood to meet Toronto’s goal of 30-40%, based on limited planting space, the inventory will be able to locate areas for planting and a canopy cover goal for Trinity Bellwoods can then be estimated.

6. City of Toronto Policies

a. Relevant City of Toronto Policies

1. City Street Tree By-law (Article II of Chapter 813) (City of Toronto, 2008b)

The *Street Tree By-law* authorizes the General Manager of Parks, Forestry, and Recreation to supervise the maintenance, protection, preservation, planting and removal of all trees located on streets in the City of Toronto (Article II, Section 813-4). The by-law outlines the

care and maintenance provisions for street trees and the activities that are prohibited. It is prohibited for any individual to injure or remove a tree on public property without the written approval of the General Manager. Further, it is forbidden to mark, cut, break, peel, deface, bury roots, or remove any part of a public tree (Article II, Section 813-6). Any tree planting needs to be approved by the General Manager. If removal of a tree is approved then a replacement tree must be planted in an appropriate location (Article II, Section 813-7). If any provisions set out within this by-law are violated, then the person convicted of the offence is liable to a minimum fine of \$500/tree, up to a maximum fine of \$100,000 (Article II, Section 813-8).

2. Private Tree By-law (Article III of Chapter 813) (City of Toronto, 2008b)

The *Private Tree By-law* outlines the measures for private tree protection and explains when and if a private tree can be removed or modified. It outlines the permit process and the conditions that lead to a permit being granted or refused. A permit is required for a private tree to be destroyed or modified if it has a stem with a diameter at breast height (DBH) of 30 centimeters or more (Article III, Section 813-10). A submission of an application to the General Manager of Parks, Forestry, and Recreation outlining the purpose for removal or modification, as well as the tree species, size, condition, and location, is required for a potential permit to be granted (Article III, Section 813-12). However, a permit is not required for the removal of a diseased, dead, or hazardous private tree, which has been certified as such by the General Manager. Further, pruning of private trees to maintain tree health or removing branches that interfere with utility conductors does not require a permit (Article III, Section 813-11).

When a permit is granted for the removal of a private tree, a replacement tree must be planted and maintained. If replacement is not possible, planting at another location or a cash in lieu payment is required (Article III, Section 813-18). Failure to follow any of the provisions outlined in “Article III Private Tree Protection” can lead to a minimum fine of \$500 per tree or a maximum fine of \$100,000 (Article III, Section 813-23).

3. City Infested Tree By-law (Article I of Chapter 813) (City of Toronto, 2008b)

The *City Infested Tree By-law* authorizes City of Toronto Forestry staff to inspect trees for forest pests, such as the Asian Long-Horned Beetle, and to remove infested trees on all public and private land with consent from the property owner (Article I, Section 813-1). Furthermore, Forestry staff can enter private property to inspect for forest pests and to remove infested trees (Article 1, Section 813-2).

4. Parks By-law (City of Toronto, 2008a)

The *Parks By-law* outlines appropriate conduct within public parks, including acceptable park uses, permitted activities, and behaviour that is prohibited within the public space. In particular, it is specified that no person shall break, injure, destroy, or remove any flower, plant material, fungus, tree or other vegetation within the park. Furthermore, it is prohibited to climb, move or remove a tree, rock, boulder, rock face, soil, sand, or wood, unless authorized by permit. It is also prohibited to disturb ground which is under repair, being prepared for planting, or that has been newly seeded or sod (Article II, Section 608-6).

A permit is needed for several activities including: construction, installation, or maintenance of a fence; dumping or storing materials or plantings; and planting, cultivating, grooming, or landscaping (Article II, Section 608-7). Therefore, a permit will be needed for any community gardens or planting projects to take place within the public park spaces of Trinity Bellwoods.

In regard to organized gatherings, picnics, and community events within a park, it is prohibited for a person to hold an event for more than 25 people without a permit (Article III, Section 608-11). Other prohibited actions include killing, injuring, trapping, or disturbing wildlife (Article VI, Section 608-36) and the removal, destruction, or injury of trees within a park (Article VII, Section 608-40). Further, any work within a park shall abide by the City's Tree Protection Policy and Specifications for Construction Near Trees (Article VII, Section 608-41).

5. Tree Protection Policy and Specifications for Construction Near Trees (Parks, Forestry, & Recreation, 2010)

The City of Toronto outlines specific policies and specifications for tree protection during development within an urban area. This document sets guidelines to preserve and protect a healthy urban forest and its individual trees, beginning from the initial stages of construction planning. Anyone who fails to adhere to these guidelines and damages urban trees, will be subject to charges under the appropriate by-laws listed above. Tree damage during construction can include physical injury, root cutting, and/or compaction, which can significantly impact the health of the tree.

Any development project should start with an inventory of the trees on and adjacent to the construction site, after which a protection plan for the construction process must be prepared by a qualified tree expert. Based on the diameter of the tree, a minimum 'tree protection zone' (TPZ) should be established for each tree. Beyond this, other protective measures, such as adding mulch to root zone, aeration of soil, and pruning, may be required to protect the tree. Within a TPZ, there cannot be any construction, disturbance, storage of equipment, disposal of liquids, movement of vehicles, or digging. Each TPZ should also be enclosed by appropriate tree protection barriers, as well as be clearly marked. Further, if a tree needs to be removed, injured, or relocated during construction, an application for a permit needs to be submitted to the General Manager.

7. Pest Management in Urban Forests

Trees in urban areas are often stressed by pollution, constrained root space, and by mechanical damage, making them more attractive to insects, fungi, and other pathogens. Invasive plants can compete with desired plants, shrubs, and trees, and can limit the leaf area, and canopy cover as a whole. Issues resulting from pests either through stress, new introductions, or other issues related to climate change can be mitigated through proper care of trees, removal of undesirable plants, and other actions, including tree injections or removal.

a. Prevalent Pests and Pathogens in Toronto

Insect pests

The increase in trade and use of solid wood packaging material as containers for shipped products has increased the number of insect pests introduced in Canada (Aukema et al. 2010). Bark and wood-boring insects, including the emerald ash borer (EAB, *Agrilus planipennis*) and the Asian longhorned beetle (ALHB, *Anoplophora glabripennis*), have been shown to cause higher than expected damage upon introduction and establishment compared to other introduced forest insects (Canadian Forest Service 1999, Aukema et al. 2010).

i) Emerald ash borer

The emerald ash borer (EAB), a wood-boring insect, native to China, Korea, Japan, Mongolia, Taiwan, and Russia (Haack et al. 2002) was first found in Toronto in November 2007 (Patterson 2011). EAB adults lay eggs on the bark of ash trees and 2-3 weeks later, the eggs hatch and the larvae emerge. The larvae immediately tunnel through the bark and feed for the summer months. The larval feeding creates galleries, which disturb translocation, nutrient cycling, and generally kill the tree within 3 years of the infestation (Haack et al. 2002).

EAB has become “the most destructive invasive forest insect in North America” (Kean et al. 2012) and although the insect cannot be eradicated, there are techniques that can be used to slow the rate of ash mortality (Section 7b). With approximately 8% of Toronto’s canopy being ash spp., and some areas of Toronto having over 80% coverage of ash (Patterson 2011), EAB will be a major challenge over the next 10 years.

ii) Asian Longhorned Beetle

Similar to EAB, the Asian longhorned beetle (ALHB) is a wood-boring insect, whose larvae kills the host tree by way of larval-feeding galleries that cut off the trees circulation. ALHB is native to China and Korea (Cavey et al. 1998). ALHB’s preferred hosts are maples (*Acer spp.*), but they are also known to attack elms (*Ulmus*), willows (*Salix*), poplars (*Populus*), and birches (*Betula*), among others (Haack et al. 2010). ALHB was first found in Toronto in 2003 and became well established given the number of maples within the city of Toronto. According to the

City of Toronto, Norway maple (*Acer platanoides*) is the most common street tree in the city, making up 22% of the total canopy cover (City of Toronto 2010).

As a result of intensive management, consisting of the removal of tree host species within the infested area of Toronto, ALHB is likely eradicated from Canada, (full eradication to be confirmed in the next year) (CFIA 2012). However, since it is still present in the states, our number one trading partner, it is important that the urban forest be diversified to reduce the number of preferred hosts should it return.

iii) European Gypsy Moth (Lymantria dispar dispar)

Gypsy moth was introduced to North America from Europe and appears to resurface in Toronto (west end/Etobicoke) every 7-10 years for about 2-3 years when populations become suppressed. Outbreaks are managed through aerial spray programs through collaboration between the federal, provincial, and municipal governments.

Plant pests

Below is a description of common invasive plants in Toronto. See section 7b. for management options.

Herbaceous (Annual or biennial)	Herbaceous (Perennial)	Woody
Garlic Mustard	Dog Strangling Vine	Norway Maple
Himalayan Balsam	Periwinkle	Manitoba Maple
Tall Sweet White Clover	Japanese Knotweed	White Mulberry
Burdock	Goutweed	Siberian Elm
		Common Buckthorn
		Tartarian Honeysuckle
		Burning Bush
		Asiatic Bittersweet
		Riverbank Grape

Table 1: List of plant pests currently found in Toronto.

b. Current Pest Management Schemes

i) Emerald ash borer

Traditional insecticide sprays are ineffective in controlling EAB populations and can be dangerous, especially in environmentally sensitive urban areas. Traditionally, trees infested with EAB were removed to reduce spread and limit hazard from dead branches. More recently, trunk-injections with TreeAzin™ (azadirachtin), a bio-insecticide with low toxicity has been effective in stopping EAB larval development and reducing ash mortality (McKenzie et al. 2010). Large ash trees, trees of historical significance, and trees seen as important or contributing aesthetically

to the city are more often considered because of the high-cost of biannual injections. Ash trees that are already highly infested should be removed, as they may be a safety-hazard to passers-by. A trained tree-care worker or ISA certified arborist should perform injections and tree pruning or removal. Tree inventories and surveys for EAB can provide the information needed to perform a cost-analysis and plan for dealing with ash trees in Trinity Bellwoods.

The Canadian Forest Service (CFS) has developed an Ash Protection Model that can help residents calculate the multi-year benefit of injecting a tree with TreeAzin compared to the removal costs. The model requires inputs, including the basal area, location to house, and other factors, which will affect removal costs and/or injection benefits. The model is available at [Canadian Forest Service - Ash Protection Model \(CFS-APM\)](#).

Land owners who wish to treat their trees with TreeAzin can do so prior to the tree inventory. If the community wishes to recommend any public trees for chemical treatment, they must first contact the City of Toronto Parks, Forestry, and Recreation department.

Replacement of removed ash trees should look at species diversification to avoid future invasive species infestations. See section 8c for species selection criteria.

ii) Invasive Plants: management options

Table 2 below shows the current management options for the plant pest introduced above.

Herbaceous (Annual or biennial)	Herbaceous (Perennial)	Woody
Can be controlled manually by re-cutting at base when flowering as close to the base as possible.	Require more intensive removal since they re-sprout every year. Plants should be pulled from the roots or cut repeatedly to reduce regrowth. Pulling perennials when soil is moist can reduce root breakage and damage including soil erosion.	Small plants can be dug up, larger plants cut at base, or girdled by removing a strip of bark at base of tree. Re-sprouting may require multiple cuttings at base if regrowth occurs. If all manual options have been exhausted, an organic or glyphosate-based herbicide such as Roundup may be applied to the cut stump to avoid re-sprouting. It is important that instructions are clearly read and followed if using a herbicide. For removal of invasive trees, a permit may be required by the City of Toronto.

Table 2. Management options for plant pests currently found in Toronto.

For more information, visit: <http://www.toronto.ca/trees/pdfs/>

c. Climate Change and Increased Risk of Pathogens

As stated above, climate change trends have identified that the urban forest may be altered by warmer winters, changes in precipitation including drought or intensive storms, as well as an increase in the range of insects that were typically suppressed over the winter. Climate change will likely have an effect on the number of non-native pests that can establish in Canada and the spread of current pests within the borders. Adaptive management will play a large role in planning around climate change, where pest management schemes are re-evaluated every five years to incorporate the dynamic climate system.

d. Recommendations For Reducing Pests

Diversification of the community's urban forest with different age classes and species will ensure that there will always be canopy coverage within the city. Species diversification is an important measure and mitigation strategy against future pest outbreaks. For some pests, an unhealthy tree host is an attractive tree host, creating favorable environments for pests. With the stress of the urban forest including reduced root space, mechanical damage, and pollution, the urban canopy is more likely to succumb to pest and disease outbreaks. Ensuring a healthy canopy before a pest is introduced can reduce the effects they will have once established.

8. Tree Establishment and Planting

a. Forest Diversity

Planting guidelines should follow the 10:20:30 rule (Santamour 2002). This rule follows the idea that no more than 10% of the trees planted in the urban forest should be of the same species, no more than 20% of the same genera, and less than 30% of the same family. This rule is important for diversifying the urban forest to help ensure that future pest and disease outbreaks do not render an urban forest substantially defoliated or left with sick or dying trees.

b. Habitat Selection Criteria

Appropriate placement is crucial for the survival and longevity of urban trees. Choosing the right sites for tree planting should include an analysis of limiting factors to tree growth. For example, space availability, both above and below ground, will be a major challenge, as current infrastructure, future development and other vegetation compete for space. While some areas, such as sidewalks and yard patches, present barriers including poor drainage and root outgrowth in the soil, with proper consideration, trees can be grown in these spaces.

Similarly, soil quality greatly affects the survival of urban trees. It is estimated that 80% of

problems associated with urban trees begin in the soil. The lack or excess of soil nutrients, pH (alkaline or basic), soil salinity, porosity, and water availability all have the capacity to limit growth. Given that trees have specific conditions in which they thrive, site factors (space, soil, and other abiotic conditions, like sunlight and micro-climate) should be assessed to determine species compatibility (Ware, 1994).

c. Species Selection Criteria

Species for planting will be chosen based on a site's given habitat selection criteria and suitability. Native species are recommended, because of the important ecological role they play in sustaining wildlife and insect populations. Natural history should also be considered and trees found historically within the region given preference. Other determinant factors that play a role in choice of trees include species tolerance to urban stresses including: pollution, salt-stress, and compacted soils, among others.

d. Tree Sources

Trees should be sourced from local nurseries that are certified for native seeds to ensure they are acclimatized to the local climate. That is, native species that have grown in a region of the province have become adapted to that climate, soil conditions, geography, and other environmental stressors. Trees in a given zone are adapted to existing environmental conditions. Trees planted from seed within its own seed zone will have a better success rate and be able to better tolerate existing environmental conditions. Seeds collected and planted in other seed zones will have lower success rates of flourishing. These zones will move with global climate change, and species from more southerly seed zones may be able to be planted further North with greater success.

See http://www.treesontario.ca/learn/index.php/learn_more.

9. General Maintenance

a. Tree Maintenance

Conducted by a certified arborist, ongoing tree maintenance increases the ability for the urban forest to remain viable over the long run and reduces the possibility of disease or damage to trees. By supporting a tree's health through pruning and maintenance, its ability to avoid urban stresses and recover from those that it becomes susceptible to, is strengthened. It can also extend the life of sick or damaged trees. Successful maintenance of tree health begins with proper planting of the right species in the appropriate location, followed by watering, fertilization, proper pruning, and structural support as needed (OMNR, 2000). Once again, a professional arborist should be consulted to ensure proper maintenance is carried out. In addition, if maintenance work requires more intensive action, the professional arborist should perform such activities.

Planting

To ensure optimal growth, the appropriate location for the planted species must be determined. The suitable level of shade or sun, the right amount of space for growth away from utility lines and buildings, and the proper planting techniques should be determined.

When planting a tree, there should not be too much soil piled around the base of the tree as this could lead to compaction. Further, to avoid compaction from human traffic and to prevent rot or disease, soil around the base of the tree should be replaced with mulch, which should be no deeper than 10 centimeters. This helps to conserve water, eliminate weeds, and mimic organic conditions of a forest (OMNR, 2000).

Watering

Regular watering will prevent the impacts of drought and reduce the likelihood of infection by disease or insects. In the absence of rain, mature trees should be watered continuously overnight to saturate the root zone, while younger trees should be watered for a couple hours at a time (OMNR, 2000). Further, regular watering can help heal wounds and support the growth of new tree tissue, roots, and stems.

Mulching

Mulching is a one of the best techniques for urban trees and helps trees maintain moisture, fend off weeds, and maintain adequate soil temperature and aeration. Mulching also helps prevent damage from lawn mowers that create openings that stress the tree and attract secondary insects and pathogens.

Wood chips, especially a mixture of wood, leaves, and bark are a great organic option for mulching. Cut grass should not be used for mulching as it may affect the pH of the soil. The City of Toronto recommends a mulch depth between 5-10 cm, placed a few centimeters from the tree and preferably extending to the drip line¹. Mulching too close to the tree or too high up the base can lead to an excess of moisture, reduced soil aeration, and a habitat for insects, pathogens, and grazing rodents. Proper mulching should resemble a donut not a volcano.

Fertilizing

Yellowing of leaves, dieback, and smaller needles are some signs of nutrient deficiencies in the soil. In these cases, NPK (nitrogen, phosphorus, potassium) fertilization can help trees obtain the nutrients they need to remain healthy. Fertilization should not be done between mid-August to mid-October, as this could hinder the tree's ability to go into dormancy. Fertilization should also be avoided in the year following severe tree damage, as this may only increase stress on the tree (OMNR, 2000).

Pruning and Cabling

¹ The drip line is the line on the ground directly under the canopy, where rain water would drip from outer leaves. The radial area interior to the drip line represents a conservative estimate of root area.

Effective pruning strategies are essential to maintain healthy and aesthetically pleasing trees that do not pose a threat to human safety. Pruning of newly planted trees should be postponed to the second or third year to allow for proper establishment of roots (ISA, 2009). After this, regular corrective pruning of young trees can prevent structural problems, such as weak branch structure or crossing branches. Early pruning is a cost-effective and proactive approach that can reduce the need for more costly and difficult corrective pruning of larger, mature trees in the future. (Urban Forest Innovations Inc., 2008).

Pruning allows for the remaining branches to bear less weight, to get better air circulation (reducing fungal growths), as well as to prevent the chances of the tree falling. Branches that are dead, damaged, weak, crossing each other, or diseased should be removed. In general, the leader should not be pruned as this can cause the tree to lose its shape. No more than one-third of the crown should be removed. When a branch is cut, the branch collar should be left intact so that a callus wound over the cut site can properly form. However, the cut should not be too far out from the branch collar, as this creates a stump that can attract fungi or insects (OMNR, 2000).

Pruning and cabling could also be used to reduce hazards in large trees, allowing them to be left standing while younger trees develop more mature canopies. Dead wood should be pruned off of large trees before they fall off and cause damage to surrounding area. Cabling could also be used to reinforce the stability of the tree. If large cracks already exist, stabilization can be achieved using 'static cabling'. Conversely, 'dynamic cables' are precautionary systems that distribute loads more evenly through the crown to avoid structural failure under extreme conditions. Steel cable and anchoring systems have traditionally been used, however synthetic ropes that do not require drilling into the tree are now used to allow some movement of the crown (Urban Forest Innovations Inc., 2008).

Sick and Damaged Trees

Trees with large cracks, cankers, missing bark, twisted trunks, severed roots, or that have fungus on the main stem can potentially become hazardous trees. Such trees should be appropriately pruned or removed. However, if a tree is dying or dead and it does not pose a threat to human safety, then it can likely be left as a cavity tree for wildlife. Professional arborists should be hired to assess tree health and risk and should be contracted when trees need to be removed, cabled, or when pruning work is extensive or difficult.

When a tree is infected by disease, natural ways to control the disease include: keeping the area around the tree clean, burning infected leaves, and fertilization if leaf loss is extensive. Beyond this, chemical fungicides could be applied but a licensed applicator should be hired for extensive work or to treat large trees (OMNR, 2000).

Maintenance needed after inventory and planting requirements are established

The creation of a comprehensive inventory will allow for appropriate assessment of tree risk and tree health. The inventory should also quantify the areas where trees can be planted within the community in order to determine where and how much the urban forest can be enhanced. Proper

maintenance (using the above techniques) of any newly planted trees is necessary to ensure their survival. Implementation of “adopt-a-tree” programs described in Section 3b, could assist in watering and fertilizing new trees and spread the responsibility among the community.

Once the initial inventory is complete, tree risks that have been identified should be prioritized and removal or pruning of hazard trees should be carried out in the first stages of the implementation plan (Urban Forest Innovations Inc., 2008)

b. Vandalism

Several activities can hinder a tree’s growth or lower its health. Such activities include physical damage to trees (breaking twigs/branches, peeling bark, damaging roots, or carving into tree trunks), tying bicycles up to trees, or littering around trees.

Vandalism could be reduced through education and appropriate community efforts. One goal of the community stewardship plan should be to educate the public about activities that can affect a tree’s health, as well as encourage community action against vandalism on trees.

c. The Dog Pee Predicament

There exist noticeable white rings around the base of many trees. The culprit? Our furry friends: dogs. While a preferable spot for dogs to relieve themselves, trees both become aesthetically unappealing due to this white ring and increasingly susceptible to pests and disease after consistent bouts of urination (Metcalf 2012). Accumulating over time, urine is capable of soaking through the bark of tree, damaging a vital component for growth, the cambium. The incurred damage to the bark therefore enables easy access for insect and disease. This is most detrimental to young trees. In addition to the physical damage to the tree, physiological mechanisms are also disturbed. With persistent urination, the soil becomes both acidic, thereby burning the roots, and polluted with salt, creating an environment similar to that of a drought (Balder et al. 2003).

Green-spaces are meant to be enjoyed and shared and it is by no means feasible or rational to remove dogs, or any other animals, from these spaces. It is important, however to increase awareness of these issues and provide potential alternatives. Given the susceptibility of young trees, we recommend tree wraps or guards to protect the thin bark. Moreover, rather than completely removing fallen urban trees or dead wood, we can utilize them as designated “pee stumps” for dogs along frequently used pathways. Signage and community stewardship can further serve as methods to maintaining a healthy urban forest.

10. Heritage Trees

Given the deep-rooted history of Trinity Bellwoods, establishing recognized heritage trees within the community could serve as an excellent reminder of the past and an important educational tool

for present and future generations. Heritage trees provide natural values, such as carbon mitigation, and an ecological legacy by providing seeds/genetic material. Further, they provide habitat for birds and insects, and can evoke an overall emotional response, creating a strong sense of community.

The Trinity Bellwoods community does not currently have any recognized heritage trees. Performing an extensive tree inventory however will enable trees that meet the criteria for evaluation to be identified and nominated for official recognition. Accompanied by signage, the official recognition of heritage trees in the Trinity Bellwoods community could help protect the benefits from these trees and add a cultural and historical component to the urban forest, which can get more people involved in its protection. In addition, recognizing a heritage tree represents a celebration of the life and values of that tree.

For more information regarding heritage trees or to recommend specific trees for designation please visit the [Trees Ontario \(Ontario Heritage Tree Program\) website](#).

11. Community Education and Outreach

Management of the urban forest requires a social context - an engaged community, working closely with other organizations and government agencies to set, implement, evaluate outcomes and adapt or re-evaluate objectives within the plan as new information becomes available (Dwyer et al. 2003). The residents of Trinity Bellwoods will be integral leaders to the management plan and based on their level of engagement can be the vehicle to a healthy, accessible, and flourishing urban forest.

The community organizations stated in Section 3b have been present in setting the goals and objectives of the Trinity Bellwoods Urban Forest Management Plan. Next steps will include the three A's: awareness, action, and adaptation.

1. Awareness

The first step to protecting the urban forest is to understand the value of it. Public education should be consistent, simple, and thought provoking, in order to familiarize the community with the management plan's values and ideas.

Businesses and residents can be educated through urban forest tours, hands on workshops, seminars, presentations, committee meetings, and targeted marketing campaigns. Use of the city and/or community group websites are important tools and are accessible to the public and community. Workshops for local schools, landowners, committees, and business owners can also promote a greener community.

It is important to have resources for community members to understand tree maintenance for ownership and protection of trees on private lands. Setting up Public Information Centers (PIC)

for members of the community who would like to learn more about the urban forest and the Trinity Bellwoods Urban forest Management Plan would benefit if it were made public.

2. Action

Once awareness and support for the urban forest has been achieved, it is time to act. By involving community members in the implementation of the management plan, you can create a culture of urban greening and a sense of accomplishment and ownership among active members.

It is important to nominate one or a few reliable volunteer coordinators to ensure the sustainability of the projects. Since most volunteers will come and go, a consistent coordinator will be required to keep tabs on the what, where, when and who's of the volunteer-run projects. It is important to recognize the excellence of current volunteers and provide opportunities where volunteer interests lie in order to engage and support new volunteers in urban forest stewardship. In addition, businesses should be recognized for their role and participation in greening the community. Furthermore, businesses should also be treated as stakeholders within the community who are there to cooperate and support the management plan goals.

3. Adaptation

“Without monitoring, there is no management.” After the community is engaged, and action has commenced, it is crucial that the work be monitored, new information sought, and short-term goals be evaluated against the results. A community member should be appointed as auditor in order to ensure that adaptive management is applied. Changes in objectives and/or projects may require further engagement of stakeholders and calls for volunteers to support new projects.

a. School Programs

There are various public and Catholic schools within Trinity Bellwoods. Introducing educational programs into these schools could be another important part of community outreach, as creating awareness in younger generations regarding the environment and urban forestry will be important in creating a culture of environmental stewards.

The following schools can be engaged to promote involvement in volunteer projects:

Public Schools:

- Ossington/Old Orchard Junior Public School (JK-6): 380 Ossington Avenue
- Givins/Shaw Junior Public School (JK-6): 49 Givins Street
- Charles G Fraser Junior Public School (JK-6): 79 Manning Avenue
- Niagara Street Junior Public School (JK-6): 222 Niagara Street
- École élémentaire Pierre-Elliott-Trudeau (JK-6): 65 Grace Street

Catholic Schools:

- St. Luke Elementary: 319 Ossington Ave.
- Senhor Santo Cristo Elementary: 30 Humbert Street

- St. Mary Elementary: 20 Portugal Square

A website with a map showing both public and catholic school within the Trinity-Bellwoods Neighborhood.

<http://www.torontoneighbourhoods.net/neighbourhoods/downtown/trinity-bellwoods/schools>

b. Extending Adopt-a-tree

The adopt-a-tree program is a volunteer-run initiative, where community members can sign up to take care of a tree for the first four years after planting, when the tree requires the most resources and protection. The individual that adopts-a-tree is responsible for:

1. Watering once a week from May to October (23L/week)
2. Weeding around the tree to reduce competition for resources, and
3. Mulching in the spring or fall to reduce water-runoff and damage.

Weeding and mulching can be done together during spring or summer. Cooperation with the City of Toronto Parks, Forestry, and Recreation staff is required to turn water taps on in the spring and off in the fall. A 4-year donation (for example \$10/tree) can be requested to cover material costs.

The adopt-a-tree program is currently practiced in Trinity Bellwoods Park and organized by Friends of Trinity Bellwoods Park (FoTBP). The program has been a huge success in the Trinity Bellwoods Park and this plan recommends that other parks within the neighborhood implement this program. As done with the adopt-a-tree program in Trinity Bellwoods Park, it may be practical to have one organizer for each park that is implementing the program. This person can act as a point of communication and ensure that the tree adopters have the necessary support.

Here is an interactive map of the current 142 trees that are part of the adopt-a-tree program in Trinity Bellwoods Park. It identifies each tree and gives a description of its species: <https://maps.google.ca/maps/ms?ie=UTF8&t=h&source=embed&oe=UTF8&msa=0&msid=206987926828010936173.00046ee86b872b5403a2b>

c. Green Space Signage

Signage can be used as a tool to educate community members and to increase awareness of the urban forest. For example, signage could be placed near trees that are within the adopt-a-tree program both to help the adopter identify their tree, but also to allow community members to learn the species names and to generate awareness regarding the program itself.

Other signs can be placed at culturally significant or important trees including heritage, rare or unique, and dedication trees.

d. Potential Partnerships

Below is a list of potential partnerships and their projects that could help with implementation of the plan.

Local Enhancement and Appreciation of Forests (LEAF)

1. *Backyard Tree Program*: <http://www.yourleaf.org/backyard-tree-planting-program>
2. Multi-units and businesses: <http://www.yourleaf.org/multi-units-and-businesses-0>
3. Other Tree Tours, presentations, and workshops offered by LEAF (aid with education of the community)

Evergreen:

1. *School Ground Greening Program*: provides assistance for greening of school grounds to provide spaces in which students can play, learn, and appreciate nature. Funding (\$500-3,500) is available for public schools and not-for-profit daycares. Further, teachers are trained and given lesson plans to aid implementation. <http://www.evergreen.ca/en/programs/schools/rationale.sn>
2. *Bean Keepers Project*: Program that plants and harvests beans on school properties. Seeds are saved and traded with other schools) <http://www.evergreen.ca/en/programs/schools/food-gardens/bean-keepers.sn>
3. *Community Greening Programs*: Provides support to transform public spaces and vacant lots into community gardens, naturalized open spaces, and to protect urban green space
4. *Community Food Gardens*: <http://www.evergreen.ca/en/programs/communities/community-development/food-gardens-toronto.sn>
5. *Common Grounds Grants*: Provides funding (up to \$10,000) to support community groups in protecting and restoring green spaces <http://www.evergreen.ca/en/funding/grants/index.sn>
6. *Native Plant Gardens and Natural Habitat Communities*: Provides resources to guide creation of native plant gardens. Information on how to choose species, design and maintenance of gardens is also provided. <http://www.evergreen.ca/en/resources/native-plants/start-garden.sn>
7. *Evergreen and Peel Region*: partnered up to green corporate ground. This could potentially be applied to businesses in Trinity Bellwoods. <http://www.evergreen.ca/en/programs/communities/stewardship-restoration/greening-corporate-grounds.sn>

12. Inventory and Assessment

a. Inventory

Like many communities, Trinity Bellwoods does not have a complete inventory. Trinity Bellwoods Park and the Toronto District School Board grounds have been inventoried, but this

only makes up a small component of the whole neighbourhood. A tree inventory will therefore be the priority of the first couple years of the management plan, within the Annual Operating Plans. With a complete tree inventory of the trees in parks, on school grounds, on private property, and along streets, concrete plans can be set to reach the strategic goals. Two types of information will be gathered through the inventory: transitory and permanent. Ideally this inventory will be digitized for ease in future endeavors, and be transformed into a GIS-based inventory, which can be easily updated

Transitory information includes characteristics that can change over time, including tree condition or health, while permanent information consists of characteristics that are unchanging, including species and location. The information obtained through a detailed inventory can help direct decision-making regarding the structure, composition, function, value, and overall sustainability of the urban forest.

NeighbourWoods is a standardized protocol that has been used by many communities within and around Toronto. For more information on the process, available training, and contact information, please visit the following website: <http://www.forestry.utoronto.ca/neighbourwoods/web/neighbourwoods.html>

Transitory Information:

- i) *Size:* Several measurements of tree size will be utilized for a tree inventory. Diameter at breast height (DBH): measured at approximately 1.5 meters above ground, will be used to standardize the diameter of a trunk of a standing tree. This is one of the most effective places to measure a tree as various other measurements can be subsequently derived from the DBH, including growth, volume and yield.
 - ii) *Tree height:* measuring the total height of a tree can lead to clues about the immediate environment, and pinpoint important factors including water limitations. Tree height can easily be measured with a clinometer.
 - iii) *Crown Length:* measure length of green foliage from lowest live foliage to leader branch.
 - iv) *Tree Condition:* This type of measurement will be a subjective measurement of overall tree condition, rated on a scale: very poor, poor, fair, good, or excellent. Additionally, notes regarding the justification of the classification will also be included, such as any damage to the tree, if it is considered hazardous, presence of pests, chlorosis of foliage (yellowing of the leaves), die-back (when certain branches no longer have leaves on them), rot or decay, etc.
- With size measurements on hand, measurements for basal area, crown volume, crown projection area, leaf area and biomass can be derived for future data analysis.

Permanent Information:

- i) *Species:* Both the common and scientific names should be recorded for each tree. The scientific name will be primarily used in the database, as Latin names eliminate any confusion caused by differences in common names, which can differ between regions.

Common names, however will be important for educational and community outreach programs.

ii) *Location*: To locate a tree in the future, the specific location must be kept. This information would include street names, addresses or major landmarks. Within the location of the tree species, site characteristics should also be noted, which will be helpful in later assessing micro-climatic factors attributed to overall tree health. Factors to be noted should include available space (above and below ground), the type of land use (public or private), ground covering (grass, pavement etc.), and any structural elements within a reasonable distance or directly affecting a tree (telephone wires or poles, sewers, etc.)

The compilation of this information will be vital in directing future recommendations of the urban forest, such as planting, pruning, water, fertilizing and developing an overall management scheme to ensure long-term sustainability.

b. Periodic Inventories

For an effective, long-term management plan of the Trinity Bellwoods urban forest, the tree inventory should be updated periodically. Inventories should therefore take place every 10 years. Ongoing monitoring allows for better understanding of average canopy coverage, which species can be found in a community, and in what percentages. Understanding the urban forest composition will help better manage for species that should be planted in the future, canopy size distribution, age-classes of trees and over all tree-health of the area, which will be an important key in adaptive management. There will inevitably be unforeseen events within the urban forest (introduced pests, climate change etc.), however re-assessing and analyzing the tree inventory in the future will manage for unpredicted events (Wood 1999).

c. Soil Assessment

Due to historical filling and development upon landfills, the community is concerned that the soil in Trinity Bellwoods may be contaminated. However, soil remediation is very expensive and it is advised not to plan for contamination unless you have concrete evidence. Once the inventory is complete, landfill maps can be used to compare potentially contaminated land to tree condition. If evidence of contamination is found (ie. if land above historic landfill has a high proportion of trees in poor health), chemical testing can be performed on soil to assess contaminant levels. If land shows minor levels of contamination, clearing of leaf litter from streets and yards can provide soil improvement benefits through decomposition.

13. First 5 Year Annual Operating Plans

YEAR 1

- Form steering committee with representatives from community associations

- Conduct tree inventory using the NeighbourWoods² protocol (areas including parks, private land, and street trees including a reassessment of Trinity Bellwoods Park)
- Begin digitizing and analysis of inventory
- Begin Adopt-a-tree program in Fred Hamilton Park
- Earth Day event to present TB UFMP to residents, businesses, and other community stakeholders
- Provide homeowners with existing resources on the emerald ash borer and steps that they can take to protect valuable trees or remove those that have succumb to mortality.
- Create volunteer base through events and communication pieces

YEAR 2

- Continue tree inventory
- Digitize and analyze complete inventory
- Based on inventory, determine suitable planting areas
- Outreach and school involvement

YEAR 3, 4, 5

- Update inventory with new plantings and removals of existing trees
- Update annual operating plans for years 3,4,5 based on inventory results
- Evaluate goals in year 5 to adjust plan for the subsequent 5-year management plan

In order to properly implement the plan, funding may be needed to hire summer interns, purchase tree stock or other materials, or to hold events or awareness campaigns. Note that the Trinity Bellwoods Urban Forest Management Plan will be an excellent tool when applying for grants, and can be appended to funding applications in order to show that Trinity Bellwoods has a long-term strategic goal for its urban forest.

² <http://www.forestry.utoronto.ca/neighbourwoods/web/neighbourwoods.html>

14. Potential Funding Sources

A list of potential funding sources are listed below:

- Ontario Trillium Foundation
- Community Foundation for Greater Toronto
- J.P Bickell Foundation
- The Richard Ivey Foundation
- McGeachy Charitable Foundation
- The McLean Foundation
- The K.M Hunter Charitable Foundation
- The Noranda Foundation
- Bronfman Family Foundation,
- EcoAction Community Funding Program
- Environment Canada
- Laidlaw Foundation
- Metcalf Foundation
- The Salamander Foundation
- TD Friends of the Environment Foundation
- Tides Canada Foundation
- TD Green Streets (application by BIA)

More information? Send an email to TrinityBellwoodsUrbanForestry@gmail.com

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