# BRAMPTON ONE MILLION TREES PROGRAM

BRAMPTON

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BRAMPTON

2019

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# 1.0 INTRODUCTION

Brampton was once covered in trees. The arrival of European colonists in the early 19th century led to rapid population growth and development, which resulted in the destruction of woodlands and valleylands to make room for agriculture. Trees were viewed as a hindrance to farm productivity, and the importance of trees in the landscape was not yet understood.

*Archival image showing aerial view of Queen Street between McLaughlin Road and Chinguacousy Road looking south.*

The "urban forest" and "urban forestry" began to enter everyday language in Canada in the late 1960s as the value of trees started to be recognized for their provision of ecosystem services that enhance both public and environmental health.

Trees supply environmental, social, and economic benefits (refer to Section 1.1: Why Trees?, and Appendix A: Economic Impacts), such as storing carbon, releasing oxygen, mitigating urban heat island effect, screening wind, reducing noise, reducing stormwater runoff, increased property values, and improving mental health. By contrast, a reduced urban forest has been directly linked to lower climate resilience and reduced overall public health.

While the growth of Brampton's urban forest has been helped by tree planting standards for new development and restoration efforts in more recent years, its size and health were set back severely by damage caused by invasive species (e.g. Emerald Ash Borer infestation), extreme weather events (2013 ice storm), and droughts. The result is a landscape that desperately needs more trees: unshaded playgrounds, hostile streets, and extensive swathes of asphalt and concrete.

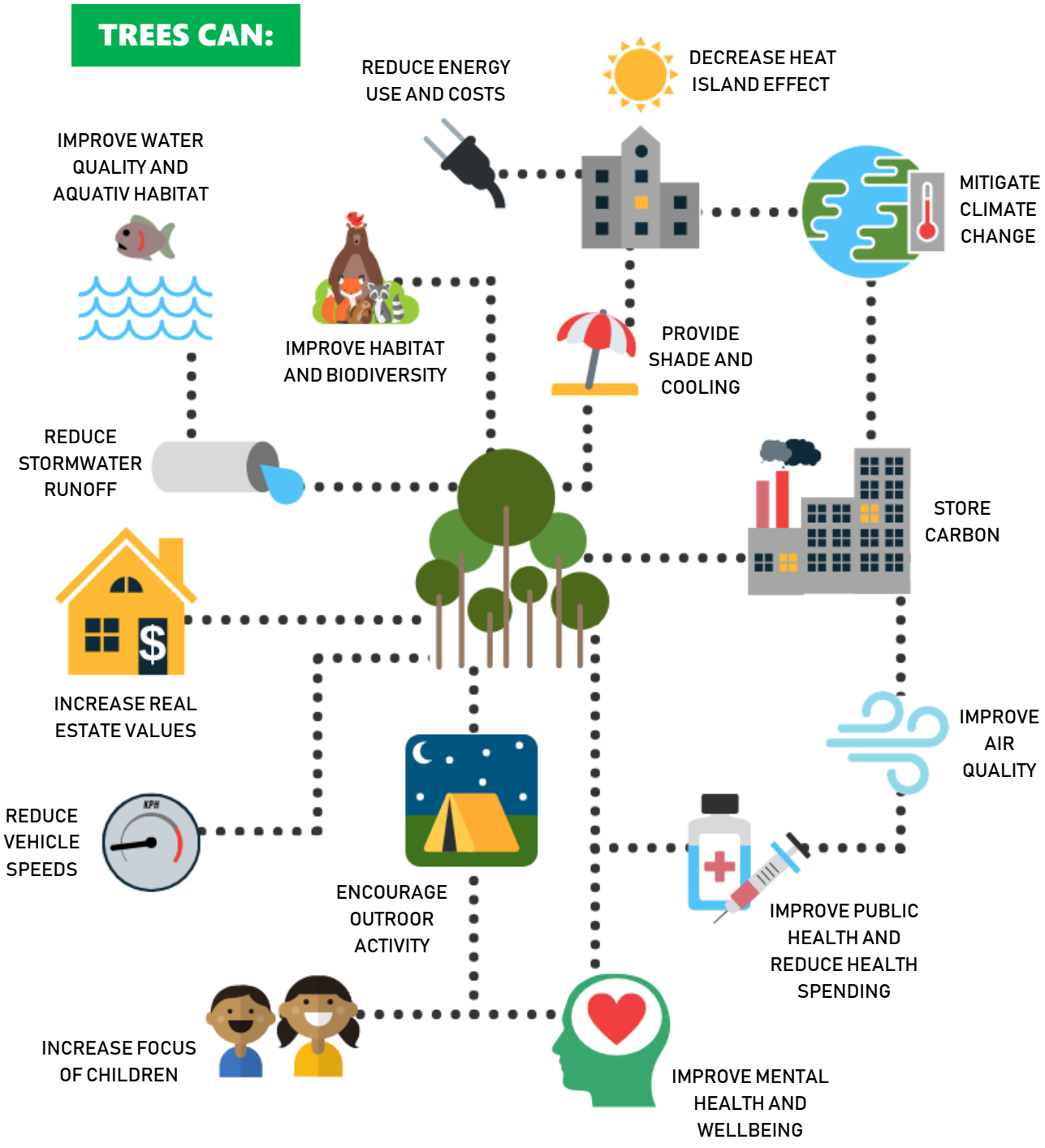
In the face of a climate emergency, the City is implementing initiatives that will help Brampton mitigate and adapt to climate change and improve livability and public health. In 2018, Council endorsed *Living the Mosaic: Brampton 2040 Vision,* a strategic plan that conceptualizes how the city should evolve until 2040. A key action of the plan is planting **one million trees** in the city by 2040 to grow the urban forest, mitigate and adapt to climate change, and foster the delivery of ecosystem services.

The City currently has around 3.6 million trees, which accounts for just 18% of its total land cover. The trees are distributed throughout boulevards, parks, the natural heritage system, residential yards, and other private lands. Over the last five years, the City of Brampton and its partners, such as the Conservation Authorities and the development industry, planted an average of 43,000 trees per year. To achieve one million trees by 2040, the City and its partners must aim to plant, on average, an additional 7000 trees per year for a total of 50,000 trees per year starting in 2020.

The Brampton One Million Trees Program is a framework for the City and its partners to increase tree planting initiatives and realize the target of one million trees by 2040. It contains an overview of the existing City documents and initiatives, internal and external funding for tree planting, the identification of gaps in and opportunities for the City's tree planting efforts, and recommendations for future actions. It highlights strategies for both existing and new communities and infrastructure. Directions pertaining to the inventorying, operations, maintenance, and monitoring of the urban forest, however, will be addressed in the City's *Urban Forest Management Plan* (UMFP) that is currently being developed.

Building upon the *Brampton 2040 Vision*, *Brampton Grow Green: Environmental Master Plan*, and other city documents, the Brampton One Million Trees Program will help create a more robust urban forest that will make Brampton more sustainable, resilient, livable, and beautiful.

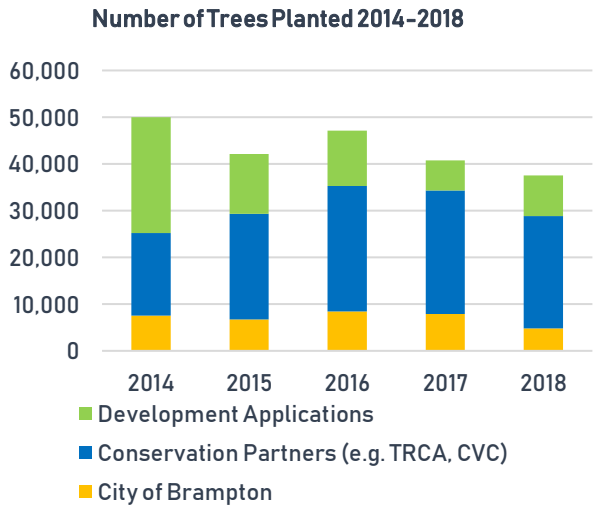
## WHY TREES?


TREES CAN:
REDUCE ENERGY USE AND COSTS
DECREASE HEAT ISLAND EFFECT
IMPROVE WATER QUALITY AND AQUATIV HABITAT
MITIGATE CLIMATE CHANGE
IMPROVE HABITAT AND BIODIVERSITY
PROVIDE SHADE AND COOLING
REDUCE STORMWATER RUNOFF
STORE CARBON
INCREASE REAL ESTATE VALUES
IMPROVE AIR QUALITY
REDUCE VEHICLE SPEEDS
ENCOURAGE OUTROOR ACTIVITY
IMPROVE PUBLIC HEALTH AND REDUCE HEALTH SPENDING
INCREASE FOCUS OF CHILDREN
IMPROVE MENTAL HEALTH AND WELLBEING

## 2.0 FRAMEWORK

The Brampton One Million Trees Program will commence in January 2020. Under current programs, the City and its partners plant approximately 43,000 trees per year. To achieve one million trees by 2040, the number of trees planted annually will need to increase by at least 7000 trees per year to achieve a total of 50,000 new trees annually.

The City has several robust policies and programs that should be expanded upon in order to reach this target. Outlined below are the municipal documents that support tree planting and the Brampton One Million Trees Program. A more detailed overview of existing plans, policies, and actions are provided in Appendix B: Supporting Documents and Policies.




### 2.1 Supporting Documents

#### Living the Mosaic: Brampton 2040 Vision (City of Brampton, 2018)

The Brampton 2040 Vision is a strategic plan that conceptualizes how the City of Brampton will evolve until 2040, and sets out seven target visions, including "Vision 1: Sustainability and the Environment" that calls for planting one million trees in the public and semi-public realm of Brampton by 2040 (Action #1-3).

#### Brampton Grow Green Environmental Master Plan (City of Brampton, 2014)

The Grow Green Environmental Master Plan (EMP) aims to conserve, enhance, and balance the City's natural and built environments to create a healthier, resilient, and environmentally sustainable city. It provides goals, actions, and targets for improving Brampton's environmental performance in the areas of People, Air, Water, Land, Energy, and Waste. Directions for the urban forest fall within the Land category, such as expanding tree canopy cover by increasing tree planting requirements on new developments, and developing a tree inventory.

#### Natural Heritage Environmental Management Strategy (City of Brampton, 2016)

The Natural Heritage and Environmental Management Strategy (NHEMS) outlines a proactive approach to ensure that the abundance of natural heritage and built green spaces found in the city are conserved, restored, connected, and enhanced to support the green diversity and health of the natural and built environments. The goals, objectives, and actions support the maximization of ecosystem structure, function, and services.

#### Natural Heritage Restoration Program (City of Brampton, 2018)

The Natural Heritage Restoration Program (NHRP) was established to restore and naturalize areas within the natural heritage system, parks, and infrastructure to address the historical conditions and current impacts on the natural heritage system. It focuses on actions to restore currently degraded natural areas to improve their ecological function. The NHRP emphasizes tree planting in public spaces, such as parks, boulevards, and other open spaces as an important restoration method.

#### Urban Forest Management Plan (City of Brampton, n.d.)

The Urban Forest Management Plan (UMFP) was recommended in several City documents, including the Brampton Grow Green EMP and the NHEMS, and is currently being developed. The purpose of the plan is to provide a clear vision and guide how the City of Brampton should regulate, manage, enhance, maintain, and promote its urban forest based on best practice.

#### Woodland Management Plan Guidelines (City of Brampton, 2018)

The Woodland Management Plan Guidelines direct the evaluation and subsequent protection, enhancement, restoration, and/or development of woodlands as part of the land use planning and development process at the Plan of Subdivision and Site Plan. Woodlands conveyed to the City through the planning approval process typically receive a Woodland Management Plan that outlines a variety of key actions to ensure the long-term health of the feature.

### Region of Peel Tree Planting Prioritization Tool (Region of Peel, 2015)

The Region of Peel Tree Planting Prioritization Tool (TPPT) arose out of the Peel Region Urban Forest Strategy (2011) with the goal of identifying priority areas for tree planting based on existing canopy cover. Tree planting could then be targeted to public lands within these zones based on need for environmental, social, and economic benefits across Peel Region.

### Region of Peel Climate Change Master Plan 2020-2030 (Region of Peel, 2019)

The Region of Peel's Climate Change Master Plan is a corporate plan that aims to build capacity, reduce GHG emissions, prepare for future climate conditions, and invest in climate change action within the Region's operations. As part of the plan, the Region aims to protect and expand green infrastructure such as trees across Regional assets, including the Regional road network.

### Additional Documents

Additional municipal documents that support tree planting and the urban forest include:

- Peel Region Urban Forest Strategy (Region of Peel, 2011)
- Parks and Recreation Master Plan (City of Brampton, 2017)
- An Assessment of Urban Tree Canopy Cover in Peel Region, 2015 (Region of Peel, 2017)
- Priority Tree Planting Area to Grow Peel's Urban Forest (Region of Peel, 2015)
- Tree Preservation By-Law (City of Brampton, 2012)
- Woodlot Conservation By-Law (City of Brampton, 2012)
- Development Design Guidelines (City of Brampton, 2003)

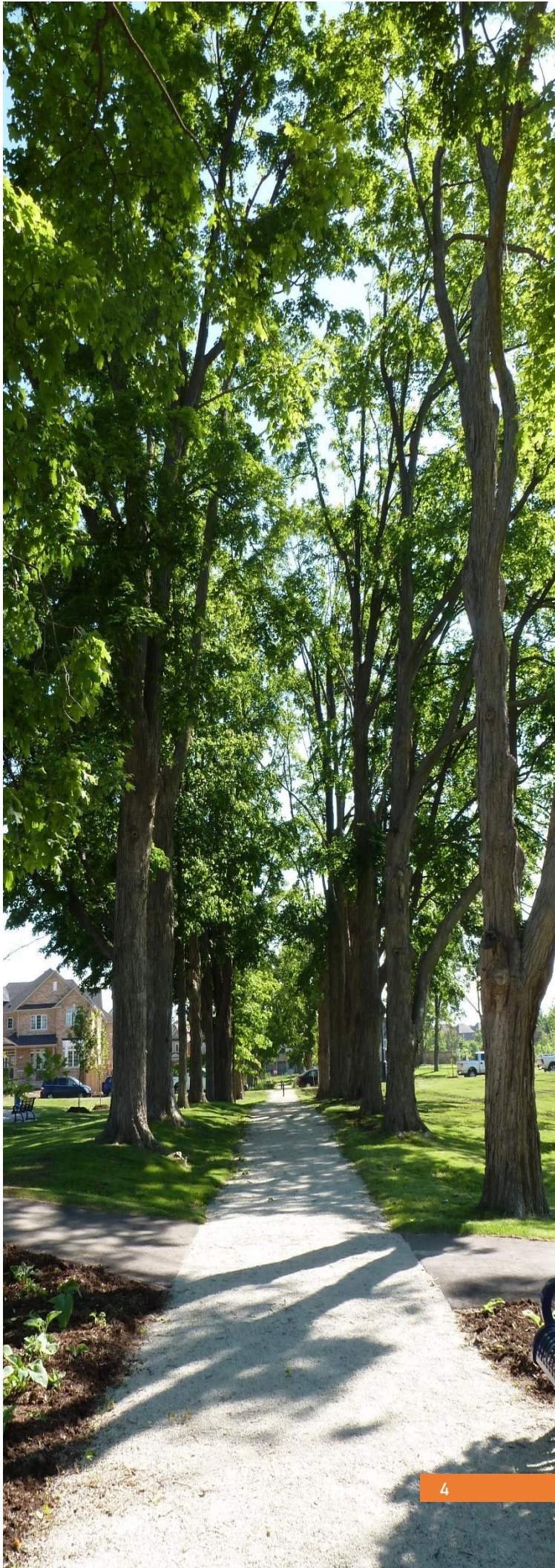
## 3.0 CURRENT INITIATIVES

The City has several programs in place that support planting efforts for both existing neighbourhood and new developments, which should be leveraged and expanded upon to help identify priority planting areas and increase the number of trees planted annually.

## 3.1 Existing Neighbourhoods

### Valleyland Naturalization Program (City of Brampton, 2002)

The Valley Naturalization Program restores indigenous plant communities in the Brampton's valleylands that have been impacted by past agricultural practices and development. The program results in a variety of ecological



benefits, such as introducing new wildlife habitat, improving fish habitat by stream cooling, and flood plain stabilization. The social benefits of the program are also significant as the new plantings add to the attractiveness of valleylands, promoting their casual use by hikers, naturalists, and community groups.

### Nurturing Neighbourhoods Program (Complete Neighbourhood Audit)

The Nurturing Neighbourhoods Program is an outcome of the *Brampton 2040 Vision,* which recommended that Complete Neighbourhood Audits be conducted to "systematically update and revitalize existing neighbourhoods to ensure the full provisions for comfortable sustainable living".

Through this program, the City connects with members of neighbourhoods across the Brampton takes community feedback through surveys, guided neighbourhood walks, and workshops, connects residents to resources, and in the long term creates an action plan tailored specifically to each neighbourhood. Information gathered and action plans developed as part of the Nurturing Neighbourhoods Program can inform and be a catalyst for tree planting initiatives.

### Sustainable Neighbourhood Action Plan

The Sustainable Neighbourhood Action Plan (SNAP) program is a revitalization program for existing neighbourhoods that aims to accelerate urban renewal and increase climate resilience at the local scale. A collaborative endeavour between the City, Conservation Authorities (i.e. TRCA and CVC), and the Region of Peel, SNAPs takes a holistic approach to urban retrofitting, and prioritizes the implementation of green and adaptive infrastructure around core themes of stormwater management, water and energy conservation, and natural heritage protection and restoration.

Brampton currently has two SNAPs underway – County Court, and Fletcher's Creek. Both neighbourhoods have low canopy cover but high resident interest in trees, therefore, urban forest expansion was a priority for both SNAPs. The number of trees planted is being used as a metric for their success. For example, the County Court SNAP resulted in over 2,000 new trees planted in the neighbourhood to date.

### Capital Roads Projects

Capital projects are those that develop, maintain, or improve a City asset, such as the purchase, construction, major repair, and replacement of roads, buildings, bridges, equipment, and technology on municipally-owned lands. Tree planting often occurs as part of capital projects related to roads.

### Tree Dedication Program

The Tree Dedication Program provides residents the opportunity have a tree planted in a City-owned park or cemetery to honor, memorialize, or celebrate a special person, place, or event. The tree can be accompanied by a small plaque at its base.

### Community Tree Planting Events

The City hosts four annual community tree planting events for the general public, including:

- National Tree Day Planting (September)
- Earth Day Planting (April)
- Annual Scouts/Guides Planting (May)
- Community Parks Day Planting (October)

Additional smaller scale community planting events are also held across the City during the spring and fall.

## 3.2 New Development

### Sustainable Community Development Guidelines

The Sustainable Community Development Guidelines (SCDG) is a chapter in the City of Brampton's Development Design Guidelines, and support "Section 3.1 Sustainable Planning Framework" of the City's Official Plan. The SCDGs inform the design and assessment of development proposals using a lens of sustainability and ecosystem-level planning, and include a range of guidelines related to the protection and enhancement of the urban forest.

### Sustainability Metrics

The City of Brampton, along with the Cities of Vaughan and Richmond Hill, produced a set of Sustainability Metrics to evaluate and score the environmental sustainability performance of new Block Plans, Plans of Subdivision, and Site Plans, which include metrics related to the protection and enhancement of the urban forest.

### Tableland Tree Assessment Guidelines

The Tableland Tree Assessment Guidelines (TTAG) provide direction for the assessment, management, protection, and replacement of tableland trees, or those trees outside of valleylands and woodlands. It includes direction on the preparation of tree assessments, compensation for tree removal, and the Cash-in-Lieu protocol, wherein developers pay a fee to compensate for the loss of trees during development.

### Landscape Development Guidelines

The Landscape Development Guidelines are a guide for consultants, landowners, and developers for the development of public open space in Brampton. The guidelines include direction on tree planting species, spacing, densities, and soil quality and quantity for the roads, gateways, parks, the natural heritage system, and stormwater management infrastructure in new developments.

## 3.3 Partnerships

### Region of Peel

The Region of Peel is the upper-level tier of municipal governance for the City of Brampton, City of Mississauga, and Town of Caledon. Its primary responsibilities include paramedic services, health programs, long-term care and services for seniors, child care support, garbage collection and recycling, water and water treatment, road maintenance, and housing and shelter. The Region supports the conservation and expansion of Brampton's urban forest through a range of plans and initiatives, such as Peel Region Urban Forest Strategy, Peel Tree Planting Prioritization Tool, Water Smart Peel Fusion Landscaping, regional road projects, and support of SNAPs.

### Toronto and Region Conservation Authority (TRCA)

The TRCA is one of 36 Conservation Authorities in Ontario. It is responsible for the protection, management, and enhancement of three watersheds in Brampton: Etobicoke Creek, West Humber, and Mimico. Some of the TRCA's activities within Brampton that support the city's urban forest include, but are not limited to:

- Valleyland restoration planting
- Partners in Project Green
- Sustainable Neighbourhood Action Plan program
- Community tree planting events
- Corporate tree planting events
- Planting and native gardening workshops

### Credit Valley Conservation (CVC)

CVC is another of the 36 Conservation Authorities in Ontario. It is responsible for the protection, management, and enhancement of the Credit River and Fletcher's Creek watersheds in Brampton. Some of the CVC's activities within Brampton that support the city's urban forest include, but are not limited to:

- Your Green Yard Program
- Greening Corporate Grounds
- CVC Conservation Youth Corps
- Sustainable Neighbourhood Action Plan program
- Valleyland restoration planting
- Planting and native gardening workshops
- Community tree planting events

### Development Industry

Developers plan, design, and construct new communities, and through this process, plant approximately 13,000 trees a year in Brampton. They are vital partners in achieving the one million trees target.

### Brampton Board of Trade

The Brampton Board of Trade is Brampton's largest association of businesses, and includes membership across Peel. It supports initiatives for economic development, advocacy, productivity and growth, and business connections.

## 4.0 CITY FUNDING

### Annual Municipal Capital Budget

Each year, the City approves a Capital Budget that reflects an investment in the future of the Brampton. The three main sources of funding for tree planting are budgets related to urban forestry, valleyland restoration, and road and infrastructure projects.

### Tableland Tree Compensation

The City of Brampton's Tableland Tree Compensation requirements include the ability to provide compensation for the removal of healthy tableland trees via Cash-in-Lieu (CIL). The Tableland Tree CIL protocol provides the City with the opportunity to assist property owners/developers that are unable to meet the City's tree compensation requirements within their properties. The City uses the funds collected through this process to plant compensation trees in a different location.

## 5.0 GAPS

While the City has made good progress in increasing tree planting initiatives, several gaps exist, which include:

- No coordinated planting program for existing neighbourhoods
- No planting requirements for existing neighbourhoods
- No consistent standards for integrating tree planting projects with capital projects (e.g. playground and park renewal, recreational trails, road repaving, City facilities)
- Minimal tree canopy cover over streets and on school grounds
- No residential tree subsidy programs
- Few community planting events
- Absence of tree monitoring strategies

## 6.0 OPPORTUNITIES

There are many opportunities to enhance the number of trees planted in Brampton. Most tree planting occurs through new development, valleyland restoration, and as part of Emerald Ash Borer and 2013 Ice Storm replacement initiatives. By taking a more holistic approach to tree planting, and by creating tailored approaches for existing neighbourhoods and new developments, the City will be able to activate the public and take advantage of underutilized areas to increase the number of trees planted annually.

This document is only intended to outline a strategy for getting new trees in the ground. The upcoming Urban Forest Management Plan (UFMP) will discuss improvements to the City's maintenance and operations related to the urban forest.

### 6.1 Planting Opportunities

A primary direction of the Brampton One Million Trees Program should be integrating tree planting into all capital projects. While tree planting is integrated in capital road projects, there are no consistent tree planting guidelines for park and playground renewals, road repaving, and other capital projects. Incorporating tree planting with scheduled capital projects will be more efficient and cost-effective than conducting standalone planting projects, and quickly fill several gaps in the current planting regime.

Existing neighbourhoods should also be prioritized for tree planting actions. The tree planting prescriptions of the City's *Landscape Development Guidelines* should be applied to existing parks and streets as part of scheduled capital projects in existing neighbourhoods to increase the tree canopy cover and minimize the cost of retrofitting existing infrastructure.

There is also an opportunity to use the Region's Tree Planting Prioritization Tool in conjunction with the City's Nurturing Neighbourhoods Program to identify areas that would gain the most benefits from aggressive tree planting. Furthermore, additional SNAP-style projects could be implemented in neighbourhoods across Brampton to increase both the number of trees planted and climate resilience via green infrastructure.

The areas in Brampton that should be prioritized for tree planting actions in existing neighbourhoods, in order of importance, include parks, streets, schools, places of worship, residential front yards, and industrial property front yards.

Community engagement should be a core part of tree planting in existing communities. To this end, community planting events should be incorporated into the staging of park planting projects to increase public engagement and stewardship. This could be structured so that City staff plant caliper trees in strategic locations first, followed by the public planting whips as infill. The same approach could potentially be used on school grounds.

Ecology and ecosystem functionality as it contributes to both the urban environment and the natural heritage system should also be considered in any planting approach. The use of native species or 'niche-filler' species, which may be hybrids or non-native but still perform a similar ecological function in a given system, should be prioritized. Special attention should be given to flowering tree species, which play an important ecological role and strengthen Brampton's identity as the Flower City.

## 6.2 Partnership Opportunities

City efforts alone will not be sufficient to identify, facilitate, undertake, and support tree planting at so large a scale. Currently, the City is planting an average of 7000 trees annually. City partners, including Conservation Authorities, the Region of Peel, and developers plant a combined total of approximately 36,000 trees annually.

There is currently minimal engagement and/or communication with the public about the importance of the urban forest, and there are few incentives for residents and businesses to plant trees. Greater public education and engagement, along with increased collaboration with corporate, non-governmental organization (NGO), and Conservation Authority partners, should be incorporated into the Brampton One Million Trees Program to ensure its success in the long term.

New partnerships and funding opportunities should be pursued to increase the City's capacity for achieving tree planting targets. Partnerships and sponsorship will provide funding sources, resources, and support for the delivery of programs to facilitate City efforts. Partnerships may include groups that provide subsidized trees or tree planting services for residents, institutions, and/or businesses. Public involvement and stewardship will also increase public support. If residents are educated about and engaged with the urban forest and its health, the Brampton One Million Trees Program is much more likely to be successful.

### Association for Canadian Educational Resources

The Association for Canadian Educational Resources (ACER) provides several programs that would benefit the Brampton One Million Trees Program, such as:

*Citizen Science:* Trains citizen scientists in the ecology of the local environment, weather and climate, tree monitoring protocols, map making and GPS, and data analysis and reporting with a focus on trees. Fully trained citizen scientists receive a diploma and become eligible to work with university researchers. They are also be able to obtain volunteer hours.

*Community Mapping:* Holds workshops for community mapping or asset-based community development, which asks the public to engage with and collect field data in their local community rather than conducting a large-scale study. ACER conducting a pilot program in the Niagara Region focused on the effects of climate change, and includes mapping the loss of trees in the area.

*Planting for Change (P4C):* Helps create a living lab on school grounds for students to gain a better understanding of the impacts of climate change, and includes tree planting and its benefits.

*Riparian Rangers:* Partners with various Conservation Authorities and municipalities to conduct riparian zone restoration planting. ACER has completed projects with both the TRCA and the City of Mississauga.

*Go Global:* Involved community partners in monitoring and reporting changes in one-hectare forest plots representative of regional ecosystems.

### Credit River Anglers' Association

The Credit River Anglers' Association (CRAA) is a non-profit conservation group that works to improve fish habitat and the environment of the Credit River watershed, including planting trees around riparian zones and stormwater management ponds.

### Evergreen

Evergreen is a non-profit environmental organization based in Toronto that strives to bring nature to cities. Their core focus areas are youth engagement and education on and with the natural world, restoration and conservation efforts and education, the promotion of sustainable lifestyles, and the advancement of research for sustainable cities.

### EcoSource

EcoSource is a community engagement charity operating out of Mississauga that champions waste reduction, urban agriculture, sustainability education, nature connection, and youth leadership. They promote community-led sustainability action and provide educational resources to schools and community groups.

### Local Enhancement and Appreciation of Forests

Local Enhancement and Appreciation of Forests (LEAF) is a non-profit organization that focuses on the protection and enhancement of the urban forest. They provide subsidized native tree planting for single- and multi-unit dwellings, schools, and businesses. Their service also includes a property consultation and tree maintenance plan. LEAF is headquartered in Toronto.

### TreeMobile

TreeMobile is a non-profit, volunteer-based organization that supplies climate-appropriate fruit trees and plants at low cost to homeowners. They also provide educational resources on growing your own food and food security, as well as grants for places of worship, schools, and community gardens. They are based in Toronto and Guelph.

### Tree Canada

Tree Canada is a registered charity that works with individuals, groups, and municipalities to plant trees through their Greening Communities program. They also host urban forest conferences and courses through their Canadian Urban Forest Network, provide grants for tree planting, and host National Tree Day programs.

## 6.3 Program Opportunities

Measures that should be considered as part of the Brampton One Million Trees Program include, but are not limited to:

- Incorporation of *Landscape Development Guidelines* in capital projects
- Incentives for residents, including grants, discounted trees, and planting advice
- Incentives for planting on institutional, commercial, and/or industrial lands
- Greening school grounds
- Public education campaigns in partnership with other organization
- Additional community tree planting events
- Urban forest educational tours
- Expansion of SNAP
- Tableland tree restoration
- Establishment of a Tree Month

## 6.4 Funding Opportunities

To reach the target of one million new trees, additional funding is necessary to boost the number of trees planted annually. There are several opportunities to supplement existing municipal funding through external funding opportunities.

### Municipal

Municipal funding for getting trees in the ground could be expanded through two avenues. The first would be to establish a dedicated, annual fund for park retrofitting projects that is separate from the funding already allocated to playground renewal. This fund could be used for tree planting and/or other park renewal initiatives that are part of a larger city greening and/or climate change strategy. The second avenue would involve developing a policy that mandates that 5% of all capital project budgets must allotted to tree planting in order to ensure new trees form part of these projects.

### Private

Private funding for tree planting is currently offered through application to the following sources:

*TD Green Streets (Tree Canada and FEF)*

- A national charity that funds environmental projects across Canada.
- Strives to green cities and towns across the country by supporting innovative practices in municipal forestry.

*Tree Canada Community Grants:*

- A national grant program for community greening, innovation, and stewardship projects.
- Supports local greening projects and the development and implementation of urban forest best management practices.

### Federal Government

Federal funding for tree planting is currently available through application to the following sources:

*The Low Carbon Economy Fund*

- Leveraging investments in projects that will generate clean growth, reduce GHG emissions, and help meet or exceed the Paris Agreement commitments.
- Provinces are individually funded through the Low Carbon Economy Leadership Fund.
- Low Carbon Economy Challenge: Funds not directed to provinces may be granted to municipal projects, including programs for reforestation, enhanced forest management, and utilizing dead wood after forest fires or insect infestations.

*Federation of Canadian Municipalities (FCM) Green Municipal Fund*

- Municipalities may apply for grants through FCM to fund climate change-related projects and environmental initiatives that improve air, water, and soil, and reduce GHG emissions.
- Types of projects include sustainable neighbourhood and brownfield action plans, energy efficiency and recovery, transportation and fuel efficiency, water quality and conservation, waste management and diversion, and brownfield remediation and redevelopment.

*Extreme Temperature: Climate Adaptation Capital Project Grants*

- Grants for capital projects that help municipalities adapt to extreme temperature events.
- Types of eligible projects include managing or revitalizing natural assets, such as urban tree canopy, to support temperate management.

*Climate Adaptation Partners (on hold):*

- Helps municipalities prepare for and adapt to climate change, and reduce emissions of GHG emissions.
- Types of eligible projects include managing or developing natural assets, such as trees, wetlands, and creeks, as well as assessing the impacts of residential water conservation programs.

## 7.0 FIVE YEAR ACTION PLAN

While the City and its partners have tree planting initiatives underway, current efforts will not achieve the one million tree target and the associated environmental, social, and economic goals of the *Brampton 2040 Vision*. The City needs a roadmap to plant approximately 7000 more trees per year to reach and exceed a total of 50,000 new trees annually. This will involve strengthening existing and forming new partnerships, increasing community education and engagement efforts, and developing a robust planting program for existing neighbourhoods.

The four goals of the program are:

1. *Analyse and Identify:* research and plan to ensure the success of the program.
2. *Implement:* Get tree in the ground to enhance increase the size, health, and ecosystem services of Brampton's urban forest.
3. *Educate, Engage, and Empower:* Inform and involve the public and City staff to activate communities and provide stewardship opportunities and investments in Brampton's urban forest.
4. *Monitor and Update:* Monitor and report progress, and regularly refresh the strategies of the Brampton One Million Trees program.

The following action plan provides recommended goals, and their associated strategies and actions for the next five years that will put us on a path to achieve one million new trees in Brampton by 2040.

## Goal 1: Analyse and Identify

Research and plan to ensure the success of the program.

**Strategy 1.0:** Develop a holistic, neighbourhood-based approach to identify tree planting opportunities that incorporates climate change mitigation and adaptation.

| | | | |
|---|---|---|---|
| 1.1 | | Develop a priority list of existing neighbourhoods for targeted tree planting initiatives. | Short Term |
| | 1.1.1 | Use data available from the Region of Peel's Tree Planting Prioritization Tool, City's "Registered Plans by Decade" map, and aerial photos to identify and prioritize neighbourhoods that lack tree canopy cover. | Short Term |
| | 1.1.2 | For neighbourhoods with low tree canopy cover, identify public spaces including parks and streets that fall below the City's planting standard for new development of 120 trees per hectare of park space. | Short Term |
| | 1.1.3 | Leverage the Nurturing Neighbourhoods program and the SNAP program to help identify priority planting zones for parks, streets, capital projects, schools, places of worship, and community planting events. | Short Term |
| 1.2 | | Review and update current tree planting practices to ensure the long-term health and adaptability of trees to climate change. | Short Term |
| | 1.2.1 | Participate in the Region of Peel's Urban Forest Best Practices Resources project, which includes the development of climate change adaptation guidelines. | Short Term |
| | 1.2.2 | Review and update the City's Approved Plant Chart for species viability under a changing climate. | Short Term |

## Goal 2: Implement

Get trees in the ground to enhance the size, health, and ecosystem services of Brampton's urban forest.

**Strategy 2.0:** Increase tree planting and canopy cover and support tree planting initiatives on public parks, roads and other City-owned properties, in existing residential neighbourhoods, and on commercial, industrial, and institutional lands.

| | | | |
|---|---|---|---|
| 2.1 | | Develop a tree planting program for existing parks and open spaces. | Medium Term |
| | 2.1.1 | Transition the Valleyland Naturalization Program into a Naturalization Program that supports the enhancement of tableland tree canopy cover. | Short Term |
| | 2.1.2 | Utilize the potential Naturalization Program to plant trees in parks and open spaces within priority neighbourhoods. | Medium Term |
| | 2.1.3 | Develop requirements for incorporating tree planting within scheduled playground replacement projects and/or neighbourhood park renewal projects. | Short Term |
| | 2.1.4 | Continue to work with Conservation Authorities to facilitate community planting events in parks. | Short Term |
| | 2.1.5 | Develop protocol for tree planting in existing parks wherein City staff plant caliper trees and community members complete infill planting with whips. | Short Term |
| | 2.1.6 | Encourage the use of flowering tree species and fruit trees in public spaces to enhance and promote Brampton's image as the Flower City and facilitate urban agriculture. | Medium Term |
| | 2.1.7 | Explore opportunities to plant double rows of trees along recreational trails. | Medium Term |

| | | | |
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| 2.2 | Improve tree planting standards for capital road projects. | | Short Term |
| | 2.2.1 | Incorporate the Landscape Development Guidelines within scheduled road capital projects such as repaving, widening, and/or road diets. | Short Term |
| | 2.2.2 | Incorporate the Landscape Development Guidelines into the Complete Streets initiative. | Short Term |
| | 2.2.3 | Established requirements for all capital projects for roads and other major transportation infrastructure to include tree planting. | Short Term |
| 2.3 | Develop a planting plan for existing streets. | | Medium Term |
| | 2.3.1 | Identify candidate streets for additional street trees based on identified priority neighbourhoods, tree canopy cover, and available space. | Medium Term |
| | 2.3.2 | Implement the tree planting schedule for existing streets. | Medium Term |
| | 2.3.3 | Work with the Region of Peel to coordinate street tree planting on regional roads within Brampton. | Medium Term |
| 2.4 | Partner with schools to increase tree cover on school grounds. | | Long Term |
| | 2.4.1 | Develop a list of priority schools sites to be planted in consultation with Peel District School Board (PDSB), Dufferin-Peel Catholic District School Board (DPCDSB), and Eco Schools. | Medium Term |
| | 2.4.2 | Work with the Conservation Authorities school boards to facilitate School Tree Planting Days for students to plant trees on their school's property. | Long Term |
| | 2.4.3 | Collaborate with organizations such as LEAF, EcoSource, Evergreen, and ACER to develop and distribute education, awareness, and stewardship material to schools. | Medium Term |
| 2.5 | Partner with places of worship to support tree planting on their properties. | | Medium Term |
| | 2.5.1 | Develop a list of priority places of worship to be planted based on the identified priority neighbourhoods. | Medium Term |
| | 2.5.2 | Collaborate with Conservation Authorities and places of worship to facilitate Tree Planting Days. | Medium Term |
| | 2.5.3 | Continue to work with faith-based organizations to support tree planting efforts. | Medium Term |
| | 2.5.4 | Foster partnerships with new faith-based organizations to support tree planting efforts. | Medium Term |
| 2.6 | Encourage residents to undertake tree planting through incentives for planting on residential property (e.g. subsidized or free trees, planting assistance services, etc.). | | Medium Term |
| | 2.6.1 | Identify sources of funding for subsidized and/or free trees and shrubs and planting services for residential properties. | Medium Term |
| | 2.6.2 | Host "Tree Giveaway Days", where residents can receive free or discounted trees and/or shrubs and other resources to facilitate tree planting and tree care. | Medium Term |
| | 2.6.3 | Continue to promote private property tree planting efforts of partner organizations, such as TRCA's Healthy Yards program and CVC's Green Your Garden program. | Short Term |
| | 2.6.4 | Foster new partnerships with organizations such as LEAF, Tree for Me, and TreeMobile. | Medium Term |

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| | 2.6.5 | Work with home improvement retailers and garden centres willing to sponsor tree planting programs that provide subsidized tree resources to residents. | Medium Term |
| | 2.6.6 | Develop a list of native and appropriate non-native trees that will be adaptable to climate change and suitable for residential yards. | Medium Term |
| | 2.6.7 | Develop a grant program to support community-led tree planting projects. | Medium Term |
| 2.7 | Encourage industrial and commercial property owners to plant trees and cultivate green spaces on their properties. | | Long Term |
| | 2.7.1 | Support the Conservation Authorities' 'Greening Corporate Grounds' and 'Partners in Project Green' programs for tree planting on industrial properties, including greening parking lots. | Short Term |
| | 2.7.2 | Foster new partnerships with organizations, such as LEAF, to facilitate tree planting on commercial and industrial sites. | Long Term |
| | 2.7.3 | Work with Conservation Authorities to source tree species that would be more tolerant of industrial/commercial property conditions and resilient to climate change. | Long Term |
| | 2.7.4 | Create tree planting guidelines for new developments abutting cemeteries that require increased tree planting along property boundaries. | Medium Term |
| 2.8 | Identify and plant areas on City facility grounds (e.g. Corporate buildings, operational facilities, recreation centres, fire emergency service stations, and libraries) to enhance the tree cover. | | Medium Term |
| | 2.8.1 | Identify and prioritize planting opportunities on City facility grounds. | Medium Term |
| | 2.8.2 | Incorporate the Landscape Development Guidelines tree planting standards for new City facilities. | Short Term |
| | 2.8.3 | Establish requirements that all capital projects for the construction of new facilities and/or major additions to existing facilities include tree planting. | Short Term |

## Goal 3: Engage, Educate and Empower

Inform and involve the public and City staff to activate communities and provide stewardship opportunities and investment in Brampton's urban forest.

**Strategy 3.0:** Educate, activate, and engage the public and City staff through expanded education and outreach.

| | | | |
|---|---|---|---|
| 3.1 | Increase the number of participants in tree planting events across the city. | | Medium Term |
| | 3.1.1 | Develop a Brampton One Million Trees Program Awareness and Engagement Strategy. | Short Term |
| | 3.1.2 | Create education and engagement tactics for City staff to increase awareness of and participation in tree planting. | Medium Term |
| | 3.1.3 | Develop awareness and education tactics for the public to promote native tree species and tree care/maintenance requirements. | Short Term |
| | 3.1.4 | Establish communication tactics for the public regarding the environmental, social, and economic benefits of trees. | Medium Term |
| | 3.1.5 | Host an annual Brampton One Million Trees Program city-wide tree planting event. | Medium Term |
| | 3.1.6 | Host Staff Planting Days to plant trees on City facility grounds. | Medium Term |

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| 3.2 | Develop a Brampton One Million Trees recognition program to celebrate community and staff leaders in Brampton. | | Medium Term |
| 3.3 | Establish a Brampton Million Trees Donation Program that accepts donations to support the City's Brampton One Million Trees Program. | | Long Term |
| 3.4 | Develop, maintain, and publish an inventory of tree planting programs in Brampton. | | Short Term |
| | 3.4.1 | Provide a comprehensive app and associated website where the public can record new trees planted, log the loss of trees, request a street tree, and learn about tree species, tree care, tree planting events, and other tree-related resources. | Medium Term |
| 3.5 | Continue to develop lesson plans on the importance of trees for teachers of Grades 1-12. | | Short Term |
| 3.6 | Designate the month of September as "Tree Month" to coincide with National Forest Week and National Tree Day. | | Short Term |
| 3.7 | Establish a Green City Working Group that will be a collaborative, interdepartmental team that coordinates and facilitates city greening projects that support the Brampton One Million Trees Program and Brampton Eco Park Strategy. | | Short Term |

## Goal 4: Monitor and Update

Monitor and report progress, and regularly refresh the strategies of the Brampton One Million Trees Program.

**Strategy 4.0:** Set baselines and targets for the next 20 years to inform and drive the success of the Brampton One Million Trees Program.

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|---|---|---|---|
| 4.1 | Establish a Brampton One Million Trees database to document the quantity, location, and date of all new trees planted in Brampton | | Medium Term |
| | 4.1.2 | Develop a protocol for documenting the number of new trees being planted in Brampton, including but not limited to new developments, capital projects, and planting events. | Medium Term |
| 4.2 | Develop a webpage to track and promote tree planting. | | Medium Term |
| 4.3 | Formally establish a minimum target of 50,000 new trees to be planted in Brampton annually. | | Short Term |
| 4.4 | Provide annual tree planting updates to Council and the community. | | Short Term |
| 4.5 | Update the Brampton One Million Trees Program every five years. | | Long Term |

## 8.0 CONCLUSION

A question on the Nurturing Neighbourhoods program neighbourhood audit survey asks residents what changes they would like to see in their neighbourhood. One of the most common answers is the need for more trees.

The City of Brampton has made an excellent start in increasing the number of trees planted per year through policies, programs, and partnerships, but there is still much that needs to be done to meet the target of one million new trees by 2040.

The growth of the urban forest will improve public and environmental health while bolstering climate change mitigation and adaptation. Furthermore, a strong urban forest beautifies a city, and has the potential to attract new talent and jobs through place-making and increased livability.

The Brampton One Million Trees Program is just one component of a multi-faceted approach to strengthen the city's urban forest. It should be implemented as part of the Urban Forest Management Strategy and a larger climate change strategy, and be regularly updated. By doing so, the City will put action toward its declared climate emergency and fulfill some of the targets identified in the *Brampton Grow Green: Environmental Master Plan*.

Increasingly, residents of Brampton and Canada overall are recognizing our contribution to and the threats of climate change, but the sheer scale of the problem can make people feel overwhelmed and unsure of what they can do. Tree planting is a simple and effective way to engage communities, build partnerships, and create an adaptable city that is both sustainable and beautiful. The Brampton One Million Trees Program will provide a way for not only the City to fight climate change, but also a tangible way for residents, businesses, institutions, and organizations to participate in and contribute to tackling one of the biggest challenge the world is facing.

# APPENDICES

## APPENDIX A: ECONOMIC IMPACTS OF TREES

Though the economic benefits of trees are not as immediately apparent or directly inferred as their environmental and social benefits, the positive economic impacts that come from a robust urban forest further strengthen the argument for an expanded tree planting program and outweigh the initial costs. At a broad scale, trees can boost energy savings, real estate values, and consumer spending. According to the UN Urban Forestry Office, trees can reduce urban temperatures by 2 °C to 8 °C. When strategically planted near buildings, they can reduce heating energy use by 20-50% and air-conditioning costs by up to 30%. Trees can also increase property values by up to 20%. Furthermore, the City of Kelowna reported that consumers were willing to spend up to 12% more in retail districts with attractive urban forests.

Research has also uncovered direct links to urban forests and their impacts on public health. Trees absorb carbon dioxide and filter fine particulate pollutants, thereby decreasing the incidence of respiratory and circulatory disease in areas with more urban forest. A study published in *The Lancet* showed that trees reduced health inequality through reduction in mortality rates among income-deprived groups that had access to green areas with urban forests. Furthermore, other research has also shown that trees improve mental health by lowering cortisol levels and stress, and also contribute to reduced healing times. By reducing the incidence of disease, tree planting could greatly reduce public health spending and improve overall quality of life.

In terms of direct ecosystem services values, one large tree can absorb 150 kilograms of carbon dioxide over the course of a year, and intercept 15,000 litres of stormwater, which reduces the burden on public health and infrastructure systems. The benefits of the urban forest also outweigh their maintenance costs. Forests Ontario published a study that showed that for every $1 invested in urban forest management, there was an up to $3 return on investment depending on land type before factoring in the economic benefits of enhanced ecosystem services.
"An Assessment of Urban Tree Canopy Cover in Peel Region 2015" found that the urban tree canopy in Brampton is estimated to offer annual ecosystem services of approximately $9,500,000 for removing 362 metric tonnes of air pollutants per annum and sequestering another 43, 107 metric tonnes of carbon dioxide per year.

In 2014, TD Economics conducted a study on the specific economic impacts of Toronto's urban forest. With 10 million trees and 30% canopy coverage, the study estimated the total value of the urban forest to be $7 billion, or $700 per tree. It revealed that Toronto's urban forest provides residents with $81.29 million worth of environmental benefits and cost savings annually. This was broken down into energy saved through shade and climate moderation ($6.42 million), carbon emissions from fossil fuel power generation avoided through climate moderation ($0.58 million), air pollutants absorbed and removed by street trees ($19.09 million), reduced strain on water transportation and processing infrastructure from rain and wet-weather flow intercepted ($53.95 million), and carbon sequestered from the atmosphere and emissions avoided through energy savings ($1.24 million). Given its similarity in land and climate conditions, Brampton could see similar scaled benefits from planting one million trees.

# APPENDIX B: SNAPSHOT OF SUPPORTING DOCUMENTS AND THEIR POLICIES AND ACTIONS

### Living the Mosaic: Brampton 2040 Vision (City of Brampton, 2018)

*Vision 1: Sustainability and the Environment*

In 2040, Brampton will be a mosaic of sustainable urban places, sitting within an interconnected green park network, with its people as environmental stewards – targeting 'one-planet' living.

- Action #1-3 Brampton Trees Project: Plant one million trees in the public and semi-public realm of Brampton, particularly along streets and roads and in parking lots, to enhance the green canopy.

### City of Brampton Official Plan, 2006 (September 2015 Office Consolidation)

Outlined below are objectives and policies that support the Brampton One Million Trees Program:

*Chapter 3: Sustainable City Concept*

This chapter provides guidance for the principles and benefits of sustainable development, and recommends the integration of the Sustainable Cities principles with planning and development decisions.

*Section 4.6: Natural Heritage and Environmental Management*

- Objective (i): Recognize the environmental/ecosystem benefits, habitat function, microclimates, urban design and general aesthetics that the City's woodland and urban forest provides and in this regard maximize the protection, retention, restoration, enhancement and linkages between existing woodlands, trees, hedgerows to other natural heritage and other vegetative features such as valleys, watercourses, wetlands etc. within the City.
- 4.6.8 Woodlands and the Urban Forest
    - 4.6.8.9: The City shall work jointly with area municipalities and the Conservation Authorities to undertake urban forest studies and to develop strategies that will support programs and initiatives to maintain and enhance the urban forest canopy.
    - 4.6.8.10: To generate appreciation, protection and enhancement of the woodland and urban forest communities, the City shall encourage public education and involvement.
    - 4.6.8.11 The City may consider and implement planting programs of desired and compatible species on public lands or private lands in conjunction with landowners.
    - 4.6.8.12 The City shall encourage other public and private bodies and agencies to pursue the preservation and enhancement of the City's woodland and urban forest communities on private lands.

### Brampton Grow Green: Environmental Master Plan (City of Brampton, 2014)

Outlined below are actions that support the Brampton One Million Trees Program:

- L 11: Develop Official Plan policies for new development to require mitigation and compensation for the loss of tableland vegetation to facilitate development.
    - L 11.1: Update Landscape Standards and guidelines to increase tree planting requirements for new residential, commercial, industrial, and institutional sites.
    - L 11.2: Update Landscape Standards to increase tree planting requirements for City and Regional road projects.
    - L 11.3: Update Landscape Standards to increase soil quantity and quality for park and boulevard tree planting.
- L 12: Implement the recommendations of the Brampton Urban Forest Study.
    - L 12.1: Review and update the Brampton Urban Forest Study every 10 years, including the urban forest canopy assessment and recommendations for urban forest improvements.

    - L 12.2: Develop a range of tree canopy cover targets for the city.
    - L 12.3: Develop a Priority Planting Tool to assist municipal staff and community partners to identify planting sites to maximize urban forest benefits across the city.
    - L 12.4: Develop an Urban Forest Management Strategy.
    - L 12.5: Establish a baseline and monitoring protocol for the total number of trees planted on City-owned land per year.
    - L 12.6: Establish a baseline and monitoring protocol for the total number of trees planted citywide per year.
    - L 12.7: Undertake and maintain an inventory of all street and park trees.
- L 13: Implement the Emerald Ash Borer Management Program through annual funding and staff resources, and undertaking community plantings in parks and open spaces, etc.
- L 14: Implement the Peel Urban Forest Strategy and support the Peel Urban Forest Working Group.
- L 15: Support the Conservation Authorities' 'Greening Corporate Grounds' and 'Partners in Project Green' programs.
    - L 15.1: Work with Conservation Authorities to partner with community associations, ICI sectors and School Boards to plant trees on their properties, including greening parking lots.
- L 16: Work with Conservation Authorities to establish a residential Tree Planting Program in Brampton.
    - L 16.1: Develop an annual private tree planting program that includes discounted trees and planting advice for homeowners.
    - L 16.2: Develop a communication strategy to educate residents on the benefits of Brampton's urban forest and how they can assist in maintaining its health.

### Natural Heritage Environmental Management Strategy (City of Brampton, 2016)

Outlined below are specific objectives and actions that support the Brampton One Million Trees Program:

Objective 2.2: Actively restore natural features, functions and linkages in the natural heritage and open space systems, green infrastructure and urban forest.

- Action 2.2.2: Refine the City's Valleyland Naturalization Program to focus plantings to restore, enhance and improve the ecological diversity and health of vegetation communities, wetlands and wildlife habitat, and support invasive species management.
- Action 2.2.3: Establish criteria to eliminate mowing in areas of the NHS, open space systems and green infrastructure, as appropriate, and restore those areas with suitable native tree, shrub and/or groundcover.

Objective 2.3: Develop and implement an Urban Forest Management Strategy.

- Action 2.3.1: Implement the Peel Urban Forest Strategy and support the Peel Urban Forest Working Group.
- Action 2.3.2: Develop an Urban Forest Management Plan drawing on the study results and recommendations of the recently completed Brampton Urban Forest Study (2011).
- Action 2.3.3: Develop a Priority Planting Tool to assist municipal staff and community partners to identify planting sites to maximize urban forest benefits across the city.
- Action 2.3.4: Develop and implement a strategic plan to address the Emerald Ash Borer infestation, including priority removal of hazard trees, removal of other trees and the replacement of removed trees.
- Action 2.3.5: Update the Landscape Standards and Guidelines to increase tree planting for new residential, commercial, industrial and institutional sites based on urban forest potential tree cover and species diversity targets.
- Action 2.3.6: Update the Landscape Standards to increase tree planting requirements for City and regional arterial road projects.
- Action 2.3.7: Update the Landscape Standards to increase soil quantity and quality for park and boulevard tree planting.
- Action 2.3.8: Work with CAs to target actions intended to improve forest cover as recommended by the Watershed Report Card.

Objective 2.4: Implement actions that enhance the supporting role of green infrastructure to the NHS and urban forest.

- Action 2.4.1: Develop a Green Infrastructure Management Plan.

- Action 2.4.2: Identify, prioritize and implement actions within areas of existing green infrastructure that have the capacity to improve ecological linkage and/or buffering of the NHS through active restoration and management.
- Action 2.4.3: Establish targets for the implementation of LID measures in new development, such as green roofs, permeable pavement, bioretention swales, rainwater harvesting, etc. to increase onsite groundwater infiltration, evapotranspiration and retention of stormwater.
- Action 2.4.4: Partner with Conservation Authorities to implement a LID Strategy and encourage the adoption of LID measures in all new developments (e.g. greenfield, intensification, infill) and explore opportunities to retrofit LID measures in established neighbourhoods.
- Action 2.4.5: Implement LID boulevard pilot projects in conjunction with the City's Road Repaving Program.
- Action 2.4.6: Expand the SNAP program, particularly for those communities that can benefit most, such as communities identified through Action 2.3.3 as having potential for enhancement of tree canopy cover and Action 2.4.3 having potential for LID retrofit.
- Action 2.4.8: Undertake pilot projects in City boulevards and right-of-ways, parks and open spaces to demonstrate the benefits of naturalized landscapes.

**Sustainable Community Development Guidelines (City of Brampton, 2013)**

*Secondary Plan*

- SG60: Implement street tree and naturalization programs to increase urban canopy cover.
- SG61: Preserve and expand existing tree cover to connect and buffer protected woodlands and other natural areas and to mitigate heat island impacts.

*Block Plan*

- SG206: Encourage private land plantings both through the Block Plan approval process and in collaboration with community groups, in recognition of the importance of tree canopy and strategic planting needs in new development.
- SG208: Provide street trees on both sides of the road in the public right-of-way.
- SG209: In order to reduce heat island effect and enhance pedestrian comfort and safety, plant species of street trees that provide a large canopy and shade over sidewalks.
- SG210: Encourage a diversity of tree species along each road, native to the City and Region, non-invasive, drought and salt tolerant, and low maintenance.
- SG211: Design parking lots to incorporate planting to increase tree cover and shading and to reduce heat island impact.

*Draft Plan of Subdivision and Site Plan*

- SG395: Implement street tree and naturalization programs to increase urban green cover, recognizing the importance of tree canopy and strategic planting in new developments.
- SG396: Provide appropriate planting materials to address summer and winter conditions, and canopy closure on local roads to encourage heat island reduction.
- SG397: Street trees must be of a species that would provide a large canopy and shade over sidewalks. Street trees should provide shade over at least 40% of the length of the sidewalk or road to reduce heat island effect and enhance pedestrian comfort and safety.
- SG398: Provide street trees on both sides of the road in the public right-of-way. Plant at least 1 street tree for each residential dwelling unit (excluding multiple dwellings that are subject to site plan approval), or at an interval of 12.0 to 18.0 metres, and at least 2 street trees for each flankage lot where practical based on factors such as utility requirements, driveway and street furniture locations and the type of species. Where it is not possible to provide the target number of trees as set out above, an equivalent number of trees must be provided in other locations within the Draft Plan/Site Plan.
- SG400: A double rows of trees may be used in key areas, such as adjacent to parks and where a wider boulevard exists.
- SG401: Encourage the delivery of alternative planting strategies along high-pedestrian areas such as Silva-cells, sufficient soil medium, continuous planting trenches, etc. to sustain long-term growth and healthier tree life.

### Landscape Development Guidelines (City of Brampton, 2019)

| | Snapshot of Tree Planting Density Requirements for New Development |
|---|---|
| **Boulevards** | 8.0 - 10.0 m spacing |
| **Parks** | 120 trees per hectare (50 trees per acre) |
| **Valley Buffers** | # trees = square area of buffer divided by 36.0 sq. m. |
| **Woodland Buffers** | 1000 stems per hectare (includes whips, caliper trees, and does not include shrubs, flowers, and grasses) |
| **SWM Ponds** | # trees = square area of dry pond divided by 36.0 sq. m. |

### Woodland Management Plan (City of Brampton, 2018)

Outlined below are woodland management guidelines that support the Brampton One Million Trees Program:

*5. Edge and buffer re-establishment*

- Will be required where an existing edge is disturbed by grade changes or damage during development, or where additional edge cover is recommended to protect sensitive interior areas from post-development conditions.
- Based on the Woodland Management Plan, all tree, shrub and ground cover species must reflect the native species present in the adjoining woodland.
- Suggested densities and spacing:
    - 2200 shrubs per hectare (50-100 centimeters, 1.5 meters O.C.)
    - 480 trees per hectare (200 centimeters, 2.5 meters O.C.)
    - 80 trees per hectare (caliper 45 millimeters, 3.5 meters O.C.)
    - 440 trees per hectare (2-3 year seedlings or 30-50 centimeters, 1.5 meters O.C.)

*6. Restoration Planting*

- Restoration planting will be required where forest cover is to be restored over large areas. For example, areas that are or will be in the near future experiencing significant mortality due to development or biological factors (disease, bug infestation etc.).
- Suggested densities and spacing:
    - Year 1
        - 80% successional trees (890 per hectare, 3 meters O.C.)
        - 20% shrubs (890 per hectare, 1.5 meters O.C.)
    - Year 3
        - Thin successional trees by 40%
        - Plant shade tolerant trees 495 per hectare (2-3 year seedlings 30-50 centimeters, 5 meters O.C.)
    - Year 5-10
        - Thin successional trees by additional 10%
        - Additional shade tolerant trees and shrubs as required (2-3 year seedlings or 30-50 centimeters)

*8. Wildlife Habitat Enhancement*

- Preserve large standing dead or decaying trees that do not present a hazard to pedestrians.
- Edge planting will consist, when possible, of native shrub and tree species.
- Planting nodes of native coniferous species along woodland edges is desirable.