



Hamilton Tree Equity Project Summary Report

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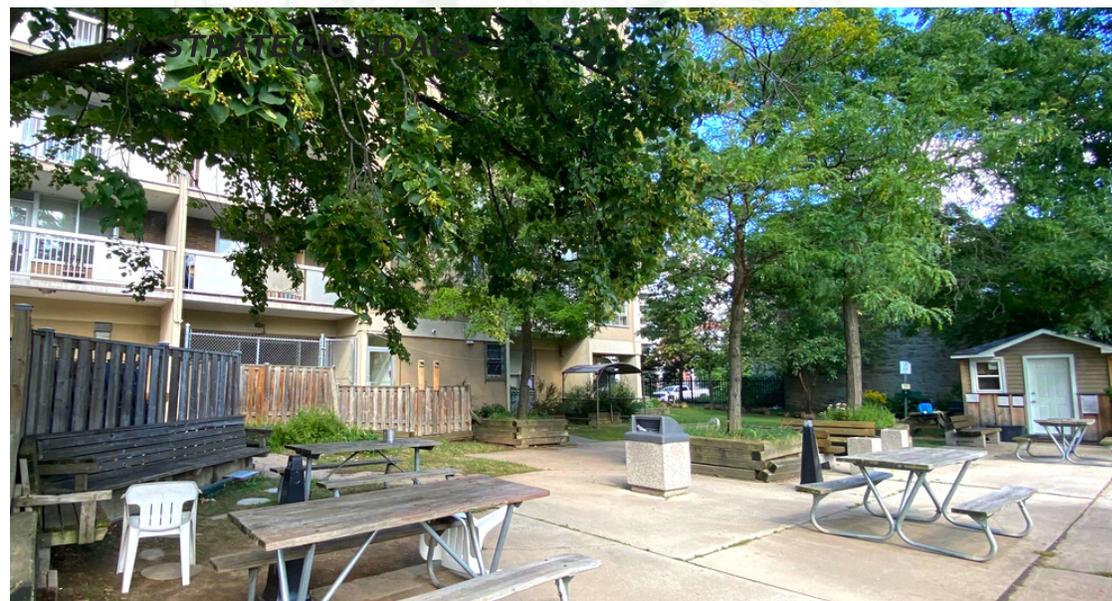
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INTRODUCTION

Why are Urban Forests Important?

Urban forests in our cities have tremendous ecological, psychological, social and economic benefits. Urban forests support biodiversity, reduce greenhouse gasses and air pollution, decrease the impact of climate change, reduce stormwater runoff and water pollution, and improve our mental and physical health.

Tree Equity

Trees are important to the natural environment but also vital to our physical and mental health, influencing how we work, live, and play in our communities. Unfortunately, canopy cover is rarely distributed equally in urban areas. Previous research has shown that trees are abundant in higher-income neighbourhoods and sparse in lower-income neighbourhoods. This trend still holds regardless of population density. This is tree inequality; trees and their local benefits are necessary for everyone, but not everyone has the same access to these benefits.

Hamilton Tree Equity Project

The Hamilton Tree Equity project aims to improve the urban tree canopy in Hamilton, especially in areas of the city where canopy cover is low. The purpose of this project is to provide CityHousing Hamilton (CHH) properties and the City of Hamilton Forestry staff with an accurate representation of the current tree health conditions and type of tree species found on CHH properties, support strategic planting, and develop a framework to increase community involvement in tree planting and stewardship and increase awareness of urban forest benefits.

What is an urban forest?

The term 'urban forest' refers to all the trees within a particular urban area. It includes trees in urban parks, street trees, landscaped boulevards, backyard gardens, urban river valleys, natural areas, and trees planted for food or other products.





Vision:

Our project is a collaborative community-based research study involving 5 key research partners. The project aims to achieve community health improvements via enhanced and optimized tree planting and by engaging communities in the planting and stewardship of trees on CHH properties.

Strategic Goals:



1 Establish a Steering Committee - A steering committee has been formed to guide the project including representation from CityHousing Hamilton, City of Hamilton Forestry Section, University of Toronto John H. Daniels Faculty of Architecture, Landscape, and Design, Green Venture Staff, Trees for Hamilton director, and other relevant community partners e.g., Sustainability Office at McMaster, and McMaster Institute for Healthier Environments.



2 Identify Properties for Inventory and Plantings - By focusing this research on CHH properties and areas of high need and low urban forest canopy cover, we hope to make a difference in the lives of residents and enhance residents' social, physical, and mental health and well-being.



3 Improve Monitoring and Increase Canopy Cover - The research supports the City of Hamilton Forestry Section's plans to update and improve tree inventory data and will support CHH to meet their strategic goals and empower engagement and participation and support healthy lifestyles and inclusivity and equity.



4 Increase Engagement with Tenants - We are connecting with community champions at each selected property to help facilitate community engagement including via workshops and resident interviews.



5 Promote Tree Stewardship and Build a Tree Care Team - We will work to build a Tree Care Team at each property to ensure proper care and maintenance of trees. Tree Care Teams will provide input on a framework for shade tree planting and ongoing stewardship on CHH properties.



METHODOLOGY

Selected CityHousing Hamilton Properties

Projection: WGS 84/ Pseudo - Mercator
Map Produced by Green Venture



- 1 Defining Priority Study Area and Selecting Number of CityHousing Properties**
 - A survey was sent to CHH Property Managers in May 2021 to help identify priority sites for this research.
 - 20 CHH properties were selected for the summer 2021 tree inventory (July to September), which consisted of a mix of high-rise buildings, townhomes, and low-density buildings.

- 2 Complete Tree Inventory Data Collection**
 - The site locations chosen were put into a database (ArcGIS Field Map) using the Neighbourhoods © Tree Inventory protocol developed by Dr. W.A. Kenney and Dr. D. Puric-Mladenovic. All trees on each site were inventoried and information was collected on tree location and growing site characteristics, tree species, tree size, and tree condition (health and structure).

- 3 GIS and Mapping**
 - To visualize trees on CHH properties, QGIS 3.14 was used to create maps. The purpose of this was to geographically reference the data points found during the summer 2021 tree inventory.

- 4 Conduct Community Engagement Surveys and Workshops**
 - To engage with the community and understand residents' opinions on the value of trees and perceptions of tree planting, surveys and informal interviews were conducted over the course of this project.

- 5 Choose 3-5 Pilot Locations for Tree Planting Events**
 - Pilot CHH locations for priority tree planting are based on tree inventory analysis and resident and partner feedback.



RESULTS



Summer 2021 Tree Inventory

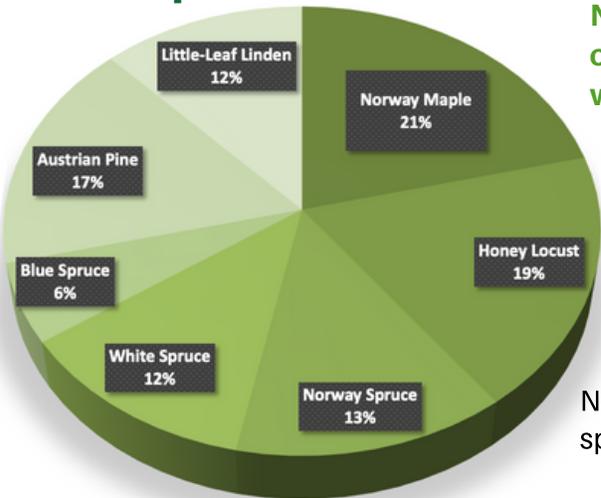
- ➔ A total of 951 trees were inventoried across 20 CHH properties.
- ➔ Sites ranged from having 0 to 206 trees inventoried on their properties.
- ➔ The property characteristics, including the size of the property, proximity to other buildings, and adjacent green space, impacted the characteristics of the canopy coverage or lack thereof.

Tree Height and Diameter at Breast Height (DBH)

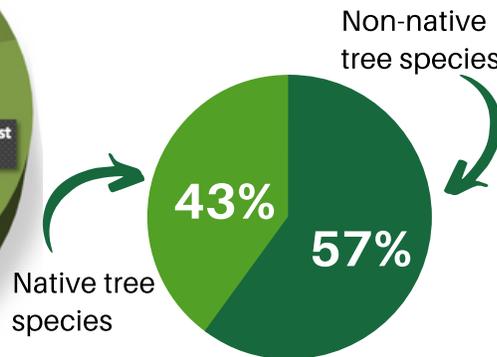
Tree height and DBH can help determine how much light can make it to the ground underneath, the volume, biomass, and carbon storage of trees. The majority of trees surveyed had heights which ranged from 8.1 to 12 meters (n=398) and tree DBH, which ranged from 27.1 to 36 cm (n=299).

Most of the trees were likely planted at the time of building construction, with not many mature trees maintained from pre-construction and few planted since. As such, maintenance of existing trees, should be a priority in the next several years to help retain mature trees on the properties. Likewise, new plantings should be prioritized to ensure new trees are established to replace canopy cover lost from aging trees.

Tree Species



Norway maple was the most common species across the sites with 147 trees found

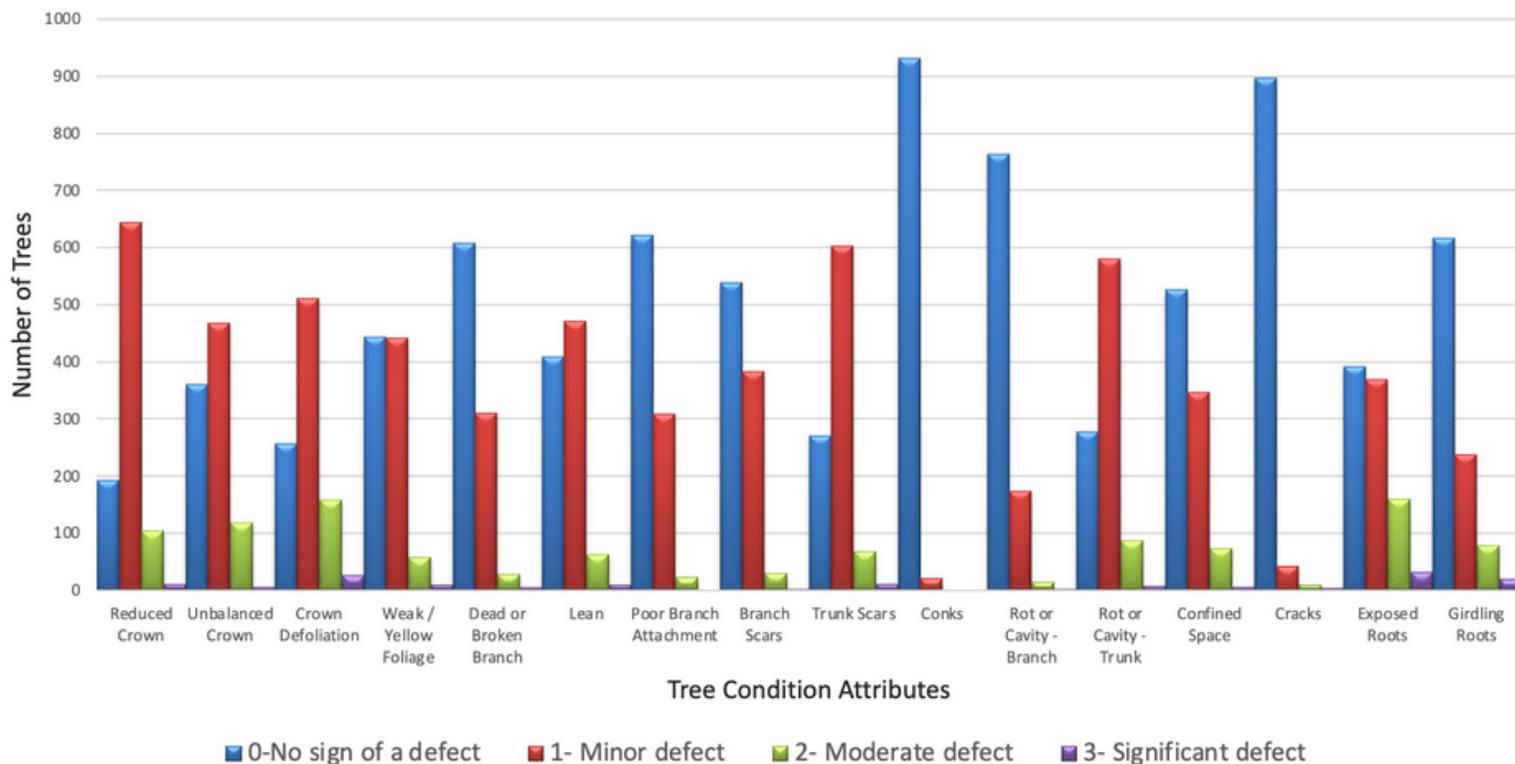




Tree Conditions

- ➔ A total of 16 tree condition attributes were examined during the summer 2021 tree inventory, which focused on the crown, trunk, and roots of the tree.
- ➔ Each attribute is ranked from 0-3 (0-No Sign of Defect; 1- Minor Defect; 2- Moderate Defect; and 3- Significant Defect). Only the conk attribute is ranked by 0 (no conk is found) or 1 (conk is found).
- ➔ Exposed roots were recorded in the highest number of trees with moderate (n=159) and significant defects (n=32).

Ranks of Tree Condition by Attributes

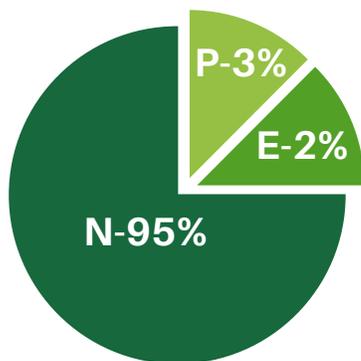




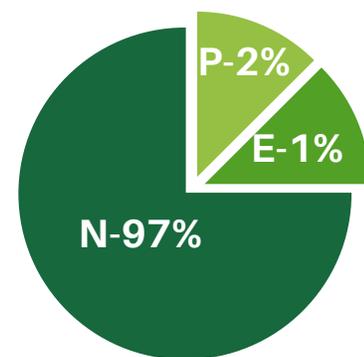
Tree Conflicts

- ➔ Trees can experience a series of conflicts as they grow and require more space. Common conflicts trees experience are with overhead wires, sidewalks, structures, other trees, and traffic signs.
- ➔ Trees on CHH properties were assessed to one of three classes of conflict: E-existing conflict; P-potential conflict; and N-no conflict.
- ➔ Inventoried trees exhibited more conflicts with other trees, sidewalks, and structures. Primarily, conflict with another tree was found to occur at a high percentage (n=39%).

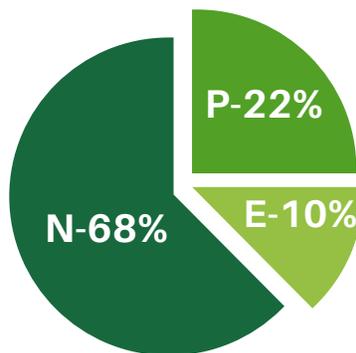
Conflict with overhead wires



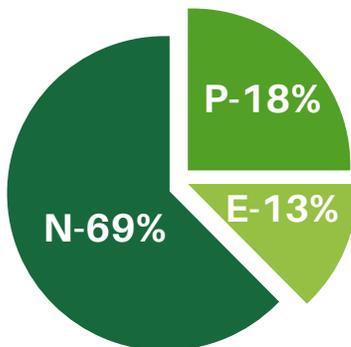
Conflict with a traffic sign



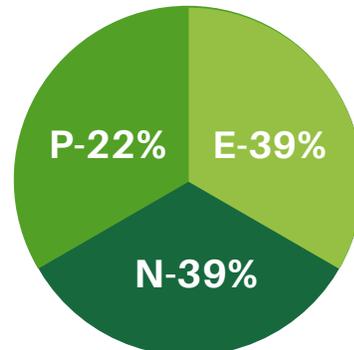
Conflict with structure



Conflict with sidewalk



Conflict with another tree

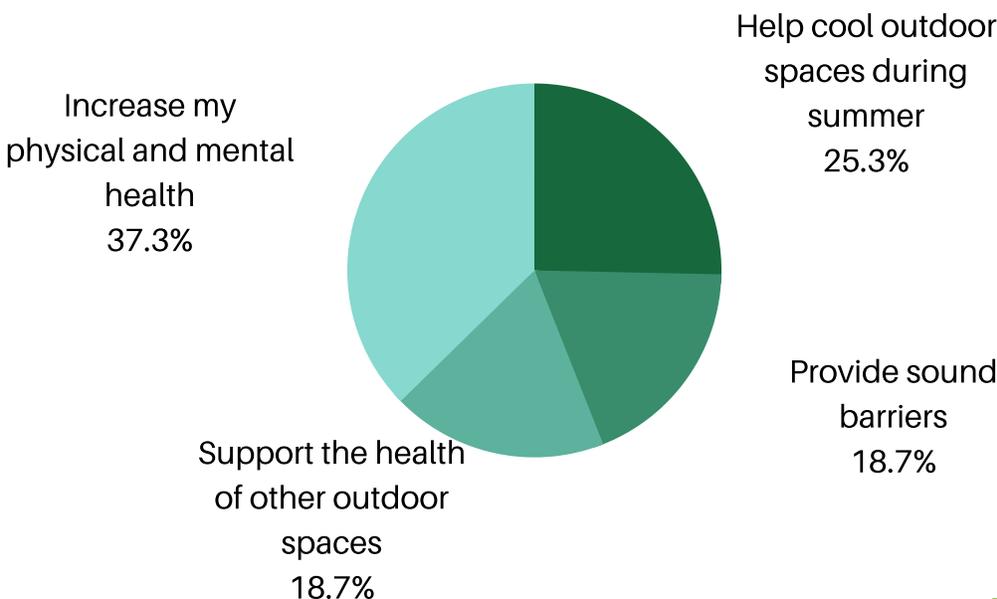




CHH Tenant Fall 2021 Survey

- ➔ From November 15, 2021, to December 7, 2021, a CHH Tenant Survey was conducted to understand current tenants' perspectives on trees, shade, access to greenspace, and other concerns with the help of McMaster Sustainability course students.
- ➔ A total of 27 tenants completed the survey, which included 1 to 2 tenants from 15 of the 20 CHH properties inventoried and 1 to 2 tenants from 5 other CHH properties not inventoried.
- ➔ Tenants felt it was important to have access to trees either on their home property or around their neighbourhood.
- ➔ Tenants believed that having access to natural green spaces, having clean air, and comfortable temperatures were necessary for a healthy and safe home (n=12%).

CHH tenants state that trees help...



Top Answers Regarding the Conditions of Trees on their CHH Property:

1. Trees are not regularly pruned/trimmed.
2. Trees are not watered regularly.
3. Trees are not planted properly.
4. Trees have pests and diseases.
5. Trees are not maintained (i.e., weed whacker damage, stakes/wires left behind).
6. Dying or dead trees left on properties.
7. Fallen trees/branches causing property damage and safety concerns.
8. Fallen leaves/needles/cones that go into homes.
9. Trees reduce visibility causing safety concerns



RECOMMENDATIONS

Summary of Recommendations:

1 Tree Inventory: Annual Neighbourhoods[®] Inventories

By using the Neighbourhoods[®] protocol, CHH can enlist residents, volunteers, and community groups to collect detailed information and assess current tree conditions, which can provide them with information to develop a plan for managing trees at CHH properties. We recommend that CHH complete a tree inventory at 5-10 sites each year and work towards all properties being assessed.

2 Priority Planting Locations for Spring/Fall 2022

We recommend that priority plantings are conducted annually using diverse and native species selected. Five pilot priority tree planting sites were selected for the spring/fall 2022 based on the results from the tree inventory, site visits, and surveys conducted by Green Venture staff. CHH tenant interest and engagement, and property manager and tenant requests for tree planting were also factored into site selection.

3 Tree Care and Maintenance: Stewardship Tree Care Team

We recommend that CHH continue to support the development of resident Tree Care teams at CHH properties. Developing a Tree Care Team can provide many benefits to a CHH property such as engaging tenants in monitoring and providing ongoing care for trees, building a sense of community among the tenants, enhancing partnerships, and networking for urban forest improvements.

4 Community Engagement: Canopy for Community

We recommend that CHH continues to identify and establish strategies to increase tenant engagement and participation in tree-related programs. It is important to increase communication between City Staff, Not-For-Profit Organizations, CHH property managers and CHH tenants on their roles and responsibilities to support tree care and management.



CONCLUSIONS

Tree Equity Project Takeaways...

Urban forests provide a wide array of environmental, economic, and social benefits. However, not everyone can benefit equally from trees as certain communities or neighbourhoods may have fewer trees. CityHousing Hamilton properties experience this tree inequality with some locations having little to no trees found around the property. The Hamilton Tree Equity Project aims to reduce tree inequality across Hamilton by supporting CityHousing Hamilton to measure and assess the condition of their urban forest and tree health on their properties.

The study found that tree species diversity is low and that many trees on CHH properties are experiencing health issues such as pests and diseases, crown defoliation, conflicts that limit canopy or root growth, and rot and cavities found on the trunks and branches.

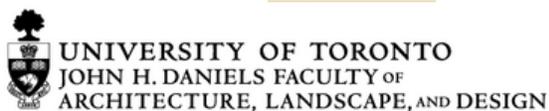
To support a healthier urban forest for the people and the environment at the CHH properties, we recommend conducting annual tree inventories, implementing priority tree planting plans, developing tree care and maintenance teams, and supporting a community tree engagement strategy.

Acknowledgments:

Green Venture would like to acknowledge the support of the Hamilton Tree Equity Project Research Committee for reviewing and providing feedback on the project. Committee members included: Myles Sergeant from Trees for Hamilton, Kate Mannen and Brenda Silverthorne from CityHousing Hamilton, Jeffrey McMann from the City of Hamilton Forestry Section, Danijela Puric-Mladenovic from the University of Toronto, Fran Scott and Abbie Little from McMaster University.

Special thanks to the volunteers who assisted with the inventory at CHH sites over the summer of 2021.

Partners:



Funders:

