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Item No. 13.1.1
Environment and Sustainability Standing Committee
March 6, 2025

TO: Chair and Members of Environment and Sustainability Standing Committee

FROM: Brad Anguish, Commissioner of Operations

DATE: February 28, 2025

SUBJECT: Urban Forest Management Plan - Update

ORIGIN

On September 25, 2012, the Urban Forest Master Plan (UFMP) was approved in principle by Regional Council. This report aligns with the plan's commitment to review and update the UFMP after ten years of implementation.

EXECUTIVE SUMMARY

The project to update the Urban Forest Master Plan (known hereafter as the Urban Forest Management Plan) began in 2023. Diamond Head Consulting was engaged to lead the update. The plan update has included reviewing the current plan, analyzing existing data, completing a jurisdictional scan, engaging community members and key stakeholders, and ultimately producing an updated plan that will serve to guide the management of Halifax Regional Municipality's Urban Forest.

The updated UFMP (Attachment 1) was developed under a Strategic Framework with the following key components:

- Vision: shapes the objectives and strategies, ensuring the UFMP is focused and impactful.
- Three Big Ideas: refine the vision and provide more structure to the objectives and strategies.
- Five Core Objectives: guide the overall direction of the UFMP.

Each Core Objective has been further defined by Strategies and Actions, and the Plan further lays out Criteria and Indicators for measuring implementation success.

The update to the UFMP is a continuation and update of the previous UFMP which has driven decision making for the last 10 years. The new UFMP recognizes the value of the previous plan, lessons learned from its implementation, new challenges faced by the urban forest in a period of rapid development and changing climate, and under a new lense of equity and inclusion.

RECOMMENDATIONS ON PAGE 2

RECOMMENDATIONS

That Environment and Sustainability Standing Committee recommend that Halifax Regional Council:

1. Revoke the Urban Forest Master Plan (2013) and support the principles contained in the new Urban Forest Management Plan as set out in Attachment 1 of this staff report;

2. Direct the Chief Administrative Officer to carry out the actions contained in the Urban Forest Management Plan as part of the multi-year budgeting and business process.

BACKGROUND

The 2013 version of the UFMP was drafted to inform the management of Halifax Regional Municipality's urban forest between 2013 and 2023. That period has passed, and an updated plan is needed. The new UFMP maps a coordinated path forward for the sustainable management of HRM's urban forest over the next 25 years.

The UFMP update was initiated to satisfy two overarching goals:

1. Update and enhance the 2013 plan, which was always intended to be a ten-year document.
2. Respond to the evolving challenges and pressures facing HRM's urban forest management program.

The original Urban Forest Master Plan was a pivotal document upon its adoption, laying the framework for management of the urban forest in HRM. This award-winning plan quickly became a benchmark in the industry, referenced in the creation of Urban Forest Management Plans for cities across the country. HRM's Urban Forest Master Plan laid out 32 actions, which included creation of our ambitious tree planting program, a proactive cyclical pruning program to improve tree health and resilience in storms, it established a relationship with Dalhousie University supporting research and monitoring, the creation of an Asset Inventory as well as the publishing of the Tree Chapter of the Municipal Design Guidelines a pivotal moment in the recognition of trees in the built environment. After 10 years of implementation, however, the municipality has changed significantly; rapid development has brought new challenges to the urban forest, climate change continues to challenge our urban forest, and in order to ensure the plan remains as effective as it did in its first ten years, the process of updating began.

DISCUSSION

The UFMP is a strategy for managing the region's trees and forests to 2050 and beyond. Halifax has over 57 million trees, including 80 thousand street trees in the urban core, that provide important benefits like shade, habitat, and clean water provision; storm water attenuation; and the beautification of our urban environment among countless others. However, several challenges threaten the region's forests, including urban development and climate change, the latter of which increases the likelihood and severity of extreme events such as Hurricane Fiona (2022) and the Tantallon wildfire (2023). The accompanying plan guides how the Municipality can protect and enhance the urban forest to increase both forest and community resilience.

The UFMP presents a detailed assessment of current urban forest conditions with a specific focus on:

- Climate resilience and vulnerability
- Alignment with other municipal strategic documents and initiatives
- Ecological enhancements
- The impacts of development and densification
- Accessibility and equity of investment

It is important to note that a robust community engagement process was undertaken to ensure local communities were adequately represented in the Plan's development. These activities included a specific emphasis on communities that have historically been underrepresented and underserved by municipal policies, such as Indigenous Peoples, African Nova Scotians, and the Acadian community. The resulting UFMP refines existing guidance on the Municipality's urban forest policies.

Steering Committee

In Q2 of 2023, a Steering Committee was organized to help guide the UFMP update. The committee was intentionally staffed cross-corporately, with members representing Business Units with a stake in HRM's urban forest management. Representatives included members from Regional Planning, Infrastructure Planning, Engineering Design, Parks and Recreation, Policy and Planning, Environment and Climate Change, and urban forestry.

Diamond Head Consulting

Diamond Head Consulting LTD. (DHC) of Vancouver, BC was engaged following an open Request for Proposals process, initiated in Q2 of 2023. DHC had demonstrated experience developing successful urban forestry management plans for similarly sized Canadian municipalities, and their proposal included involvement of associates, pipikwan pêhtâkwan and an independent expert Equity Diversity Inclusion Accessibility Advisor, Delvina Bernard, who specializes in Indigenous and African Nova Scotian engagement respectively.

Plan Update Development

Updating the UFMP has been divided into four main tasks:

Task 1: Background research

This task included:

- A review of current legislative, policy and regulatory contexts related to urban forest management in HRM, including the Regional Plan and its existing Priority Plan, relevant bylaws, and Administrative Orders. The review also considered budgets, current operational resources, challenges, and hazards. This research was augmented by interviews with municipal staff and attendance of two field tours with members of the Steering Committee.
- A national jurisdictional scan of best management practices and industry standards for urban forest management was undertaken.

Task 2: Engagement

The public engagement program drew on expertise from contracted associates like pipikwan pêhtâkwan and focused on collecting community insights on how to best protect, enhance, and manage the urban forest. Conversations with communities historically excluded from policy development processes, such as African Nova Scotians, newcomers, people with disabilities and/or accessibility concerns, Acadians and francophones, and Indigenous groups, were hosted with assistance from HRM's office for Diversity and Inclusion and African Nova Scotian Affairs Integration Office (ANSAIO).

Task 3: Data collection

Municipal urban forest data was analyzed to create accurate and precise canopy cover layers. This data informed the inventory analysis, urban heat mapping, Tree Equity score development, and other cornerstone elements of the project (e.g., Action Plan).

Task 4: Documentation

The results from previous tasks were compiled to create a comprehensive UFMP including recommendations prioritized into actions.

The structure of the Plan is as follows:

Vision

Halifax Regional Municipality's urban forest is a vital part of the community fabric, maintained through sustainable management and thoughtful balancing of community priorities. Our urban forest features mature street trees, ornamental landscapes, and native ecosystems, among several other landscape types. These diverse landscapes enhance climate resilience and quality of life for all residents. The management and care of these landscapes ensure that the urban forest remains a cornerstone of the Municipality's environmental and cultural landscape.

This vision includes three 'Big Ideas', which have been used as a lens to frame the Plan update:

- **Equity**: The urban forest management program is both sustainable and equity-centered in its service delivery.
- **Balance**: There is a balance between urban forest conservation and the continued growth of HRM.
- **Community**: Community values, education and stewardship capacities are prioritized- its people are HRM's most influential urban forest management resource.

Objectives

Five Objectives have been identified based on core operations, planning, or administrative functions of a Municipal Urban Forestry program:

1. Planning & Protection: HRM achieves a sustainable balance between continued growth and the protection of the municipality's natural areas and features.

2. Planting: Tree planting is sufficient to offset canopy cover losses and increase canopy cover within HRM's Service Area Boundary.

3. Maintenance: HRM's tree assets are managed in accordance with best practices, and planned service levels are achieved

4. Stewardship: Leverage partnerships and the community in urban forest management

5. Administration and Monitoring: Develop program resourcing, governance, and monitoring that support the gradual implementation of the UFMP

From these Objectives, a more detailed implementation approach has been proposed, consisting of 101 Program Actions, aggregated within 19 Strategies.

Detailed implementation approach:

- 17 Strategies that provide specific details on how each of the five Objectives will be achieved.
    - 108 Program Actions, grouped under the Strategies, detail the specific steps the Municipality will take in urban forest management from 2025 to 2050.
- 20 Priority Actions that will significantly impact the success of the Municipality's program and the implementation of this version of the UFMP.
- 6 Quick Start Actions the Municipality will implement in the early years of the Plan's life.
- 82 Medium- to Long-Term Actions to support the achievement of the Vision and Objectives

FINANCIAL IMPLICATIONS

Once the plan is adopted, a corporate Working Group will be established to begin planning for action item implementation. This Working Group will assign prioritization of actions and associated accountable Business Units. Costs associated with these actions will be incorporated into the responsible Business Unit budgets following existing business planning procedures. Dependent on prioritization and business planning, the action items and their costs will be presented to Council for consideration as part of the accountable Business Unit's budget. This will occur over the life of the Plan, with a financial plan ready ahead of the 27/28 fiscal years business planning season.

Many of the 82 Action Items listed in this updated plan are strategic in nature and will not have direct costs associated with them or they will be assumed within existing business unit resources on a priority basis (e.g. changes to policy, updates to guidelines and standards, partnerships and networking). Others, such as a those with an operational target (e.g. tree planting or pruning) will incur operating costs. In some cases, these costs have already been considered within the 25/26 budget process as a continuation from the current Urban Forest Master Plan and will continue to be considered in future years business planning Some actions that are more complex will require project scoping and business case development prior to a funding request.

In the case of the tree planting, the current Urban Forest Master Plan set a planting target of 2675 trees per year. The updated Urban Forest Management Plan recommends a more manageable target of a minimum of 1000 net-new trees, and ~1000 replacement trees. This adjustment has been made for the 25/26 fiscal, with a capital project ask of $892,000, combined with an operating budget ask of $944,000 to plant ~2000 trees. Similarly, an ask of $866,800 has been made in the 25/26 Public Works operating budget to continue the 7-year cyclical pruning program.

RISK CONSIDERATION

There are no significant risks associated with the recommendations in this report. The adoption of the Urban Forest Management Plan will provide the necessary guidance to ensure a safer, more sustainable and climate resilient Urban Forest as well as a more equitable approach towards achieving these goals.

COMMUNITY ENGAGEMENT

Community engagement was conducted in two phases. The first coincided with the above-described Tasks 1-3 and informed the development of the first draft management plan. The second phase provided the opportunity to review and comment on the draft. The latter was completed mid-October 2024.

Phase 1 engagement activities were varied, and leveraged the resources of the Municipality, the office of Diversity and Inclusion, Diamond Head Consulting, as well as subcontractors Delvina Bedard, Dr. Peter Duinker and the Indigenous owned and run public relations firm, pipikwan pêhtâkwan. The activities undertaken in Phase 1 and Phase 2 are described in detail below.

Phase 1

- Two Public open houses presenting data analysis and soliciting feedback on values and concerns
- One in-person stakeholder workshop and one virtual stakeholder workshop. Stakeholders included representatives from utilities, Business Improvement Districts, local non-governmental organizations, and provincial and federal government.
- Online survey and Shape Your City Project Page, with over 700 engagements
- Consultation with Indigenous Groups, African Nova Scotian, newcomer, Francophone, and accessibility communities

Phase 2

- Two public open houses (one in person, one virtual) presenting the first draft of the update
- Two stakeholder workshops (one in-person, one virtual)

- Four facilitated urban forest walkabouts
- Online survey and Shape Your City Project Page

Summaries of Phase 1 and Phase 2 engagement activities as well as summaries of specific targeted community engagement activities can be found in Appendix 3 of the Plan.

ENVIRONMENTAL IMPLICATIONS

There are significant positive environmental implications associated with the implementation of the Urban Forest Management Plan. These implications can be found in the plan and highlight the ecological and social benefits the UFMP will provide.

ALTERNATIVES

1. Environment and Sustainability Standing Committee could choose to refuse the recommendation of this report. Adopting this alternative will mean HRM's Urban Forest program will lack strategic guidance in terms of its management, challenging business planning towards the safe and efficient management of one of our communities most valuable assets.

2. Environment and Sustainability Standing Committee could choose to defer the recommendation of this report until next fiscal. Adopting this alternative would mean any costs associated with adopting this update would be deferred until 26/27 at the earliest.

LEGISLATIVE AUTHORITY

Halifax Regional Municipal Charter, S.N.S. 2008, c. 39

7A The purposes of the Municipality are to (a) provide good government; (b) provide services, facilities and other things that, in the opinion of the Council, are necessary or desirable for all or part of the Municipality; and (c) develop and maintain safe and viable communities.

79A (1) Subject to subsections (2) to (4), the Municipality may only spend money for municipal purposes if (a) the expenditure is included in the Municipality's operating budget or capital budget or is otherwise authorized by the Municipality;…

77 The Municipality may
(a) remove dead, dying or diseased trees on public…property;

(b) recommend and encourage
(i) the proper pruning, protection and repair of privately owned trees in the Municipality,
(ii) the planting of trees of suitable species at desirable sites within the Municipality.

190 (1) In this Section, "serviced area" means an area that has access to municipal water or wastewater service or that is identified as a "serviced area" in a municipal subdivision by-law.

(2) The Council may make by-laws, for municipal purposes, requiring that existing trees or vegetation be retained or only removed pursuant to a municipal permit in serviced areas.

(3) Subsection (2) does not apply to land used for agricultural or forestry purposes.

(4) The Council may make by-laws, for municipal purposes, establishing watercourse buffer zones in which existing trees or vegetation must be retained or only removed pursuant to a municipal permit.

235 (5) Where a municipal planning strategy so provides, a land-use by-law may

(d) in connection with a development, regulate, or require the planting or retention of, trees and vegetation for the purposes of landscaping, buffering, sedimentation or erosion control

Administrative Order One, the Procedures of the Council Administrative Order, Schedule 5, Environment and Sustainability Standing Committee, Committee Terms of Reference

5. The Environment and Sustainability Standing Committee shall:

(a) encourage the appropriate policy structure to address amount, use and protection of parks, forests (urban and rural) and open spaces for the use and enjoyment of the residents of the municipality, and

(b) perform other related activities in the area of parks and open spaces as identified by the Standing Committee and approved by the Council.

7. The Environment and Sustainability Standing Committee shall:

(b) promote community adoption of climate change mitigation and adaptation measures;

8. The Environment and Sustainability Standing Committee shall perform such other matters as may be determined by the Council.

ATTACHMENTS

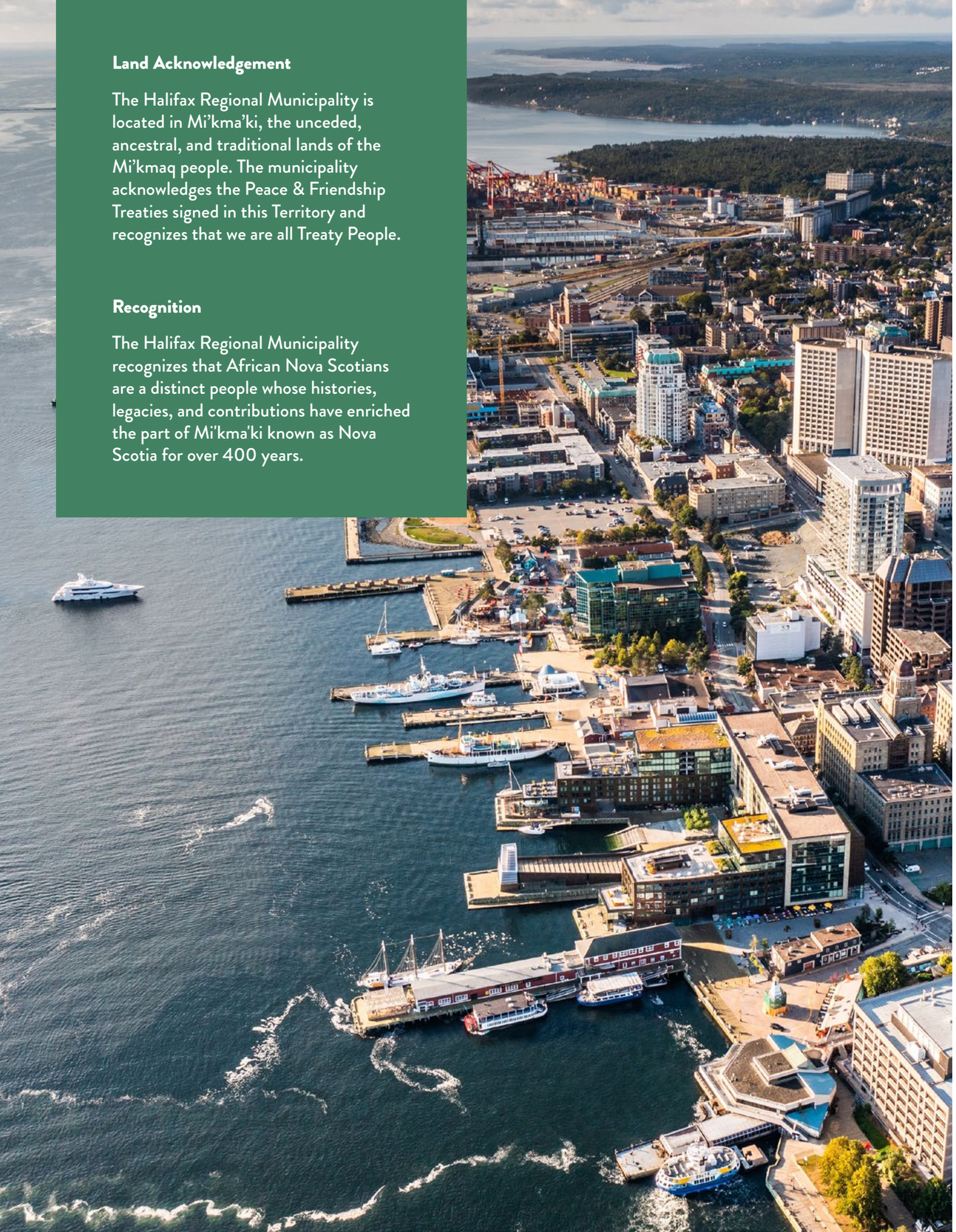
1. HRM Urban Forest Management Plan

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Crispin Wood, Manager Urban Forestry, Public Works 902-225-2774

HALIFAX

URBAN FOREST MANAGEMENT PLAN



Land Acknowledgement

The Halifax Regional Municipality is located in Mi'kma'ki, the unceded, ancestral, and traditional lands of the Mi'kmaq people. The municipality acknowledges the Peace & Friendship Treaties signed in this Territory and recognizes that we are all Treaty People.

Recognition

The Halifax Regional Municipality recognizes that African Nova Scotians are a distinct people whose histories, legacies, and contributions have enriched the part of Mi'kma'ki known as Nova Scotia for over 400 years.

Acknowledgements

We are grateful to everyone who contributed to shaping the Urban Forest Management Plan. Below is a list of the groups and organizations that have participated in this Plan's development in some form, either through meetings, attending sessions, or providing input. In addition to the groups listed below, we are grateful to the organizations that submitted feedback, or otherwise participated in any phase of engagement through the development of the UFMP.

Targeted Communities

Thank you to the Indigenous community members and organizations who provided their valuable contributions and voices to the Plan. Indigenous knowledge and worldview is necessary for the development of a holistic and interconnected Plan – we thank you for the time you spent with our teams and the ongoing relationships we will carry through the life of this work.

Thank you to those individuals and organizations from the African Nova Scotian/Canadian, francophone and Acadian, and newcomer and immigrant communities who generously gave their time to provide input, feedback, advice, and guidance on the development of the HRM's Urban Forest Management Plan.

HRM Residents, Workers and Visitors

Thank you to the residents, workers and visitors of the HRM. Thousands of people made contributions throughout the planning process. While the following section attempts to list important contributors, it is by no means an exhaustive list and any inadvertent omissions do not reflect a lack of gratitude.

HRM Steering Committee

- Crispin Wood
- Hanita Koblents
- Stephen Cushing
- Krista Cameron
- Gay Harley
- Shauna Doll
- Chris Kennedy
- Jerrid Watton
- Shilo Gempton
- Emma Bocking
- Matthew Conlin
- Heba Jarrar

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- Chris Poole
- Adam Cornick
- Leah Perrin
- Emma Wattie
- Shannon Miedema
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- Davin Hodd
- Beverley Audet
- Daren Talbot

Executive Sponsors

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- Cole Buhler
- Matt Ward
- RaeAnne Harper
- Presley Mills
- Melaina Goos
- Delvina Bernard
- Dr. Peter Duinker

DIAMOND HEAD

pipikwan pêhtakwan

PLAN AT A GLANCE

This Urban Forest Management Plan (UFMP) details the HRM's **25-year** direction in managing the Municipality's urban forest given the range of pressures it now faces. Developed over two years, the UFMP outlines several objectives, strategies, and actions to inform urban forest management over years ahead. The UFMP's development has been supported by extensive analysis, public engagement, and dialogues with staff, industry professionals, government, and community organizations.

COMMUNITY ENGAGEMENT

PROCESS

- **2 Phases** of engagement
- Community open houses
- Online surveys
- Technical workshops
- Interviews
- Guided tree tour

TARGETED ENGAGEMENT EFFORTS TOWARD REACHING:

1. Indigenous Peoples
2. African Nova Scotians/Canadians
3. Francophones and Acadians
4. People with Disabilities
5. Newcomers and Immigrants

The HRM applied the concept of Etuaptmumk **(two-eyed seeing)**, an approach introduced by Elder Albert Marshall of Eskasoni, Unama'ki, Nova Scotia, which blends Indigenous and Western perspectives. The UFMP highlights content where different perspective have been woven together with the "Weaving Winds" motif, inspired by basket weaving and the concept of interconnectedness.

2050 URBAN FOREST VISION

The HRM is a municipality of trees. Through the shared legacy of sustainable management, the HRM's urban forest has been carefully woven into the fabric of our neighbourhoods over the past 25 years. Characterized by a mosaic of native inland and coastal ecosystems as well as large, mature streetscape and park trees, the benefits our urban forest supports meaningful contributions to our health and wellbeing and supports the resilience of our community to the threats imposed by climate change. The protection of our urban forest and its resident biodiversity is central to our management approach and our vision for urban and rural sustainability.

FRAMEWORK

VISION

3 BIG IDEAS

5 OBJECTIVES

17 STRATEGIES

108 ACTIONS

20 Priority actions

6 Quick start actions

3 BIG IDEAS

EQUITY

HRM's urban forest management program is both sustainable and equity-centered in its service delivery

BALANCE

Balance between woodland and biodiversity conservation and the continued growth of the HRM.

COMMUNITY

Community values, education and stewardship capacities are prioritized- people are HRM's most influential urban forest management resource

5 OBJECTIVES

1. PLANNING + PROTECTION
2. PLANTING
3. MAINTENANCE
4. STEWARDSHIP
5. ADMINISTRATION + MONITORING

QUICK START ACTIONS

- **HRM to plant a minimum of 1,000 net new trees per year**
- Achieve a seven-year grid pruning cycle in streets and parks
- Establish an inter-departmental working group
- Collaborate with the HRM, nonprofits, and communities on tree planting and invasive removal
- Define levels of service for planted trees and woodlands
- Explore partnerships to deliver community tree planting and invasive species removal events
- Prepare a financial plan

FACTS ABOUT HRM'S TREES IN 2024

- The HRM's urban core lost **~11.0%** of its canopy cover between 2000 and 2022
- 70% of the HRM's tree canopy is on private property
- **78%** of Halifax is woodland
- Estimated **80,000** planted boulevard trees
- One in three planted boulevard trees inventoried is a **maple**
- **150** planted boulevard tree species and **85** genera
- HRM's 2023 program funding **~$10 per resident**

Contents

GLOSSARY

TERM	DEFINITION
Associate Plant	A plant that commonly grows alongside (i.e., in association with) another plant species.
Broadleaf	Trees with flat, wide leaves, like maple, oak, and ash. Broadleaf trees
Census	A population count used to gather data about community characteristics.
Coniferous	Trees with needle-like leaves and cones, often evergreen, like pine and spruce. Some coniferous species, like larch, shed their leaves in the fall.
Diameter at Breast Height	A standard method for measuring the diameter of a tree trunk. It is measured at approximately 1.4 meters (4.5 feet) above the ground.
Dissemination Area	A small geographic area used in census data collection for detailed analysis.
Dominant Plant	A plant that has a superior position in the canopy layer within a woodland as compared to other plants in the woodland. Often, dominant plants are the most abundant plant in a woodland, however this does not need to be the case.
Fuel	A woodland Fuel is any woody material and vegetation that can ignite in a fire. These includes dry grasses, shrubs, leaves, and tree branches.
Genus	A scientific classification of living things ranking above species.
Planted tree	In this Plan, planted trees are considered trees that are intentionally planted by the HRM or the owner of a property.
Prune	The process of selectively removing parts of a tree, such as branches or stems.
Species	The most specific level of living things
Wakanabi-Acadian	The forest region native to eastern Canada and Nova Scotia. The Wakanabi-Acadian is home to a rich diversity of plant species.
Woodland	A natural ecosystem dominated by trees. Also often called a forest.

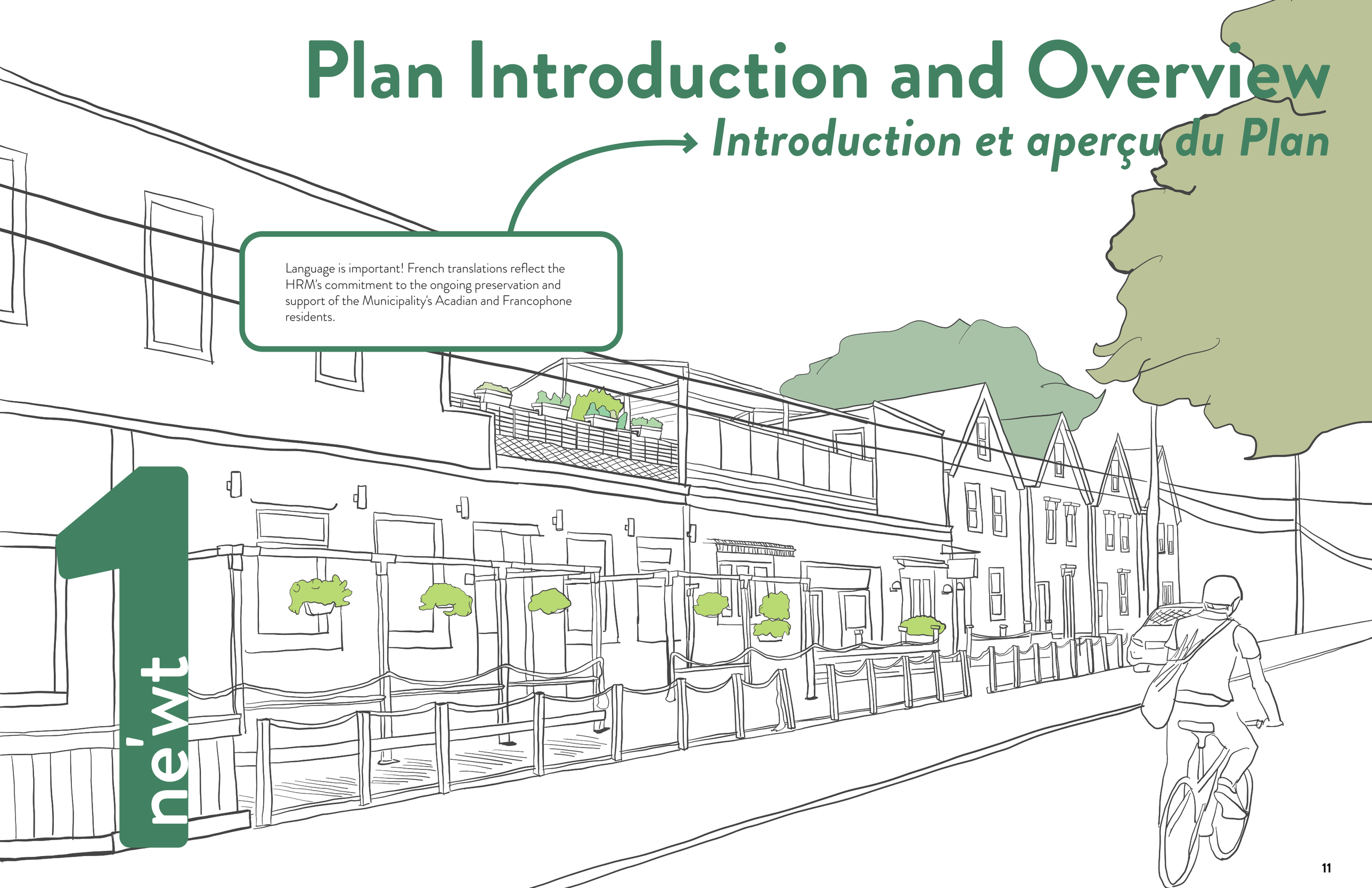
TABLE OF ACRONYMS

ACRONYMS	DEFINITION
DBH	Diameter at Breast Height
ECMDs	Equity-centered Management Districts
HGNP	Halifax Green Network Plan
HWA	Hemlock Woolly Adelgid
HRM	Halifax Regional Municipality
IMP	Integrated Mobility Plan
NB	New Brunswick
NL	Newfoundland and Labrador
NS	Nova Scotia
SMMD	Succession Monitoring and Management District
TES	Tree Equity Score
UFED	Urban Forest Enhancement District
UFMP	Urban Forest Management Plan

Plan Introduction and Overview

Introduction et aperçu du Plan

Language is important! French translations reflect the HRM's commitment to the ongoing preservation and support of the Municipality's Acadian and Francophone residents.



1.1. INTRODUCTION TO THE PLAN

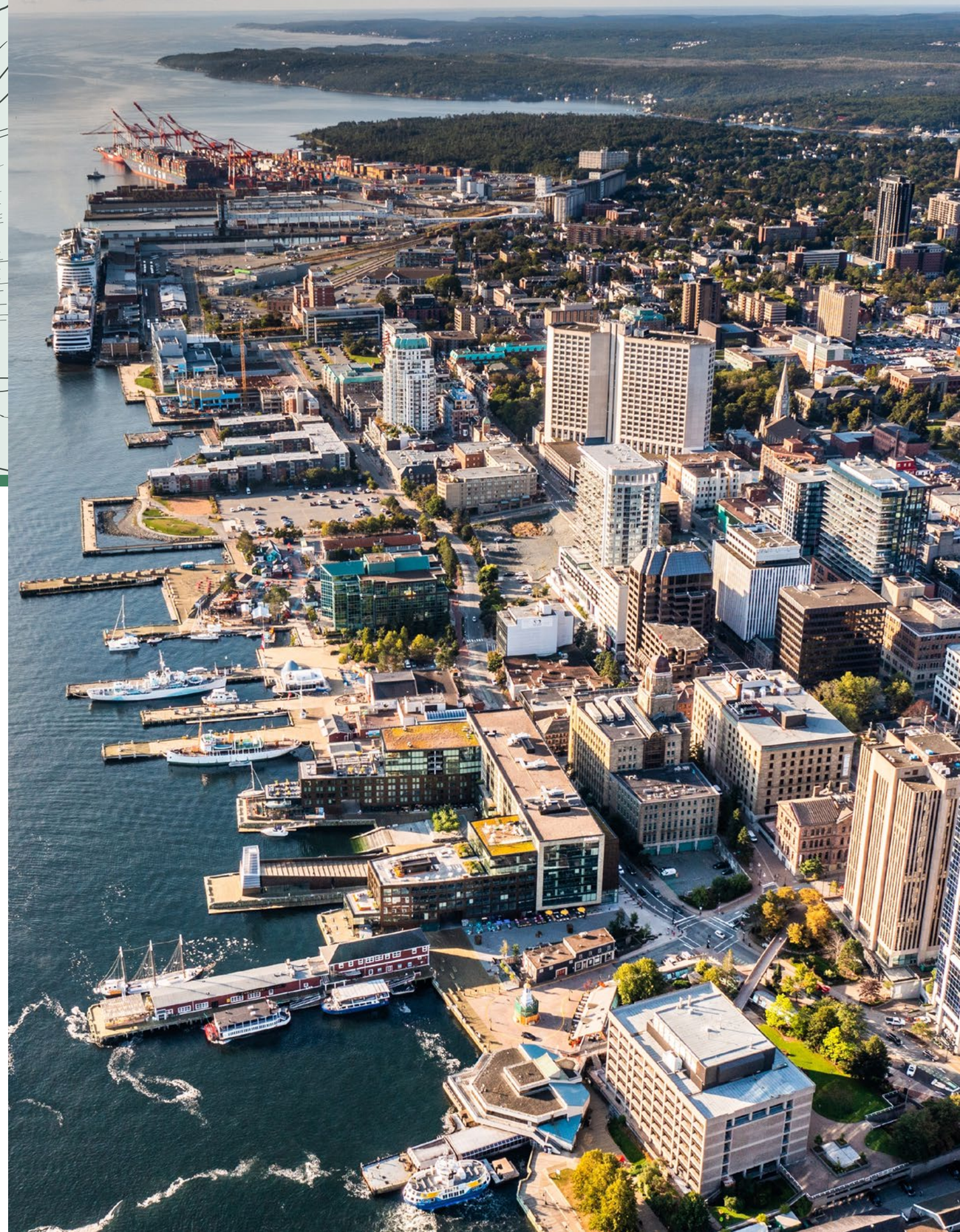
Residents of the HRM love their trees. From red spruce to white ash, basswood, American elm, and red maple, the HRM is through and through a community of trees. Trees are woven into the very fabric of our community, essential to our urban streetscapes and inseparable from the native Wabanaki-Acadian ecosystems.

This Plan replaces the HRM's 2013 Urban Forest Master Plan as the guiding document to inform the management of the Municipality's trees. The original plan was drafted to inform the management of the urban forest for the period between 2013 and 2023, then establishing that a review would occur beyond that initial decade. There is now a need for an updated plan.

CURRENT CHALLENGES

Much has changed in the HRM over the past decade. Our community has welcomed close to 80,000 new residents- well over ten percent growth in a period of just ten years. This growth has increased demand for new housing and infrastructure. Parks and wilderness have seen increased use, particularly following the COVID-19 pandemic. This growth is anticipated to continue in the years to come. As a result, the HRM's planning and development processes need to be revisited now to ensure growth continues to achieve good balance between the need for housing and services and the preservation of the urban forest and green spaces.

Climate change and extreme weather have become a central management challenge. Hurricane Fiona in 2022 severely impacted trees across the HRM. The Upper Tantallon wildfire in 2023 caused the temporary displacement of more than 16,000 residents and destroyed 200 buildings including 150 homes. At the same time, evolving forest health concerns like hemlock woolly adelgid and emerald ash borer have arrived in Nova Scotia for the first time; these invasive species pose a real threat to trees and native ecosystems in the HRM.



THIS PLAN

This Plan charts a coordinated path forward for the sustainable management of the HRM's urban forest over the coming 25 years. A 25-year horizon allows long-term forest planning. A ten year review period supports flexibility in the Municipality's management approach.

Planning for sustainable urban forest management enables cities to:

- Identify and prioritize current issues in urban forest management through community consultation.
- Build community and urban forest resilience to the varied threats faced by urban nature, through establishment of a long-term vision, and supporting actions with a prescribed monitoring approach.
- Expand access to, and enhance the quality of, urban nature.
- Allocate resources more effectively, while ensuring that tree planting and maintenance efforts prioritize areas with the greatest need.
- Guide strategic planning and policy development influencing urban forest management to create more resilient, biodiverse and inclusive urban environments.

PLAN SCOPE

The HRM's 2013 Urban Forest Master Plan used the urban forest definition put forward by the Canadian Urban Forest Strategy.[1] This Plan continues to use that definition:

> *Trees, forests, green space and related abiotic, biotic and cultural components in and around cities and communities. It includes trees, forest cover and related components in the* [HRM's] *rural areas.*

Many classes of tree can therefore be found in the urban forest. This includes publicly owned street and park (i.e., planted) trees, privately owned trees, and trees in forested landscapes under a broad range of ownership structures (**Figure 1-1**).

More than 71 percent of land in the HRM is under private ownership. This amount of private ownership means urban forest management will always be a shared responsibility. The Municipality manages trees on Municipal land such as parks, woodlands and Municipal roadways. On private land, trees are managed in large part by the relevant property owner or land manager.

WHY THE PLAN WAS UPDATED

The Urban Forest Management Plan update was initiated to:

1. Update the 2013 plan, which called for a ten-year review,
2. Respond to the evolving challenges and pressures facing the HRM's urban forest management program,
3. Continue to advance implementation of the 2013 plan, and update the resources needed to meet increasing demand for urban forest services and changing urban forest management context, and
4. Increase diverse perspectives from community members such as Indigenous people, African Nova Scotians/Canadians, Francophones and Acadians, people with disabilities, and newcomers.

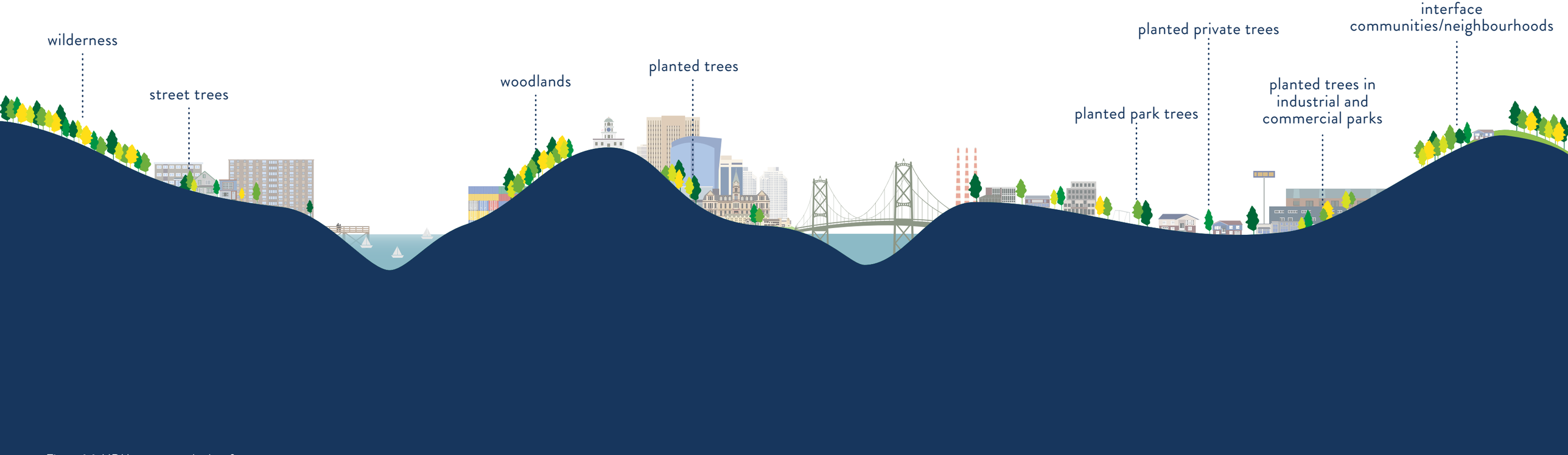


Figure 1-1. HRM transect and urban forest types.

Etuaptmumk

Etuaptmumk, known as two-eyed seeing in English, is a guiding principle coined in 2004 by Mi'kmaw Elder Albert Marshall from Eskasoni in Unama'ki. Etuaptmumk emphasizes the co-existence and synergy between Indigenous ways of knowing and alternative worldviews. Elder Marshall describes etuaptmumk as "learning to see from one eye with the strengths of Indigenous ways of knowing and from the other eye with the strengths of Western ways of knowing and to using both of these eyes together"

To honour etuaptmumk, this plan integrates Indigenous knowledge and values throughout. Rather than isolate Indigenous knowledge, the guidance gifted from engagement with local Elders, Knowledge Keepers, and Indigenous community members is found in all components of this plan.

LANGUAGE

Indigenous language is highlighted in different places throughout the plan. The community noted the importance of naming this plan to breathe spirit into the work.

Like this plan, the work in the Urban Forest and with Indigenous People of Mi'kma'ki is an ongoing, living relationship. We use the name wetlamultieg... to open this Plan. Our understanding is that this means "we breathe from...". This name serves as a placeholder while this document is being named in community, by community. The name was inspired by dialogue with Grandmother Jane Meader and daughter Paulina Meader of Membertou First Nation. They shared stories of being on the land and the reciprocal relationship between Mother Earth and the healing of our human relatives. The use of the ellipsis is intentional. We want to communicate that all of the information to follow in the plan will support breathing life into this work.

IMAGERY

Designed by Indigenous graphic designers, you can find Indigenous values and images throughout the plan. You will notice watercolour elements highlight important details within. These elements were inspired by the work of Cheryl Maloney of Indian Brook First Nation, Sipeknekatik district of the Mi'kmaq Nation. During engagements, Elder Ann LaBillois of Ugpi'Ganjig First Nation held a Water Ceremony and received a painting from Cheryl. Elder Ann described how the artwork made her think about life within urban forests and the many connections that exist.

STORYTELLING

The below image was created by pipikwan pêhtâkwan to highlight etuaptmumk in practice.

Observation and personal experience are critical to building understanding from Indigenous perspectives. From this point of view, there are many truths. For many Indigenous People, concepts are cyclical rather than linear. Storytelling is one way we explore knowledge from within.

Read the story below to see how you come to know the imagery in the design illustration. How did you come to know the illustration? What do you see? What does this story make you think about the Urban Forest?

A young girl named maskwi decided it was time to leave her community and explore the world. She grew up in the same community her whole life and had never met anyone else! maskwi wanted to learn about healing and thought she should learn from as many others as possible. Late one night, maskwi packed up her bags and began walking wjipnuk, East. She arrived at the first community around sunrise and was met by a beautiful Grandmother in a bright yellow dress. maskwi visited with the Grandmother, who was building a fire and cooking some food. maskwi asked if there was anything the Grandmother would share to help her learn about healing. The Grandmother told her, "maskwi, take this tobacco and remember how you feel." Once the fire was out, the Grandmother sent maskwi off with the tobacco. maskwi then began walking kite'snuk, South. She arrived at her next stop around mid-day and was met by a Grandmother wearing a big red hat. The two women greeted one another, and maskwi offered to help the Grandmother with some washing. While they were splashing alongside one another, maskwi asked the Grandmother if there was anything she would share to help maskwi learn about healing. The Grandmother smiled and said, "maskwi, take this cedar and remember your spirit." Once they finished cleaning, they drained the water, maskwi gathered the gift and began heading tkisnuk, West. The sun was falling, and it was nearing dusk when maskwi arrived. She walked up to a Grandmother resting on a big, black blanket and said hello! The Grandmother invited her to sit beside her while she cleaned some earth off her vegetables. Feeling tired, maskwi took a rest beside the Grandmother and helped brush off the vegetables. maskwi asked the Grandmother if there was anything she would share to help her learn about healing. The Grandmother reached back to grab something and said, "maskwi, take this sage and remember your body." The two finished cleaning the earth off the food, and maskwi hurried off oqwatnuk, North, before it was too late. Around midnight, maskwi arrived at the last community. It was dark and windy.

There was a Grandmother trying to tie her shelter down with large, white ties. Together, the women pulled the ties tight and secured the home. They moved inside and sat together as the wind whistled around them. Inside, maskwi asked the Grandmother if there was anything she would share to help her learn about healing. The Grandmother picked up a bundle of sweetgrass and braided it together. She said, "maskwi, take this sweetgrass and remember your thoughts." maskwi thanked her and fell asleep for the night. In the morning, maskwi began walking back to her home with all her new gifts; Her tobacco, her cedar, her sage, and her sweetgrass. She arrived home, and her parents asked, "maskwi, welcome home. What did you learn about healing?" maskwi replied, "I feel that I learned a lot. My spirit is full, but my body is sore from all the walking. I think I need to take a break." Laughing at herself, she walked into her room, took off her glasses, held the gifts of the Grandmothers and planned her next visit.

THE BENEFITS OF THE URBAN FOREST

Urban forests are essential for creating healthy and livable urban environments. Trees provide many benefits, often called 'ecosystem services' Research has identified many benefits trees provide to urban areas, including:

CLIMATE RESILIENCE

HRM's urban forest helps protect the community from the impacts of climate change. Trees regulate temperatures through shade and evapotranspiration[2] and reduce storm and flood impacts. They are also important carbon sinks, sequestering and storing atmospheric carbon.[3,4]

CLEAN AIR AND WATER

Trees purify the air by absorbing pollutants like carbon monoxide, nitrogen dioxide, and particulates.[5] They also filter rainwater and stormwater runoff, improving water quality before it enters lakes and rivers.[6,7]

HABITAT AND BIODIVERSITY

Urban forests support a wide range of plant, animal, fungal, and microbial life.[8] Intact urban forests with diverse habitats sustain greater biodiversity, benefiting both human and animal residents.[9]

IMPROVING HUMAN HEALTH

Trees contribute to physical and mental health by providing spaces for exercise and relaxation. Exposure to greenery reduces stress, improves work performance, boosts creativity, and aids recovery in hospitals. [10,11,12] Schools with more trees and shrubs visible from classroom windows have been found to achieve higher test scores and graduation rates.[13] Access to parks or natural areas increases physical activity levels.[14] Canadian doctors are beginning to prescribe time outdoors given known health benefits.

ECONOMIC VALUE

Trees stimulate the local economy by attracting people to commercial districts, resulting in increased spending and longer stays.[15] Areas with abundant tree cover tends to have higher property values.[16,17]

CONNECTING WITH LAND AND CULTURE

Indigenous participants in the UFMP engagement program expressed the importance of connecting with the land and forest to make them feel they belong. Many newcomers highlighted how they may first connect with the community through connecting with the land, particularly when language might be a barrier to connecting with people. Research shows that forests and trees enrich communities by providing cultural benefits and a sense of identity and pride.[18] Spending time in local green spaces fosters community connection and strengthens social bonds.[19]

RESOURCES

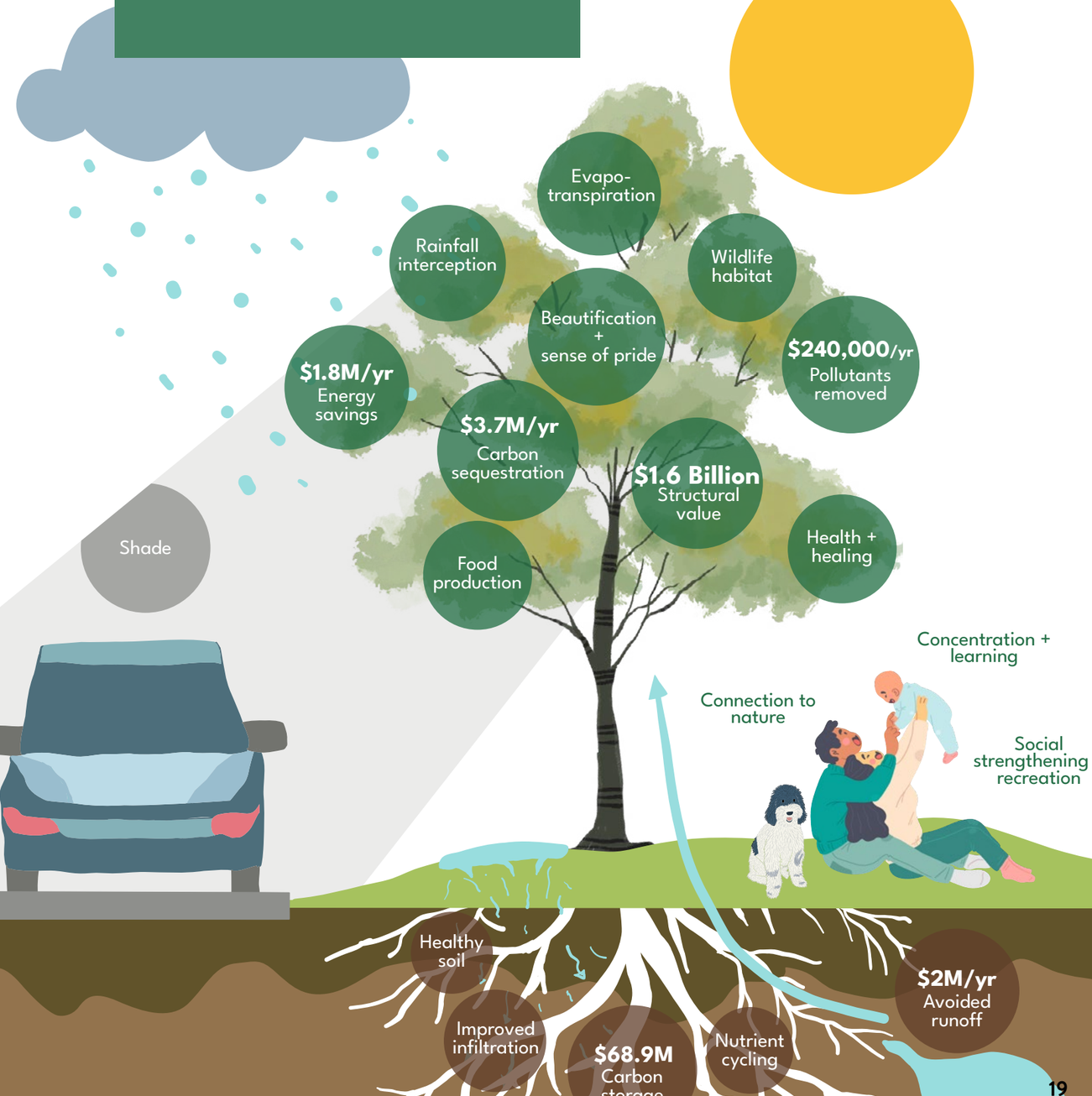
Trees provide tangible resources for cultural, social, and economic uses. Fruit trees in community gardens or orchards provide locally grown food. Some trees offer medicinal resources and have been used in cultural products for thousands of years (e.g., wisqoq or 'black ash' and Mi'kmaq handwoven baskets).

Assigning a financial value to the urban forest's benefits helps highlight some of these values. A 2017 report from Dalhousie's School for Resource and Environmental Studies[20] estimated the theoretical cost to fully replace all trees and forest as they exist now within the **2013 Plan study area** to be over $1.6 billion. That same study estimated a carbon storage value of more than $68.9 million in today's (2024) dollars, and annual sequestration value exceeding $3.7 million using the social cost of carbon developed by the US Environmental Protection Agency. Trees in the study area attenuated stormwater runoff valued at over $2 million annually.

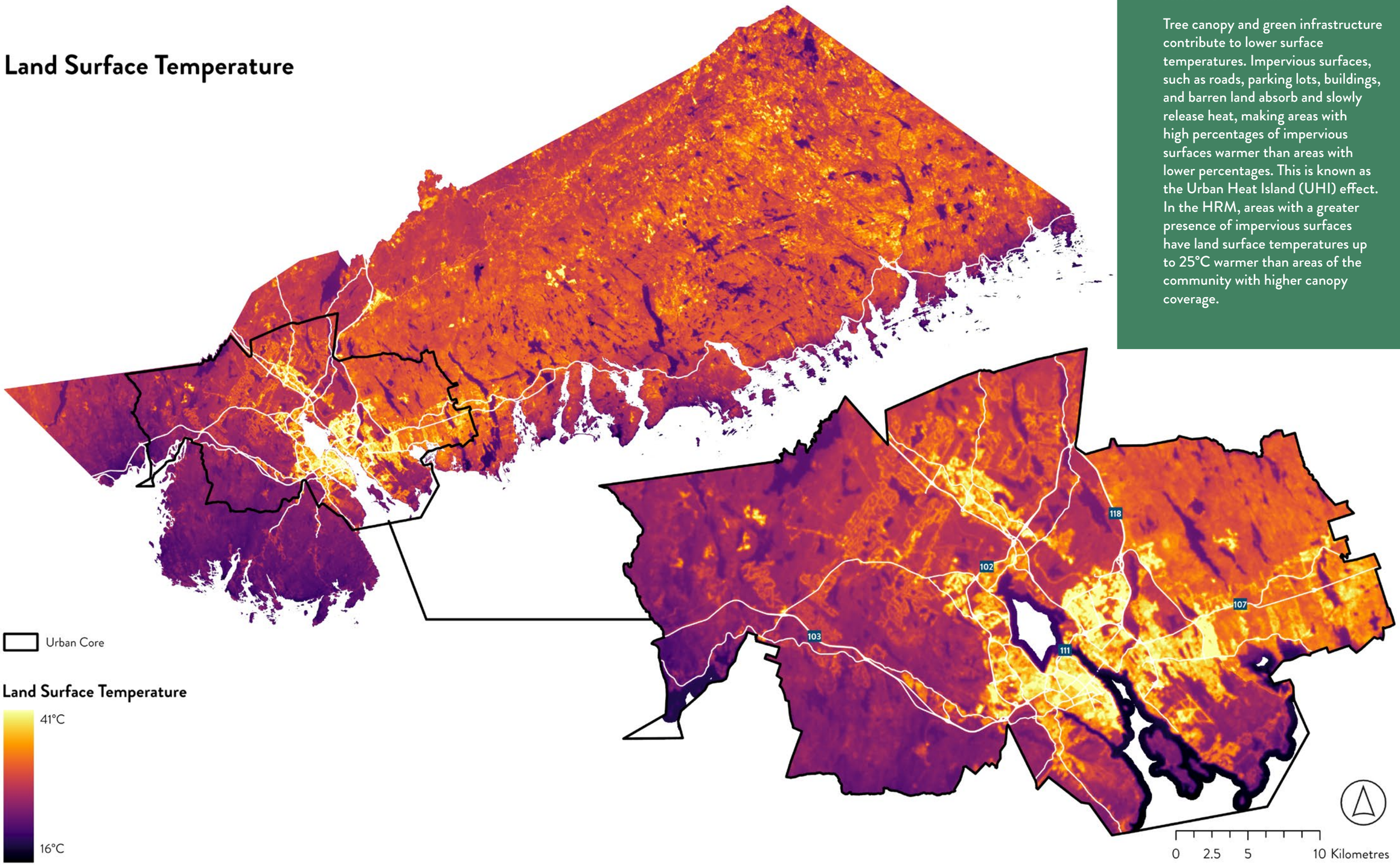
With trees, bigger is often better

Generally, larger, more mature trees yield more community benefits than smaller trees. For example, larger trees providing more shade, cool larger areas, filtering more pollutants from air and water, or offering enhanced habitat value.

Trees are one of our oldest relatives. We learn wisdom from the large canopy trees that have been here for a long time. They provide us with many teachings that Mi'kmaq People still use today.



Land Surface Temperature



HRM's Urban Heat Island

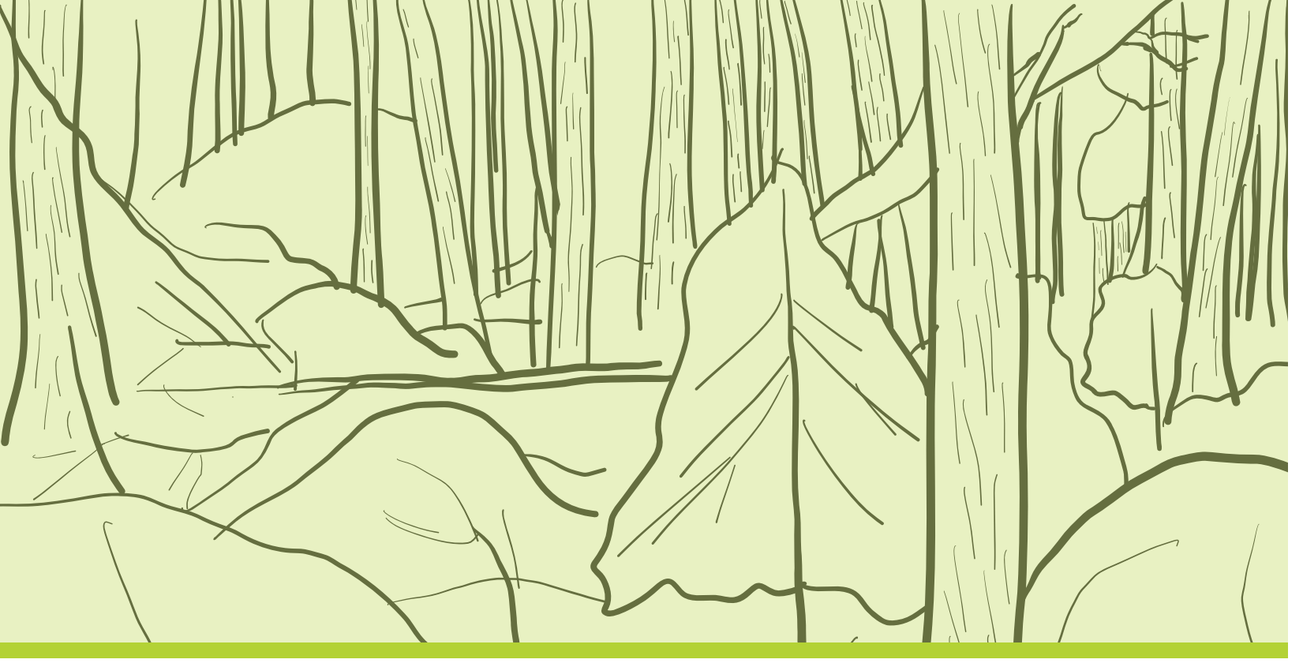
Tree canopy and green infrastructure contribute to lower surface temperatures. Impervious surfaces, such as roads, parking lots, buildings, and barren land absorb and slowly release heat, making areas with high percentages of impervious surfaces warmer than areas with lower percentages. This is known as the Urban Heat Island (UHI) effect. In the HRM, areas with a greater presence of impervious surfaces have land surface temperatures up to 25°C warmer than areas of the community with higher canopy coverage.

HRM's Forest

La forêt de la municipalité

2

ta'pu



2.1. THE WABANAKI-ACADIAN FOREST

A BRIEF HISTORY

HRM is located within the Wabanaki-Acadian Forest, a transitional ecosystem, wedged between the Northern Hardwood Forests of New England and the Boreal Forests of Quebec. This transitional position results in a mix of coniferous and broadleaf tree species- more than 40 in all. In fact, preserved Wabanaki-Acadian Forest is considered one of the most diverse temperate forest regions in the world.

Red spruce and eastern hemlock are often considered to be the defining tree of the Wabanaki-Acadian Forest and is a major component of its old-growth stands. Here, red spruce is commonly found alongside sugar maple, yellow birch, beech, hemlock (one of the Wabanaki-Acadian's longest-lived species), white pine, balsam fir, and larch. Other common Wabanaki-Acadian species include red maple, white ash, white birch, trembling and large-tooth aspen, and black spruce.

Historical accounts describe the Wabanaki-Acadian as a mixedwood forest of grandeur- a landscape characterized by towering white pines over 45 metres tall and vast stands of beech and other hardwoods.[21] Studies in the broader Wabanaki-Acadian region have estimated that red spruce once made up one-third of the forest, with balsam fir as a common associate species. Some red spruce in the Acadian Forest were thought to have commonly been 150 to 250 years old.[22,23]

Over the thousands of years since the last ice age, the Wabanaki-Acadian Forest and its resident species have adapted to their specific part of North America. Natural processes of disturbance like windstorms, insect outbreaks, and wildfire have shaped its development through a process called succession. These disturbances create 'gaps' that release understorey trees and allow for new growth, promoting forest renewal.

Humans have long inhabited this place. For time immemorial, Indigenous Peoples, the Mi'kmaq, have lived in and cared for the old growth stands of red spruce, white pine, hemlock and ash that have played a strong part in cultural connections to the land. Long before the arrival of Settlers, Indigenous Peoples learned with and from these forest landscapes.

Much has changed in the more than 500 years since the arrival of the first Europeans to the Atlantic coast. More than 400 years of timber harvest, agricultural clearing, shipbuilding, timber-fuelled conflict, and human settlement have permanently changed the landscape.

Forest management practices, such as clear-cutting and high-grading, have contributed to the rise of balsam fir as a significant species. The Wabanaki-Acadian Forest is likely younger today than it ever has been. Before the arrival of Europeans, old growth was thought to cover as much as 50% of the land.[24] Today some estimates put that number as low as one percent.[25] The forest has also become more fragmented over time, broken up by roads, infrastructure, and urban communities.

In the last century forest stressors have continued to intensify. Humans have disconnected from the natural world, introducing new, invasive pests including beech bark disease, emerald ash borer, hemlock woolly adelgid, and Dutch elm disease. Some of these threats have already taken their toll on both native and introduced tree species, others pose a current and significant threat. Climate change also poses an unprecedented challenge, with trees, people and property increasingly at risk from events such as severe weather and wildfire.

Many species of trees and medicines have been used historically for Indigenous practices. Trees, such as the birch, have been harvested for canoes and baskets since time immemorial and are still practiced today. There are significant teachings around species, such as black and white ash. Where black ash is more commonly used today, it was shared that traditionally, white ash was a significant species ingrained in the Mi'kmaq creation story. Indigenous community members would like to see additional protections for these species, along with a restoration plan.

▼ Point Pleasant Park. August 2007. CR: Peter Duinker.

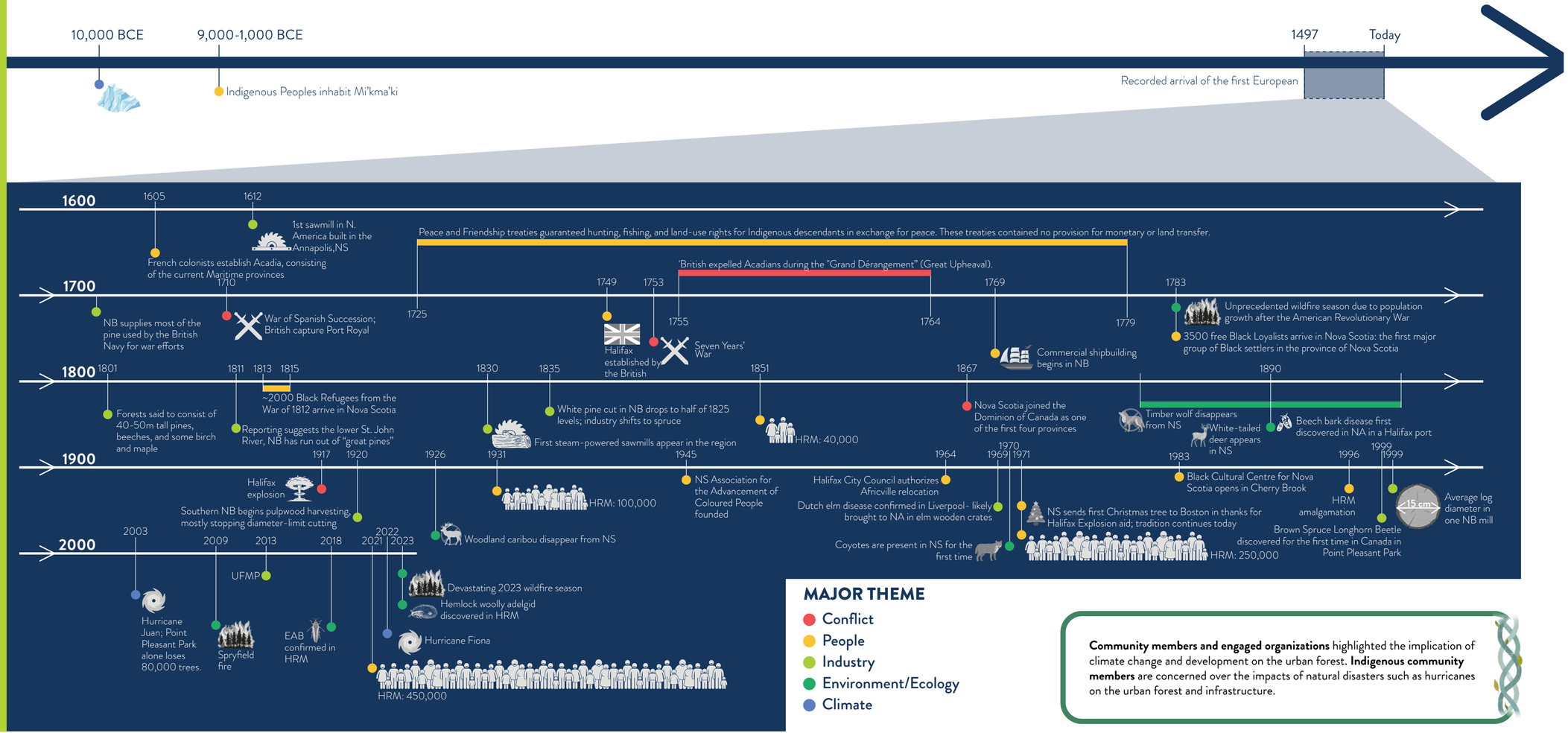
A Timeline

The Wabanaki-Acadian Forest has existed since the retreat of the glaciers following the last ice age. Mi'kmaq Peoples arrived on these lands and cared for the native ecosystems for thousands of years before the arrival of Europeans. In the 500 years since European arrival, the landscape has changed, dramatically.

The timeline on the right is meant to communicate the degree of change that has occurred over a relatively short period of time relative to the Holocene (i.e., the current interglacial period). Technology, population growth and globalization have reshaped tree and forest management.

Major social, political, industrial, and environmental events over the past 500 years are illustrated. Most of these events relate either directly to human influence over the Wabanaki-Acadian Forest, or to the HRM's history (and therefore to the urban forest's history). This timeline is not all-encompassing. It is a sampling of historic events that tell the story of change in the Wabanaki-Acadian Forest, as well as change in the HRM as a community.

The events detailed are assembled from a compilation of sources, however special credit is given to the work of Simpson, J. (2015).[32]



MAJOR THEME

- Conflict
- People
- Industry
- Environment/Ecology
- Climate

Community members and engaged organizations highlighted the implication of climate change and development on the urban forest. **Indigenous community members** are concerned over the impacts of natural disasters such as hurricanes on the urban forest and infrastructure.

OLD GROWTH

Once a hallmark of the Wabanaki-Acadian Forest, old growth forest has become rare. Some estimates put true Old Growth Wabanaki-Acadian forest at as little as one percent of its pre-European range. Through *An Old-Growth Policy for Nova Scotia*, the Province has protected more than 30,000 hectares of Old Growth Wabanaki-Acadian Forest outside of any old growth already subject to protections in Provincial parks and conservation areas. In the HRM, 500 hectares of confirmed old growth crown forest are protected under the Old Growth Forest Policy. Another 43,000 hectares of forested land has been flagged as either prospective old growth (awaiting confirmation) or as a candidate old growth restoration site-some of these stands may be subject to protections under the Province's old growth policy in the future. **Read more about An Old-Growth Policy for Nova Scotia here**.

HRM'S FOREST COMMUNITIES

CLIMATE

The Wabanaki-Acadian Forest Region has a climate characterized by warm, humid summers and relatively mild winters. Ample precipitation during the growing season provides excellent conditions for supporting tree growth. Climate change threatens warmer, wetter, wilder conditions. While some impacts may benefit tree growth, others may influence the range of species that grow in the region.[26] Changes in abiotic and biotic cycles, as well as freeze-thaw cycles may also threaten and damage trees.

LANDCOVER

HRM's municipal area is nearly 5,500 km^2, making it one of the largest Canadian communities by area. Its large size supports a significant diversity of land uses and land cover types. **Figure 2-1** maps the ecological land classifications in the HRM. More than 4,300 km^2 of the HRM is woodland, making up nearly three quarters of the Municipality's land base.

Photo-interpreted Provincial datasets identify that roughly 85% of the HRM's forested lands are "natural", meaning that they have not been treated silviculturally, are not a plantation, and have not been subject to a major disturbance in recent time. Managed forests constitute another 11%, with clear cuts and plantations as the largest classes of managed forest. Smaller elements

FUTURE CLIMATE WILL BE...

WARMER

- Warmer average temperatures
- More hot days above 25°
- Milder winters
- More frequent and longer heat waves
- Longer, warmer growing seasons

WETTER

- Increased quantity and frequency of precipitation, especially in the fall

WILDER

- Potential changes in frequency and intensity of extreme weather events
- More freezing rain, hail
- More high wind gusts

BY 2050, HRM MAY SEE...

4X the days with temperature above 30°C

2X the number of summer days

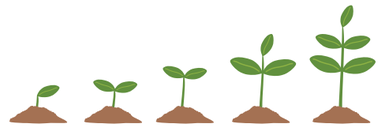
More days with heavy precipitation (>20mm)

10% more rain during rainfall events

WHICH IS LIKELY TO LEAD TO...

EARLIER SPRING

Warmer temperatures will contribute to earlier snow melt and buds to burst sooner.

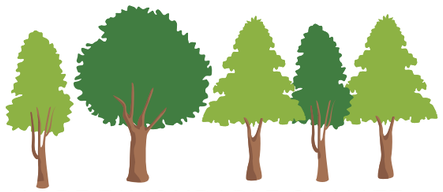


LONGER GROWING SEASON

Earlier spring and a later fall will elongate HRM's growing season.

HEAT WAVES

Possible increases in the frequency and duration of heatwaves may challenge species not well adapted for such conditions, and can also impact fuels and fire behaviour.



MORE FAVOURABLE CLIMATE FOR TEMPERATE SPECIES

Warmer temperatures may challenge the Wabanaki-Acadian's cold-adapted boreal species while at the same time better supporting more southerly, temperate plants.

MORE PESTS AND INVASIVE SPECIES

Climate change is contributing to changes in the life-cycles, abundance and range of forest pests and pathogens.

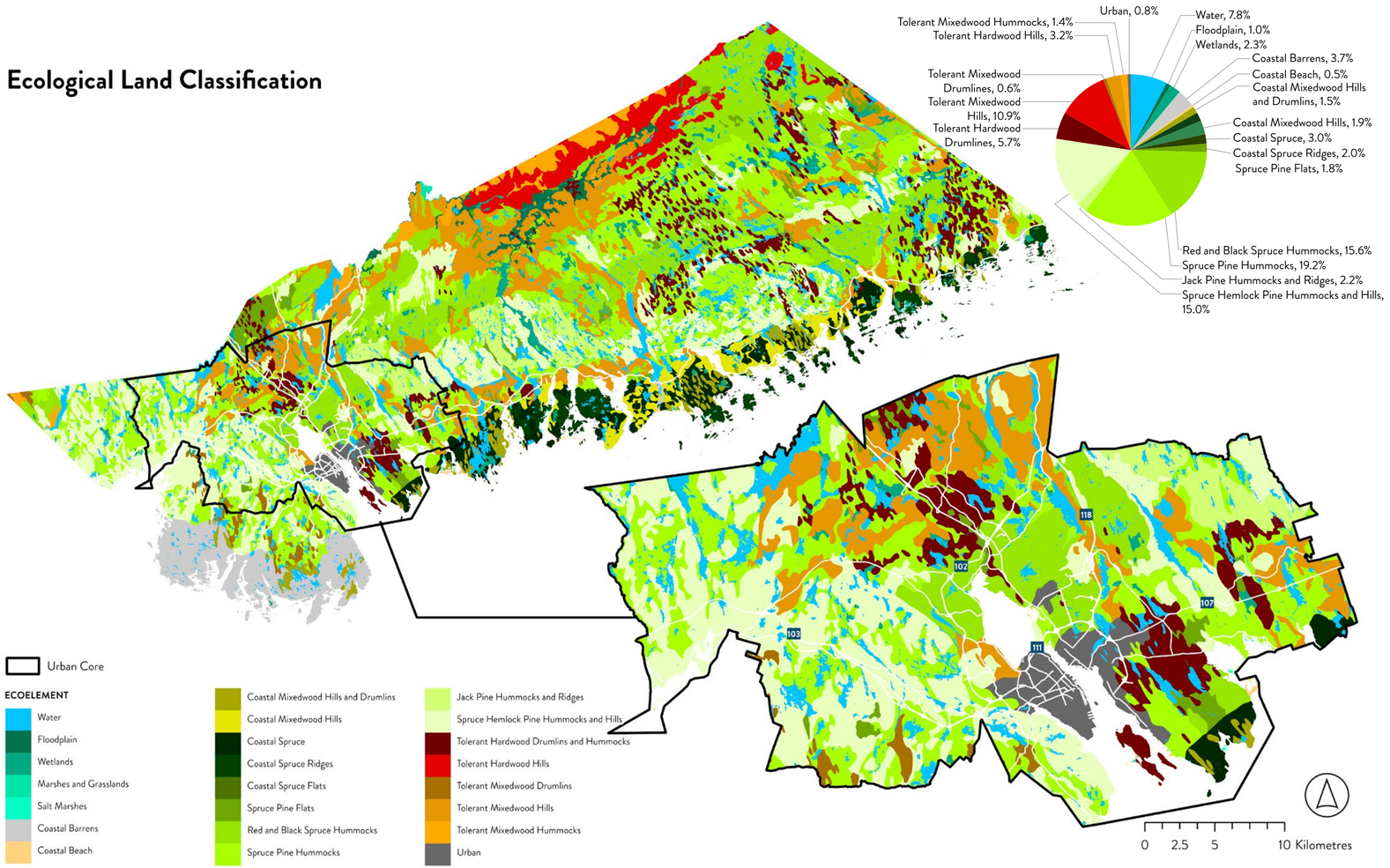


Figure 2-1. Ecological land classification mapping with the HRM illustrates the diversity of terrestrial ecosystems that exist within the Municipality's land base.

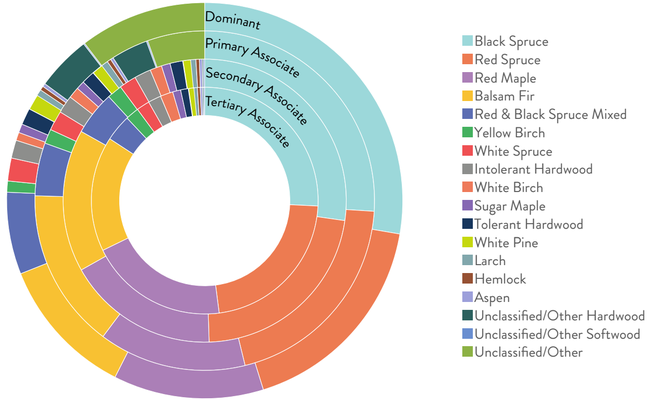


Figure 2-2. Dominant species and associates in the HRM's woodlands.

of managed forest include stands with silvicultural treatments, selective cuts, and Christmas tree farms.

FOREST TYPES

Coniferous communities dominate the HRM's woodlands (Figure 2-1). Provincial datasets identify that more than 60% of the HRM's forests feature black and/or red spruce or balsam fir as dominant species (Figure 2-2). Spruce and spruce-pine hummocks are particularly abundant communities within the municipality. Red maple is the most dominant broadleaf species, and is commonly found in rich, moist soils, often along the banks of streams and swamps.

Character old growth Acadian species including red spruce, eastern hemlock, American beech, yellow birch, and sugar maple can each be found as lead species in isolated instances. However, these species collectively dominate in less than five percent of the woodlands.

Spruce and fir are also common associates in stands dominated by other conifers. Larch is a common associate of black spruce, occurring in eight percent of spruce-dominated stands (Figure 2-2). Larch tends to grow as an associate to black spruce on wet sites and in boggy areas. Balsam fir is a more common associate in stands dominated by spruce.

HRM's native ecosystems are diverse (Figure 2-1) because of the varied site conditions that occur within the Municipality's large land base. Along the HRM's eastern shore, globally rare broom crowberry coastal heathland - a community dominated by huckleberries, blueberry, lambkill, cinnamon fern, alders, and black crowberry - may be found. Elsewhere, towards Elderbank, forests of hemlock, white pine, red oak, and other hardwoods occur, situated atop calcareous bedrock. Outside the reaches of fields, pasture and croplands, remnant floodplain forests of white ash, sugar maple and elm sometimes occur although centuries of land conversion have made these communities particularly rare. On the rolling hills of Musquodoboit late successional (i.e., old) mixed-wood forests might consist of sugar maple, yellow birch and beech on upper slopes and red spruce, balsam fir and hemlock on middle and lower slopes.

This rich diversity of ecosystems supports an abundance of animal life. While much has changed in the centuries since European arrival, the Wabanaki-Acadian remains resilient, and sustains refuge for a broad range of plant and animal species.

DISTURBANCE

Disturbance is a natural process in the Wabanaki-Acadian Forest. While in some stands historically

infrequent, disturbance plays an essential role in renewal and maintaining a healthy ecosystem. Various types of disturbances, such as windthrow, fire, and biotic agents, shape and influence this landscape, supporting biodiversity.

Provincial datasets identify that roughly two percent of the HRM's woodlands have recently experienced a disturbance event, with windthrow and crown dieback being the most significant. Crown dieback is more a symptom than a form of disturbance itself, however the root causes of crown dieback are often difficult to confirm through remote sensing alone. Smaller areas of burn and secondary woodlands over abandoned fields are also present. The burn area following the 2023 Upper Tantallon wildfire is however not reflected in **Figure 2-1** (the dataset predates the 2023 fire season).

Despite the longstanding role of disturbance within the Wabanaki-Acadian Forest, our relationship with forest disturbance is changing. Long-term changes in precipitation and the frequency and intensity of extreme weather creates new challenges in managing the HRM's more than 4,300 km² of forested lands. A patchwork of ownership structures and interests within the woodlands now more than ever demands a collaborative and integrated approach to supporting the forest through the trials ahead.

Nova Scotia's Forest Datasets

The government of Nova Scotia has been monitoring Nova Scotia's forest resources for nearly 60 years. Sophisticated field collection programs used in combination with modern remote sensing and GIS technologies allows the Province to capture change in its resources over time. The inventory data enables decision makers to make informed choices on sustainable forest management. Varied analyses are used to define and track forest components and processes, such as volume and growth, and results are reported in a range of reports. The data also supports modeling volumes, biomass and forest carbon. This valuable database is regularly updated and shared with the HRM. These datasets have been drawn on to produce the analyses contained in this section.

FIRE

On May 28, 2023, the Upper Tantallon wildfire began, damaging an estimated 200 properties and forcing the temporary evacuation of over 16,000 people from the HRM's urban core. Schools were closed, 150 homes were lost, and a local state of emergency was declared. This fire was one of many in 2023, with 220 wildfires burning more than 25,000 hectares across Nova Scotia. The largest wildfire on record in the province, outside Shelburne, destroyed 60 homes and impacted over 23,000 hectares. The 2023 fire season was unprecedented in the scale of its impact but not entirely unique, with past events like the 2009 Spryfield fire burning 800 hectares and also triggering evacuations.

Wildfire has always been part of the Wabanaki-Acadian Forest's natural renewal process. However, evidence suggests that the frequency and severity of fire events is increasing, at least in part due to climate change, which brings warmer and often drier conditions.

While fire behaviour is complex, coniferous fuel types generally support more severe fire behaviour than broadleaf. More than 45% of the HRM's woodlands would be considered a coniferous fuel type (**Figure 2-3**). In the urban core, coniferous fuels are still dominant, but broadleaf and mixed fuels make up a greater share of woodlands. When it comes to building fire resilience communities, local governments have several tools, including:

- Fuel treatments in Municipal woodlands to influence the wildfire behaviour in priority areas,
- Mapping the wildland-urban interface (WUI) and requiring built form and site design to meet fire-resilient standards,
- Developing education and community awareness of wildfire threat, and helping property owners understand how they can maintain fire resilient properties themselves.

Canadian Fuel Types

You can read more about the Canadian Forest Fire Behaviour Prediction (FBP) System and its associated fuel types here.

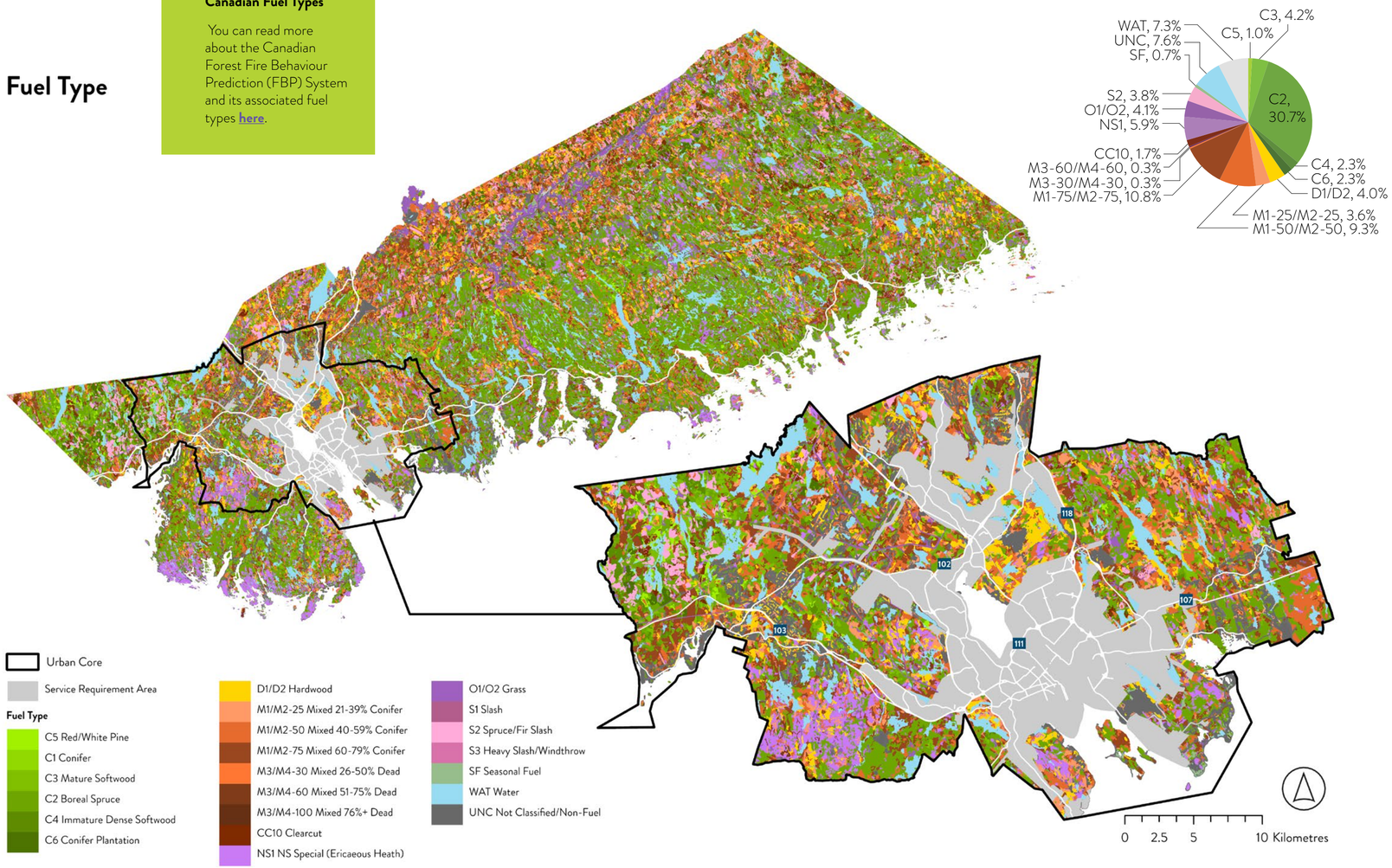
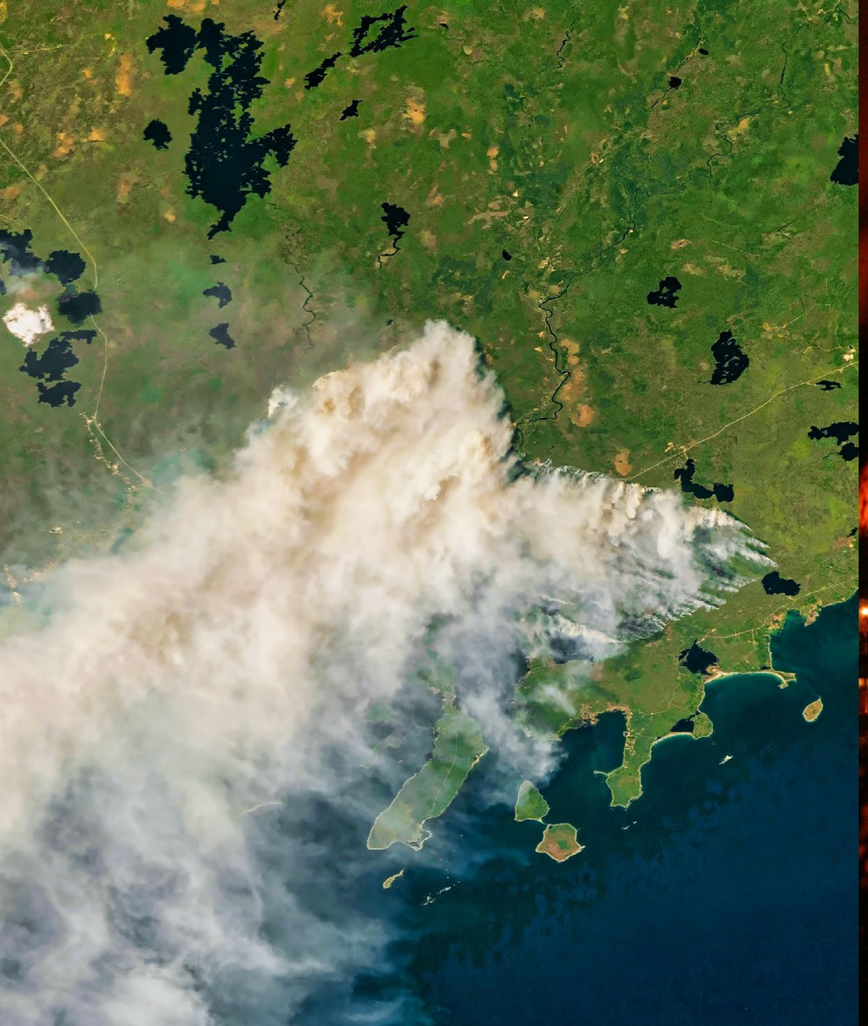
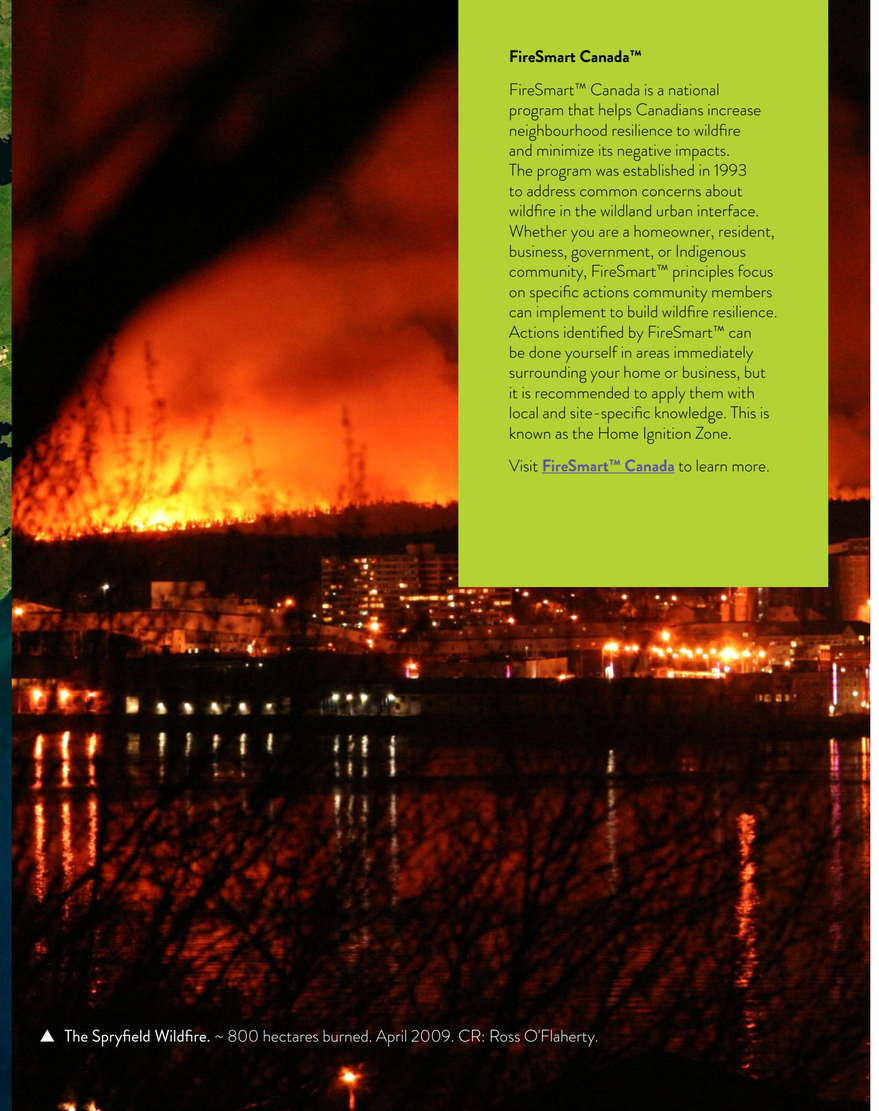


Figure 2-3. Provincial fuel type mapping illustrates differences in forest fuels that exist across the HRM's land base. Forest fuels influence fire behaviour and therefore fire risk. Not all forest fuel types pose the same level of fire risk.



▲ The Shelburne Wildfire. >23,000 hectares burned. June 2023. CR: Shutterstock Imagery.



▲ **The Spryfield Wildfire.** ~ 800 hectares burned. April 2009. CR: Ross O'Flaherty.

FireSmart Canada™

FireSmart™ Canada is a national program that helps Canadians increase neighbourhood resilience to wildfire and minimize its negative impacts. The program was established in 1993 to address common concerns about wildfire in the wildland urban interface. Whether you are a homeowner, resident, business, government, or Indigenous community, FireSmart™ principles focus on specific actions community members can implement to build wildfire resilience. Actions identified by FireSmart™ can be done yourself in areas immediately surrounding your home or business, but it is recommended to apply them with local and site-specific knowledge. This is known as the Home Ignition Zone.

Visit **FireSmart™ Canada** to learn more.

▲ Tree down following Hurricane Juan. September 2003. Credit: Peter Duinker.

WIND

Fire is not the only disturbance in the Wabanaki-Acadian Forest. In much of the Acadian-Wabanaki Forest, wind is a more influential form of disturbance than fire. Strong winds and gusts can bring down limbs, entire trees, and even entire stands in severe cases. Large-scale blowdown, known as windthrow events, create large openings in otherwise continuous forest areas. Like fire, windthrow is a natural disturbance that releases the next generation of trees from the understorey. However, more frequent and severe weather events, including hurricanes, may increase wind's impact on forests and trees.

Hurricane Fiona made landfall in Guysborough on September 24, 2022, as the strongest storm in Canadian history by barometric pressure. With sustained winds of nearly 170 km/h and peak gusts of almost 180 km/h, the storm caused significant damage. The storm also generated large waves and destructive storm surge. Provincial analyses suggest over 10,000 hectares of forests were impacted by windthrow, including 800 hectares within the HRM. The cleanup cost to the HRM was $1.6 million, not including provincial or private expenditures.

HRM manages wind-related risks primarily through tree maintenance. A proactive maintenance program can reduce the likelihood of tree failure during storms, but severe storms like Fiona will always result in considerable cleanup costs. Municipally owned parks and woodlands will be closed during extreme weather. Windthrow will

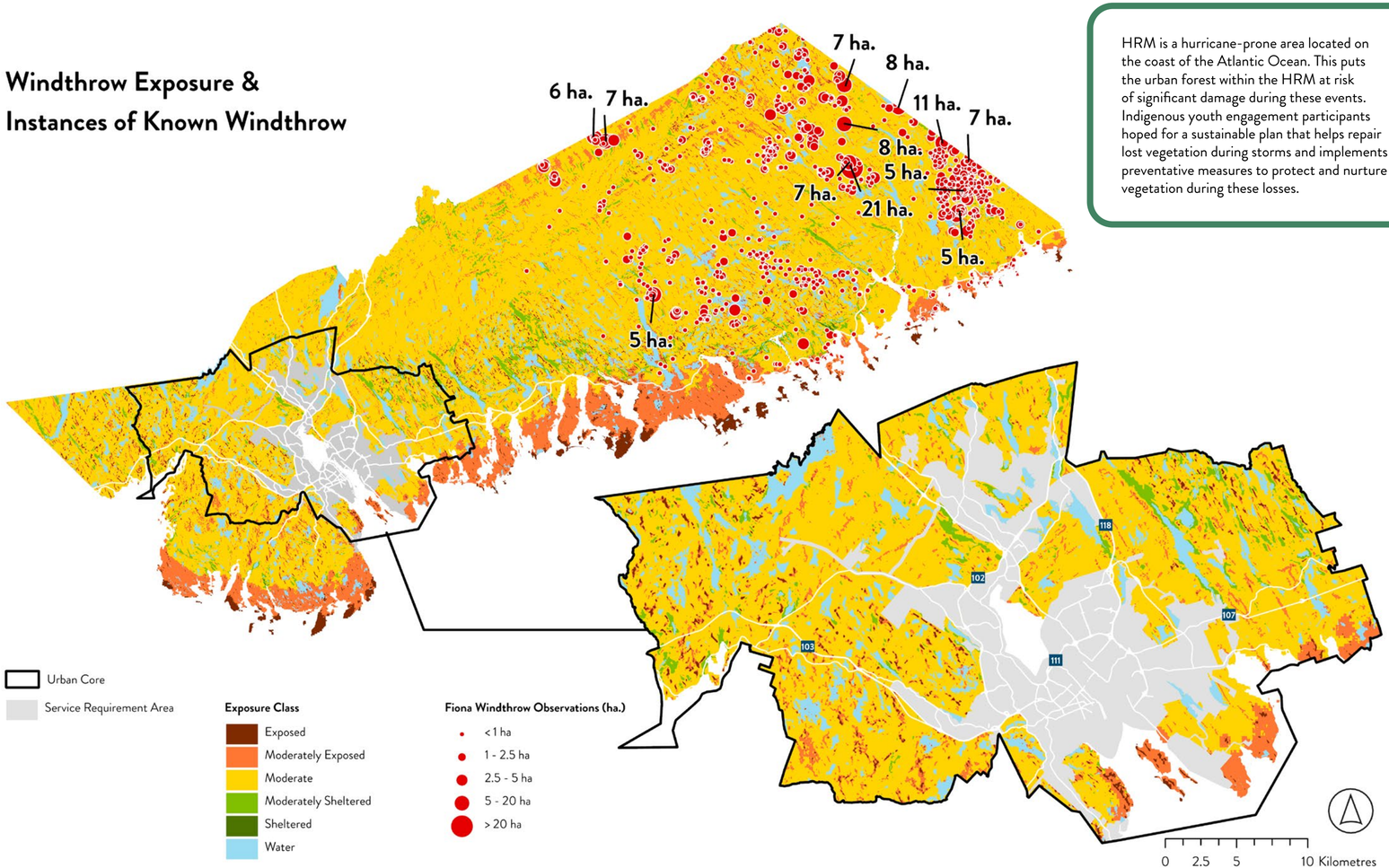


Figure 2-4. Windthrow exposure and instances of known windthrow in the wake of Hurricane Fiona.

HRM is a hurricane-prone area located on the coast of the Atlantic Ocean. This puts the urban forest within the HRM at risk of significant damage during these events. Indigenous youth engagement participants hoped for a sustainable plan that helps repair lost vegetation during storms and implements preventative measures to protect and nurture vegetation during these losses.

continue to drive forest renewal, and the municipality can explore practices to avoid creating new areas with heightened susceptibility to windthrow events.

Figure 2-4 on the following page identifies windthrow risk within Halifax's woodlands given relative exposure, compositional, and soil conditions. Wind risk in urban areas is more complex than can be predicted through these variables alone, and so the analysis shown in Figure 2-4 does not extend into the Municipality's Service Area.

PESTS AND DISEASES

Pests and disease have always been an important agent of change in the Wabanaki-Acadian Forest. Spruce budworm, for example, has long played a role in the renewal of forested communities. However, the last 200 years has altered the role of pests and disease in the HRM's woodlands.

Globalization has allowed new, invasive species to reach our shores, significantly impacting woodland ecosystems. Beech bark disease, beech leaf-mining weevil, brown spruce longhorn beetle, Dutch elm disease, emerald ash borer, and hemlock woolly adelgid have all been introduced within the last 150 years. Even native pests have seen their ecological role shift. Cyclical defoliation by spruce budworm is expected to become more severe under the combined influences of climate change and the legacy of forest industry practices.[27]

The challenges posed by pests and diseases are likely to worsen with climate change. Trees already stressed by shifting climate conditions are less resilient to secondary pressures, such as pests and diseases. This increased vulnerability can lead to more severe and widespread outbreaks. Additionally, life-cycles and geographic ranges of pests and diseases may shift in response to changing climates, potentially causing issues in areas that were previously unaffected.

In 2022, the HRM developed an Integrated Pest Management (IPM) Strategy in response to the increasing risks of invasive species and pests. The IPM Strategy aims to address gaps in current pest management practices by providing a formalized, holistic, and ecological approach with reduced pesticide use. The Municipality will continue to implement and update its IPM Strategy in response to the ever-changing pest management landscape.

Beech Bark Disease
Cryptococcus fagisuga / Neonectria faginata

Type: Insect-fungus complex

Target(s): American beech and European beech

ID: 10 mm long; metallic green body with bronze-coloured wing covers; white tufts of hair on along the sides and rear of the abdomen

Character damage: wilting foliage, undersized leaves, crown thinning, character orange-red beech bark disease cankers and fruiting bodies, waxy and woolly secretions of beech scale insect.

Note(s): Beech bark disease occurs after extensive bark invasion by the beech scale insect.

Emerald Ash Borer
Agrilus planipennis

Type: Invasive borer

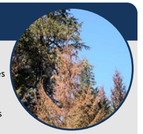
Target(s): ash - in particular green ash, black ash, and white ash

ID: metallic green color; very short antennae; ~13 mm long and 3 mm wide; larvae creamy-white in color with flattened but segmented bodies

Character damage: 'D' shaped exit holes, larval galleries behind bark, yellowing foliage, waterspouts, foliage feeding, crown thinning, mortality.

Note(s): EAB infestation is typically fatal for ash trees, posing high risk. Most high-risk public ash trees have been removed. If you have an uninfected ash, consider consulting a tree professional for treatment.

Eastern Spruce Budworm
Choristoneura fumiferana



Type: Native plant feeder

Target(s): balsam fir, white spruce, and sometimes red and black spruce

ID: Small greyish-brown moth with wingspan of 20-25mm; wings have faint wavy lines across and may have pale spot near the centre

Character damage: Defoliation happens at the top of trees; severely affected stands turn rust colour due to the presence of dried out needles

Note(s): Spruce budworms feed on foliage and cones of plants, causing significant mortality and growth loss in mature spruce-fir forests. Timber and non-timber resources are severely affected.

Hemlock Woolly Adelgid
Adelges tsugae

Type: Invasive plant feeder

Target(s): hemlock, some spruce

ID: white "wooly" sacs resembling cotton swab at the base of needles (spring), premature bud and shoot dieback, needle loss, foliage discoloration, dieback, decline.

Character damage: feeds by sucking sap from hemlock and some species of spruce.

Note(s): The absence of a winged generation in North America means HWA spreads primarily through assisted migration (e.g., by humans, animals, or wind) to new areas.

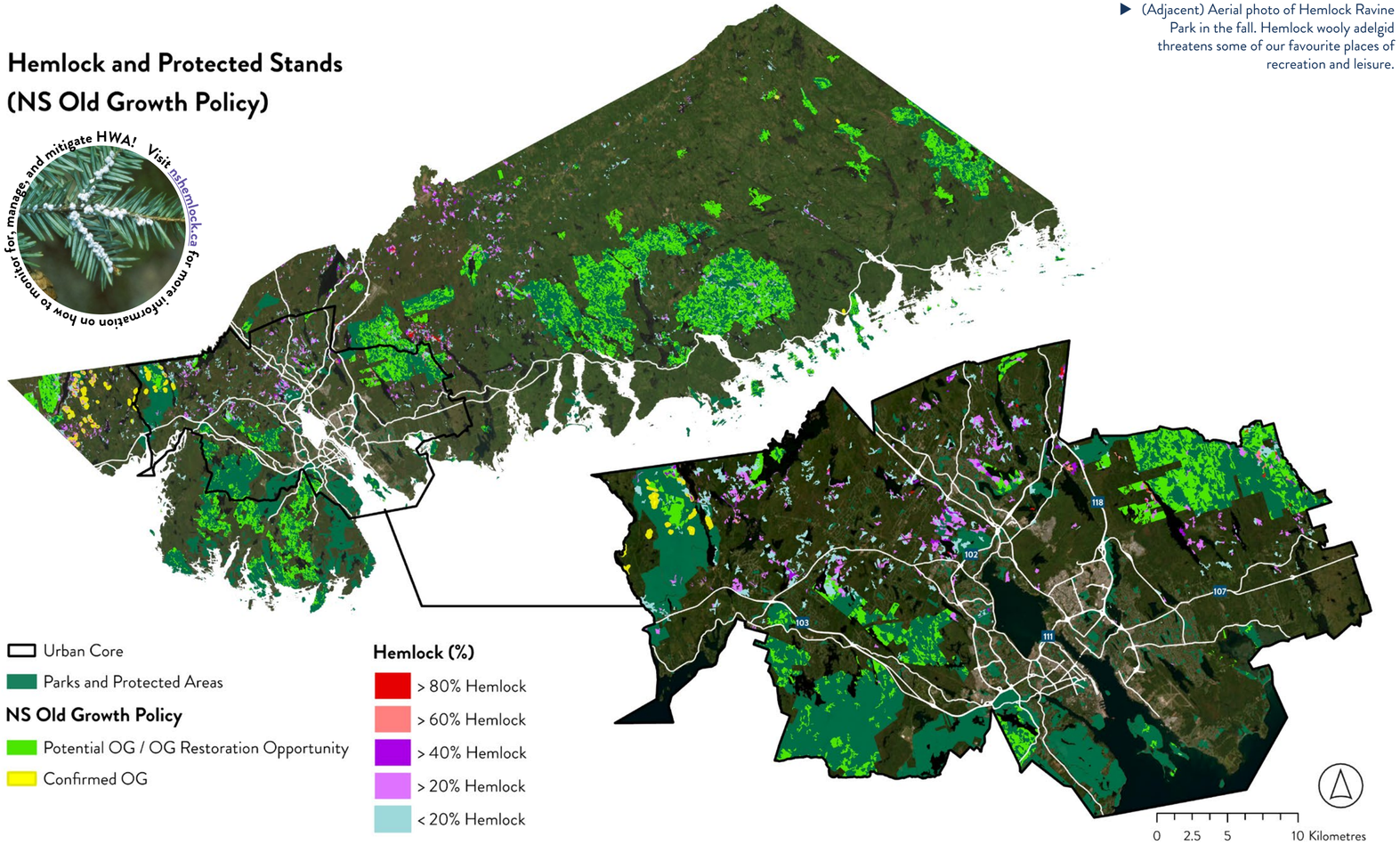


Figure 2-5. HRM woodland mapping by proportion of Hemlock and stands protected under Nova Scotia's Old Growth Forest Policy.

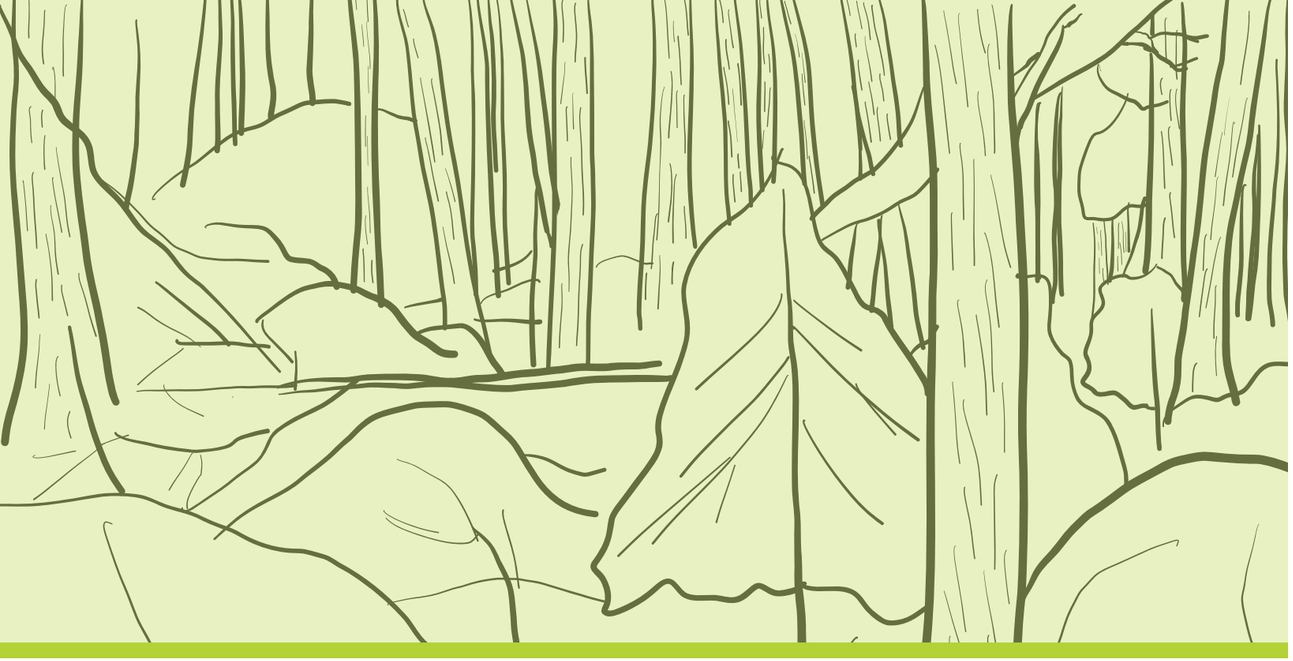
▶ (Adjacent) Aerial photo of Hemlock Ravine Park in the fall. Hemlock wooly adelgid threatens some of our favourite places of recreation and leisure.

Hemlock Woolly Adelgid

Hemlock woolly adelgid (HWA) is an invasive, aphid-like insect native to eastern Asia and the Pacific Northwest. HWA was first reported in Canada in the 1920s, and was detected in Southwestern Nova Scotia in 2017.

HWA can cause defoliation, twig dieback and mortality in as few as four years, though it can take up to 20 years. All hemlock sizes and ages are vulnerable. HWA is spread by wind and animals. Long distance dispersal also occurs via infested plant material (e.g., firewood).

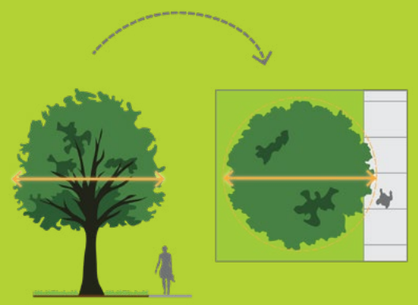
HWA is of special concern at this time because of hemlock's role as a keystone Wabanaki-Acadian species. Evidence suggests that as much as 80% of infested hemlock trees die within 3–15 years of infestation. An estimated 11,000 hectares of woodland in the HRM (three percent of woodlands) are 20% or more hemlock. Much of this area is within the HRM's remaining old growth stands. Significant coordination efforts are already underway between all levels of government, academics, and environmental non-governmental organizations to prepare a management plan and protect the HRM's hemlock trees.



2.2. URBAN FOREST CANOPY COVER

What *is* Canopy Cover?

Canopy cover refers to the extent of tree canopy covering a defined area. Imagine you are flying above a tree. That tree's canopy cover is the amount of ground obstructed from your top-down view by the tree's leafy crown.



Many jurisdictions track canopy cover over time to monitor change in their urban forest, and to inform administrative planning.

Measures of canopy cover are commonly used to evaluate the extent of an urban forest. Many communities actively track canopy cover over time to monitor change and to inform planning. While canopy cover is a valuable metric in urban forestry, it does not fully capture the health, challenges, or successes of an urban forest management program. It should be considered alongside a full range of other factors including land use, program funding and scope, canopy distribution, tree inventory, as well as varied ecological considerations.

HRM's canopy cover was measured using LiDAR (Light Detection and Ranging), high-resolution imagery, and machine learning methods. Though measurement methods were consistent, input datasets varied between urban and rural areas. In the urban core, LiDAR data from 2019 was combined with imagery from 2017 and 2022. In rural areas, LiDAR data from 2018 was combined with imagery from 2017.

In 2022, the HRM's municipality-wide canopy cover was 58%, covering nearly 3,200 km². Inside the urban core, canopy cover was 65%. This section examines canopy cover in relation to different summary units, land uses, and land ownerships within the HRM:

- **Land use:** Provides insights into the relationship between varied built form and canopy cover.
- **Urban Core:** Provides insights into the urban forest program's operational focus area within the HRM.
- **Land ownership:** Provides insights into the relationship between canopy cover and ownership.
- **2013 Urban Forest Master Plan area:** Supports evaluation of canopy change since prior analyses.
- **Service Requirements Area:** Defined through Schedule B of the HRM's Subdivision By-law, these are areas connected to municipal water and/or sewer that can support urban use and densities.
- **Centre plan area:** Highlights baseline canopy conditions in the HRM's urban heart.

PRIOR CANOPY ASSESSMENT

HRM's 2013 Urban Forest Master Plan study area (**Figure 2-7**) was estimated to have 34% canopy cover using 2022 data. A 2016 study[28] also estimated canopy cover to have been 34% at that time, which would have been an increase from 25% in 2007 (also reported in the 2016 study).

While this suggests canopy cover grew by nine percent in the decade between 2007 and 2016 and has remained stable since, this observation may not be reliable. A global forest change dataset[29] suggests that canopy loss may have exceeded gain since 2001 (**Figure 2-9**). Historic trends can be challenging to report with confidence due to the low-resolution of imagery available in 2007 and 2016, because lower-resolution inputs generally yield less accurate canopy cover estimates.

Table 2-1. Canopy summary by land use in the Urban Core and across the HRM (including the urban core). Refer to **Figure 2-8** for land use distribution in the HRM.

	Urban Core 2022			HRM 2022		
Use	**Land Area (ha)**	**Canopy Area (ha)**	**Canopy Cover (%)**	**Land Area (ha)**	**Canopy Area (ha)**	**Canopy Cover (%)**
Community Commercial	613	131	21.3	613	131	21.3
Comprehensive Development District (CDD)	308	107	34.8	308	107	34.8
Downtown	73	4	5.0	73	4	5.0
Industrial	4,163	1,169	28.1	6,988	2,558	36.6
Institutional	243	37	15.2	243	37	15.2
Mixed Use	283	67	23.6	347	94	27.1
Protected Area	17,918	13,204	73.7	92,832	61,712	66.5
Rural	32,662	23,959	73.4	374,775	213,397	56.9
Right of Way and Others	5,109	1,840	18.5	9,116	2,560	28.1
Residential						
Interface	18,993	12,722	67.0	39,893	24,175	60.6
Medium Density	295	77	26.0	295	77	26.0
Single Family Density	6,465	2,736	42.3	6,465	2,736	42.3
Parks						
Community	977	555	56.8	1,257	675	53.7
District	475	234	49.3	511	250	48.9
Neighbourhood	198	135	68.0	238	157	66.2
Park	3,520	2,342	66.5	10,504	6,174	58.8
Plaza	2	0.3	13.3	2	0	13.3
Provincial	53	34	63.9	4,772	2,388	50.0
Regional	2,690	2,126	79.0	3,351	2,604	77.7
Totals	**95,041**	**61,478**	**64.7**	**552,583**	**319,834**	**57.9**

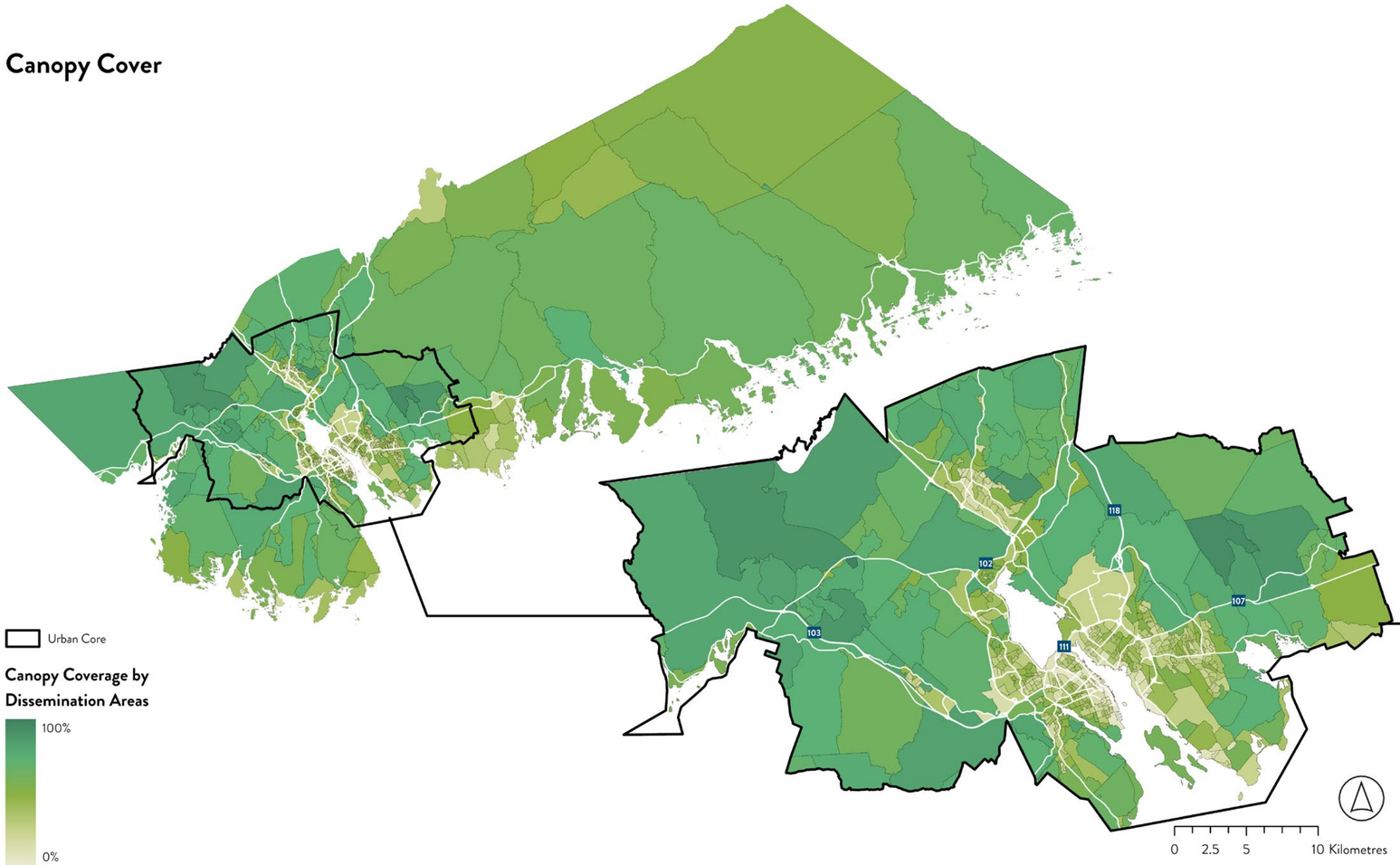


Figure 2-6. HRM canopy cover mapping by Tree Equity Score (TES).

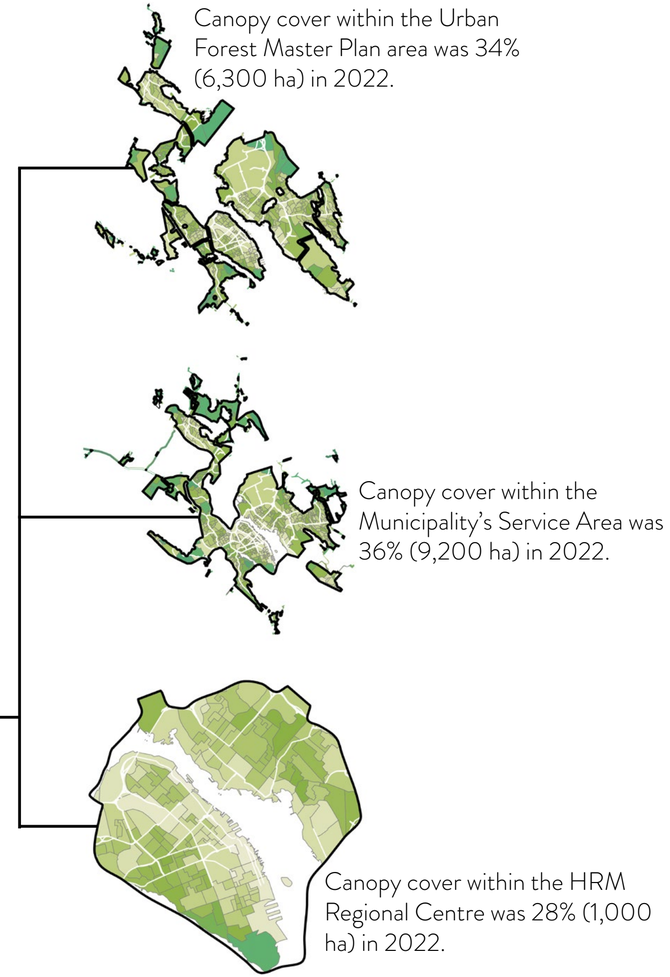


Figure 2-7. Additional canopy cover spatial units in the HRM.

CANOPY BY LAND USE

HRM is a large Regional Municipality with diverse land uses (Table 2-1). Land use is an important summary unit when we think about canopy cover because built form tends to be a primary driver in urban forest composition and canopy extent.

In the HRM, rural land dominates, making up more than two-thirds of Municipality's land base. Other significant land uses include parks, protected areas, and low-density residential areas integrated with forested and rural features (Table 2-1). Within the HRM's urban core, rural uses, protected areas, parks, and low-density residential areas still dominate. However, single-family subdivisions, industrial uses, and rights-of-way are also significant components (Table 2-1).

HRM's downtown area, which is home to the highest density of people and highest intensity of urban uses in the municipality, also has the lowest canopy cover in the HRM (5%, Table 4-1), and is relatively low compared to the downtowns of several of the HRM's peer communities. For instance, downtown canopy cover is over 15% in Winnipeg, MB and in Burlington, ON[30], and nearly 12% in Surrey, BC.

CANOPY BY LAND OWNERSHIP

Ownership is an important summary unit when we think about canopy cover because it helps us understand differences in urban forest composition and canopy extent across different land uses within the municipality.

Over 71% of the HRM's land area and 70% of tree canopy cover is on private property (Table 2-4). the HRM owns less than 2.5% of the Municipality's total land area, but 10% of the land area in the urban core where Municipal services are concentrated. Provincial lands make up a significant component of landholdings outside of the urban core (26%, Table 2-4), however the Municipality generally has limited influence over management decisions affecting crown land.

Whether considering just the urban core or all of the HRM, canopy cover on municipal lands exceeds 50%. Future change in the HRM's canopy cover considered at any spatial scale will be moderated in large part by changes in the abundance and size of trees on land uses not owned or managed by the City; namely private and crown land.

Table 2-2. Canopy summary by land ownership in the HRM.

	Urban Core 2022				HRM 2022			
Use	Land Area (ha)	Proportion of Urban Centre Land Area (%)	Canopy Area (ha)	Canopy Cover (%)	Land Area (ha)	Proportion of Jurisdictional Land Area (%)	Canopy Area (ha)	Canopy Coverage (%)
First Nation Reserves	82	0.1	60	73.1	580	0.1	442	76.3
Federal	117	0.1	83	71.2	261	0.0	83	31.9
Government of Nova Scotia	13,361	14.1	10,461	78.3	143,880	26.0	88,363	61.4
Halifax Water	33	0.0	5	16.5	49	0.0	12	23.7
Halifax-Dartmouth Bridge Commission	10	0.0	3	27.8	10	0.0	3	27.8
HRM	10,073	10.6	5,106	50.7	12,621	2.3	6,731	53.3
HRCE	13	0.0	4	32.5	13	0.0	4	32.6
Institutional	10	0.0	6	57.3	11	0.0	6	56.0
Nova Scotia Power	6	0.0	2	28.6	11	0.0	5	48.3
Private	70,427	74.1	45,443	64.5	394,147	71.3	223,851	56.8
Rail	632	0.7	205	32.5	664	0.1	218	32.9
Unopened Road Allowance	276	0.3	100	36.1	354	0.1	116	32.8
Totals	**95,041**	**100.0**	**61,478**	**64.7**	**552,600**	**100.0**	**319,834**	**57.9**

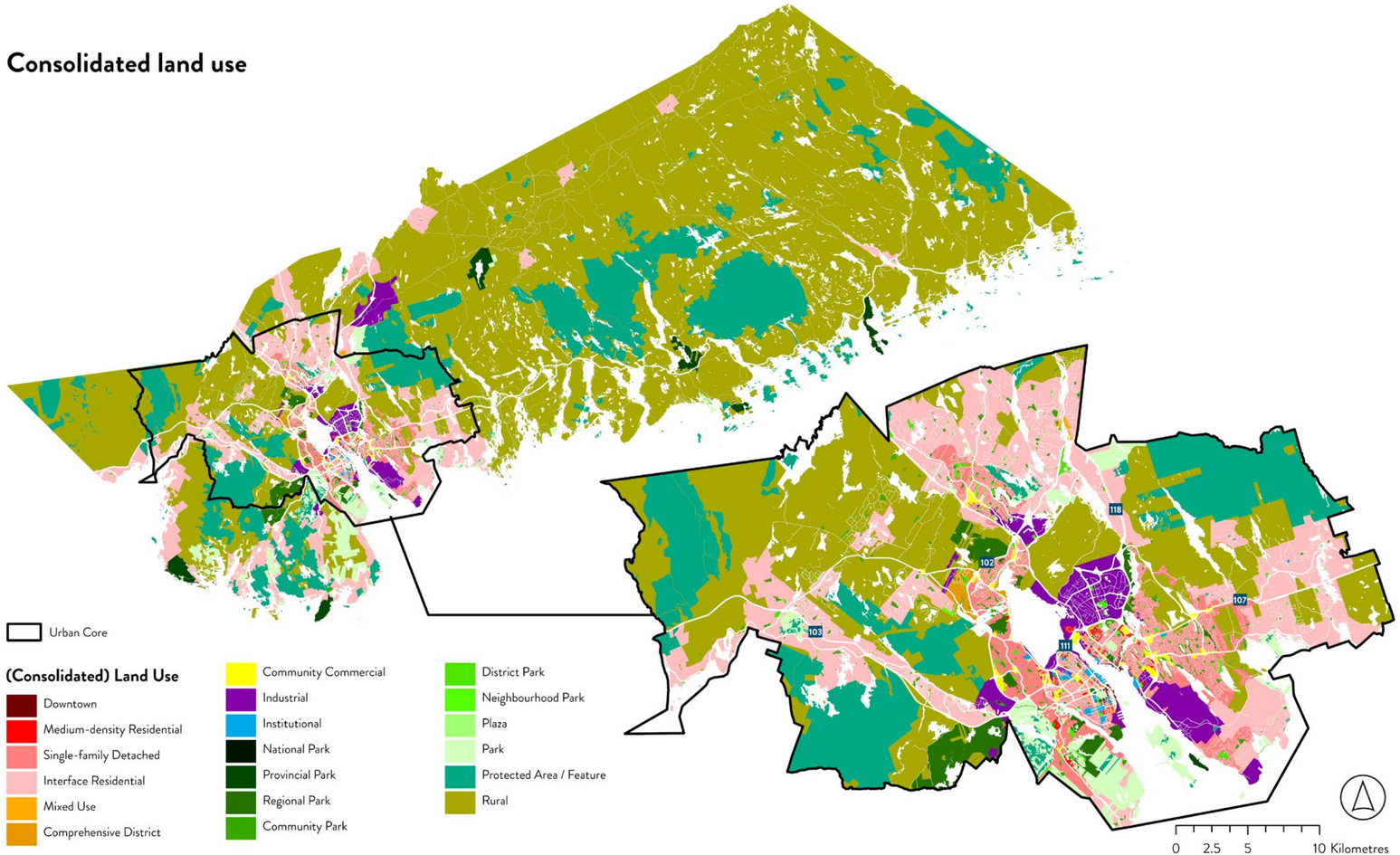


Figure 2-8. HRM consolidated land use mapping. Refer to Table 2-1 for canopy cover area by land use.

CANOPY CHANGE 2001-22

The University of Maryland's Global Land Analysis & Discovery (GLAD) Lab has monitored annual forest cover change using global satellite imagery for over 20 years.[31] The dataset, with a resolution of 30 m x 30 m, is too coarse to detect individual tree canopies but can identify larger canopy loss/gain events, providing a sense of broad canopy change within the municipality.

GLAD analysis suggests the HRM lost over a fifth of its municipality-wide canopy cover between 2000 and 2022, totalling nearly 100,000 hectares. About 10% of this lost canopy began to regrow over the same period, and the municipality gained over 20,000 hectares of new canopy in previously non-canopied areas (see Table 2-3). Overall, this dataset suggests canopy cover in the HRM has decreased by nearly 15% over the past twenty years. While some of these losses can be attributed to permanent conversion of forested land to other uses, or to disturbance events (e.g., fire or windthrow), much of the loss observed through GLAD data has been temporary in nature (i.e., has begun the process of regrowth since loss). While GLAD dataset does not support a means for tracking sources of loss, industrial activities, and in particular forest management, it has been and remains a significant driver in canopy cover change within the HRM.

HRM is home to a working landscape. Forestry practices and other industrial activities offer important contributions to our growing community and to the broader Nova Scotian economy. Forest management activities, and in particular harvests, by their nature can significantly reduce canopy cover over relatively large areas. It can then take years, or even decades for forests and canopy cover to return to a pre-harvest state. The regulation of forest operations, agriculture, mines, and quarries is the purview of the Province of Nova Scotia.

In the HRM's urban core, the municipality lost an estimated 11% (7,500 hectares) of its canopy cover between 2000 and 2022 according to the GLAD analysis. Canopy loss in the urban core is more often permanent due to land use conversion. In the urban core, 10,500 hectares has been lost, 500 hectares of that loss has begun to recover, and another 2,500 hectares of new canopy area has been introduced. Major loss events include the development of the Burnside Industrial Park, the Bedford Bypass, woodland lost to the Mineville Road fire (this area should recover with time), new Bedford subdivisions, and Mansion Avenue land clearing.

Table 2-3. Municipality-wide canopy change.

Year	Gross Canopy Loss (ha.)	Gross Loss (% Canopy)	Losses Recovered 2001-22 (ha.)	Losses Recovered 2001-22 (% of Gross Loss)	Unrecovered Losses 2001-22 (ha.)	Unrecovered Losses 2001-22 (% of Gross Loss)
2005 - 2005	33,759	11.4	8,824	26.1	24,935	73.9
2006 - 2010	28,933	11.0	792	2.7	28,141	97.3
2011 - 2015	19,364	8.3	251	1.3	19,112	98.7
2016 - 2020	12,023	5.6	392	3.3	11,631	96.7
2021 - 2022	2,677	1.3	252	9.4	2,425	90.6
Loss Totals	**96,756**	**32.6%**	**10,511**	**10.9%**	**86,244**	**89.1%**
Maintained (pre-2000) Canopy Area (ha., % of Municipality-wide canopy maintained new since 2000)					**199,864**	**62.5%**
New (post-2000) Canopy Area (ha., % of Municipality-wide canopy cover new since 2000)					**23,205**	**7.3%**
Totals (ha., % Municipality-wide canopy cover)					**319,780**	**58.5%**

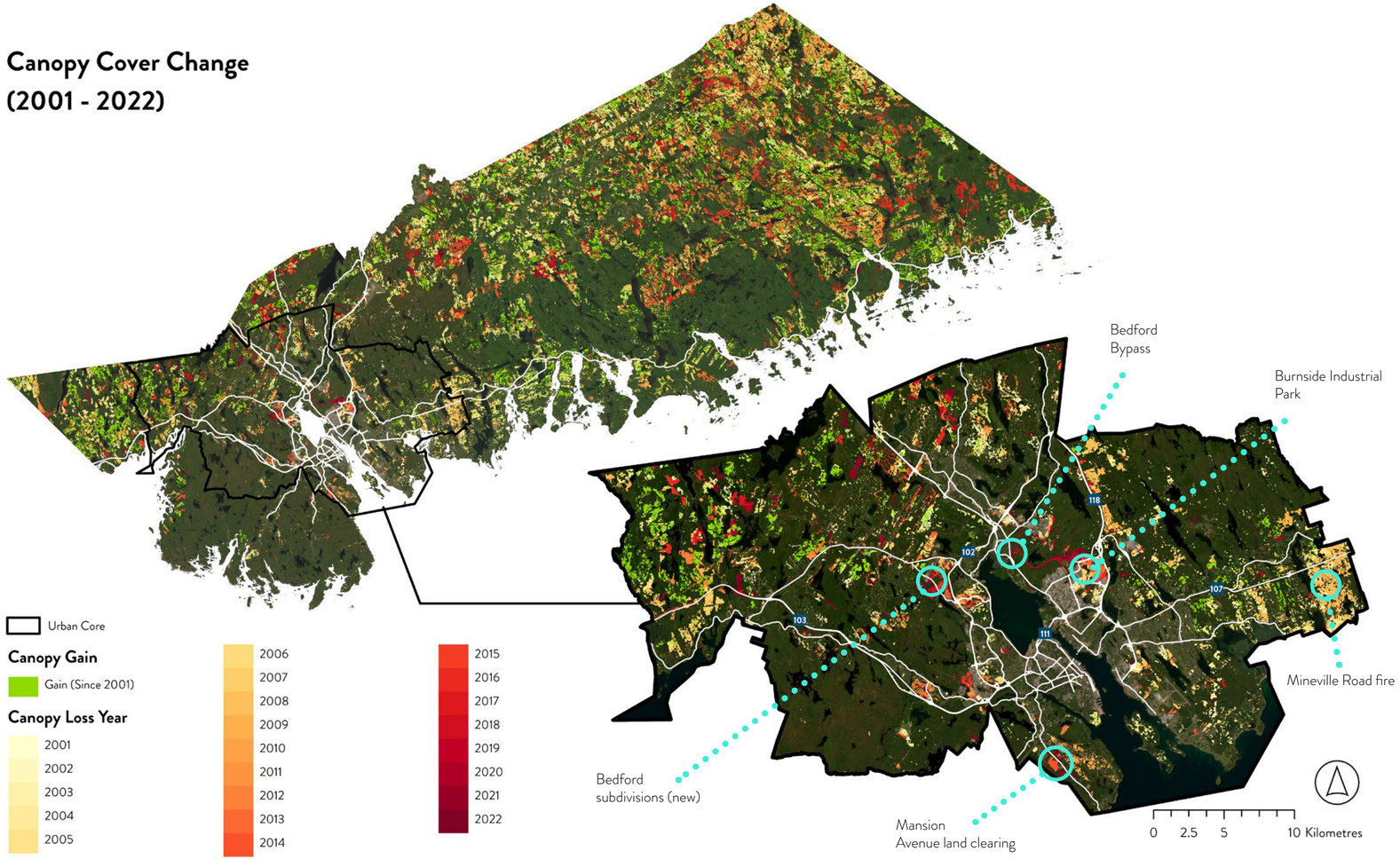
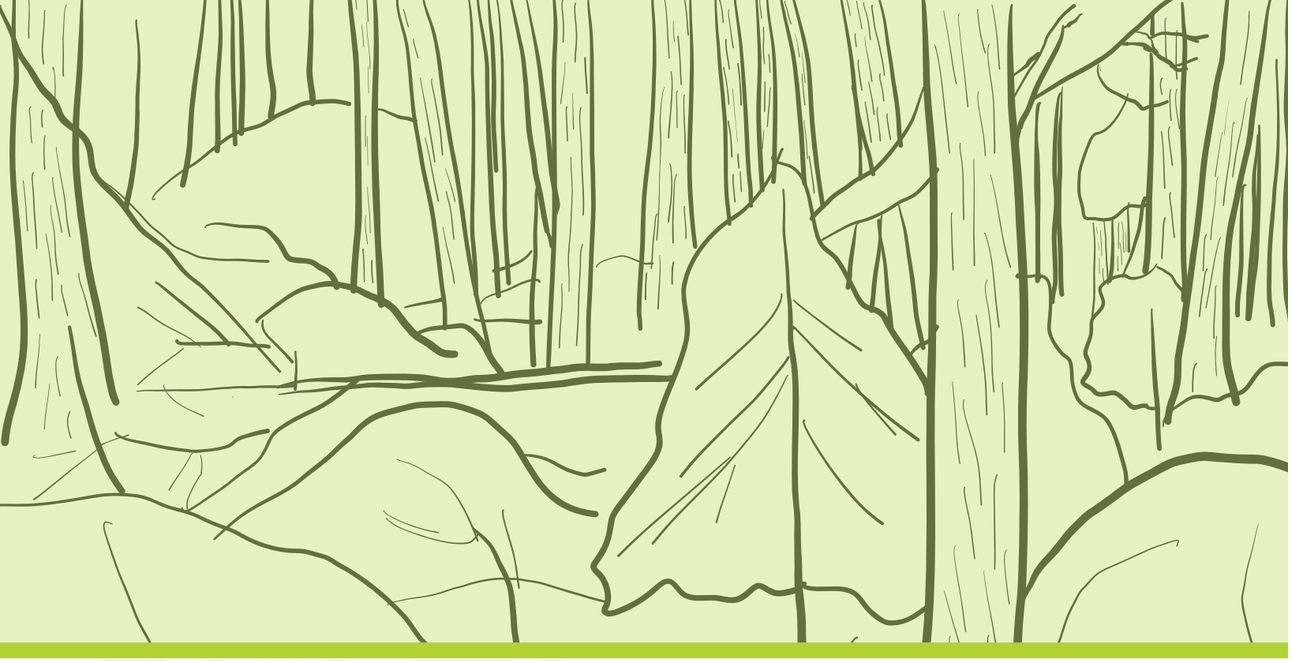


Figure 2-9. HRM canopy loss and gain mapping by year.



2.3. PLANTED TREES

HRM's Urban Forestry Division maintains an inventory of nearly 80,000 planted street trees within the urban core. Most of these trees are intentionally planted along urban boulevards. The tree inventory is about 80% complete as of 2024, with efforts ongoing to finalize the dataset to support operational planning.

SPECIES DIVERSITY

HRM's boulevards are home to approximately 150 tree species and 85 genera. About one in three inventoried trees is a maple, with Norway maple making up 14% and red maple seven percent of the total (**Figure 2-10**). Oak, linden, and elm each constitute eight to ten percent of tree genera. In terms of individual species, basswood, white elm, and northern red oak make up four to seven percent alone. All other tree species account for less than three percent individually.

Prioritizing diversity in urban planting supports resilience pest and disease outbreak. Where pests or disease often target a relatively small range of plants, having good diversity in a tree population helps to ensure that large clusters of trees will not be lost in the event of a single outbreak.

HRM's Urban Forestry Division has reduced the planting of maple in recent years to improve urban forest resilience, however the limited availability of diverse planting stock can hinder the Municipality's capacity to diversify. Planted tree diversification is also a gradual process as the HRM will not replace healthy trees. Maple will therefore persist as a dominant species in the inventory for many years.

MORE THAN PLANTED TREES

In a way, the land on which the HRM sits wants to grow trees. While most Municipal resources are dedicated to the trees staff have intentionally planted in the HRM's boulevards and within parks, countless more trees are recruited by the landscape every year, without the intention of any human resident. These naturally occurring trees are commonplace in our woodlands and native ecosystems and will often put down roots within our manicured lawns and parks as well if we allow them to. These plants are, when not invasive, every bit as important to the health and vigour of our urban forest broadly as trees we have planted as residents and community members.

This is particularly true in natural settings. While we can influence the composition of our woodlands and natural areas through intentional planting, **the Wabanaki-Acadian** is a forest that will readily support new growth, if we allow it to. Recovery after stand-level disturbance, like windthrow, or fire, is often quick in this part of the world. While planting can have its merits given the scale and nature of events we have seen under the influence of climate change, careful consideration should be given to the landscapes propensity to recruit trees without us.

STRUCTURAL DIVERSITY

The core elements of structural diversity are the range of tree sizes and age classes present in an planted tree population. In many cases, diameter measurements indicate the maturity of the trees. Currently, half of the HRM's trees have a diameter (dbh) of less than 15 cm, which is indicative of stable urban forest structure.

Diameter distributions that lack smaller-diameter trees can indicate reduced planting in recent years (**Figure 2-10**). For example, the HRM has decreased ash planting due to the threat of emerald ash borer (EAB). Similar trends in spruce reflect reduced planting to avoid susceptibility to spruce budworm. The diameter distribution of maple suggests a shift from past over-planting. Increased use of species like oak, walnut, ginkgo, lilac, hackberry, plane tree, and sweetgum are evidence of the HRM's efforts to increase diversity and resilience in the urban forest.

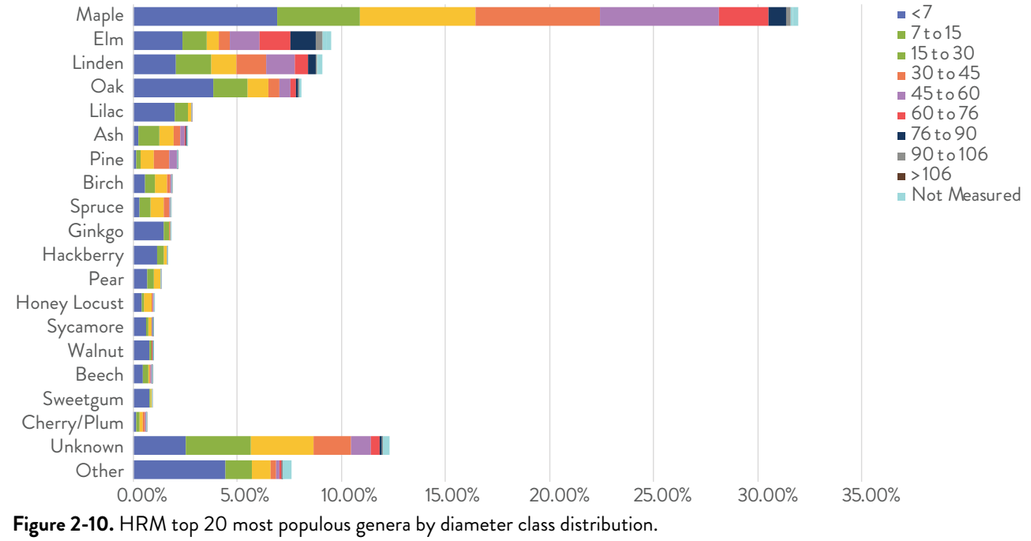


Figure 2-10. HRM top 20 most populous genera by diameter class distribution.

CHARACTER TREES

HRM is home to an estimated 150 species of tree, belonging to 85 genera. From evergreen to vibrant fall foliage, the Municipality's parks and streetscapes are home to a great diversity of plants.

A small selection of our favourite trees are shown adjacent. Look for these as you are out walking around our streetscapes.

Did you know

Planting objectives, site conditions, and constraints should guide the type of tree you are considering planting on your property? Different species of trees have different traits. Some have showy spring flowers, or vibrant fall foliage, others grow well in areas where soils are limited or of poor quality. Some trees are less resilient to constrained growing sites, or will grow too large if the overhead clearance available is limited (e.g., near a power line). Trees require after care in the years following planting. After care responsibilities differ from one tree to the next. Some species require significant aftercare (e.g., watering), while others tend to more readily become established in a new site.

Consider what you want to accomplish in planting your tree, as well as the limitations of the site you are planting within. Consult with a local nursery, arborist, or do your due diligence when selecting planting stock.

WHAT WE HEARD Nova Scotia's ash are of particular cultural importance to Mi'kmaq Peoples.

Black Ash
Fraxinus nigra
Shade intolerant, requires moisture. 7-13 opposite leaflets
Leaf Seed

White Ash
Fraxinus americana
Fast-growing, slightly tolerant to shade 5-9 opposite leaflets, clearly stalked
Leaf Seed

Pin Oak
Quercus palustris
Large stature, one of the faster to grow, and one of the first oaks to bloom in the spring. Distinctive, dense growth habit.
Leaf Seed

Bur Oak
Quercus macrocarpa
Large stature, slow growing. Very adaptable to various soils/more tolerant of city conditions than most oaks.
Leaf Seed

Swamp White Oak
Quercus bicolor
Large stature, slow growing, excellent drought resistance.
Leaf Seed

Red Oak
Quercus rubra
Large stature, one of the faster growing oaks, withstands the polluted air of cities.
Leaf Seed

European Beech
Fagus sylvatica
Slow-medium growth rate. Attractive smooth grey bark, dense canopy, resistant to beech bark disease. Tendency to retain leaves into the winter.
Leaf Seed

American Elm
Ulmus americana
One of Halifax's most common street trees. Very hardy, large, vase shaped. Medium-fast growing. Grows well under a variety of conditions.
Leaf Seed

Sweetgum
Liquidambar styraciflua
Tolerant to wet conditions, medium-fast growing. Bright fall colour, symmetrical shape.
Leaf Seed

Tulip Tree
Liriodendron tulipifera
Large stature, fast growing. Large showy flowers blooming from May-June, suited to a wide climatic range.
Leaf Flower

Red Maple
Acer rubrum (species and cultivars)
Large stature, medium - fast growing, red fall colour. Very tolerant of soils but prefers slightly acidic.
Leaf Seed

Honeylocust
Gleditsia triacanthos Inermis
Very tolerant to urban conditions, fast growing, casts a light shade due to small leaflets. Only the thornless variety is planted in the right of way.
Leaf Seed

Japanese Tree Lilac
Syringa reticulata
Small stature, showy flowers. Salt, drought and shade tolerant (full sun for best flowering).
Leaf Flower

Ironwood
Ostrya virginiana
Small stature, slow growing. Tolerant to shade and low soil volumes. Slow to establish after being planted, but once it does it makes excellent growth.
Leaf Seed

Katsura
Cercidiphyllum japonicum
Medium-sized stature, medium—fast growth rate. Impressive colour: purplish in spring, blue-green in summer, red and yellow in autumn.
Leaf Seed

Kentucky Coffeetree
Gymnocladus dioicus
Slow-medium growth rate, large & doubly compound leaf. Very adaptable to drought and city conditions. One of the last trees to leaf out in the spring.
Leaf Seed

Gingko (Male)
Ginkgo biloba
Large stature, slow growing. Extremely tolerant to urban conditions, unique fan shaped leaves. No know pests or diseases affect it.
Leaf Fruit

Hackberry
Celtis occidentalis
Medium-large stature, medium-fast growth rate. Performs admirably under adverse conditions, interesting ridged bark.
Leaf Seed

European Hornbeam
Carpinus betulus
Medium-sized stature, Slow-medium growth rate. Very tolerant to urban conditions, pruning seldom required although withstands heavy pruning.
Leaf Seed

Basswood
Tilia americana
Large stature, medium growth rate. Very shade tolerant. Has a tendency to produce suckers at its base.
Leaf Flower

Silver Linden
Tilia tomentosa
Large stature, medium growth rate. Tolerates heat and drought better than other lindens.
Leaf Seed

Northern Catalpa
Catalpa speciosa
Large stature, medium-fast growth rate. Tolerant to varying soil conditions, grows in sun or partial shade. Large, heart shaped leaves.
Leaf Seed

Yellow Birch
Betula alleghaniensis
Large stature, medium growth rate. The largest and most shade tolerant of the eastern birches.
Leaf Seed

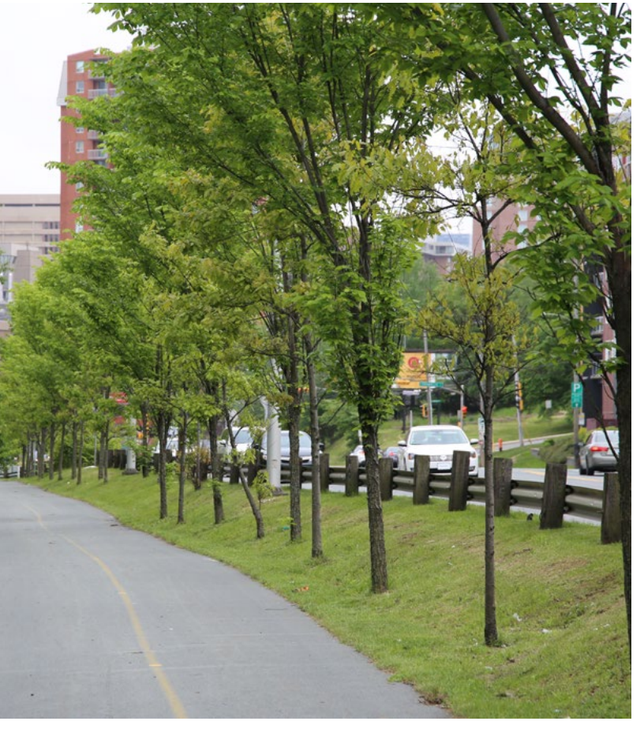
Shagbark Hickory
Carya ovata
Large stature, slow growing. Sweet, edible fruit. Large, deep taproot. Unique bark - long, flat plates which are free at the base or both ends.
Leaf Seed

White Pine
Pinus strobus
Large stature, one of the fastest growing landscape pines. Thrives in full sunlight, occurs naturally on a variety of sites (dry sandy soil, rocky ridges, sphagnum bogs).
Needles Seed

Sycamore Maple
Acer pseudoplatanus
Large stature, medium growth rate. Withstands the full force of salt-laden winds in exposed places Very adaptable to soil types.
Leaf Seed

Sugar Maple
Acer saccharum
Large stature, slow growing, One of the best larger shade/lawn trees, but tends to suffer in exteded periods of heat
Leaf Seed

Larch
Larix laricina
Large, slender stature, slow-medium growth rate. Grows best in moist, well-drained, acidic soil. Intolerant of shade.
Needles Seed



PLANTED TREE DENSITY

Planted tree maintenance programs are typically the largest expense in an urban forest management program. Mapping planted tree density helps illustrate where the HRM's urban forestry resources are predominantly being directed (**Figure 2-11**).

Figure 2-11 shows the average number of planted trees per kilometre of public road within each census dissemination area in the urban core. Planted tree density in the HRM ranges from zero in rural dissemination areas to over 250 trees per kilometre in some peninsular neighbourhoods. The lowest densities in the urban core are in sparsely populated, interface areas (less than 10 trees per kilometre of public road). Large commercial and industrial areas also have low densities, between 30 and 50 trees per kilometre of public road. Residential and mixed-use areas generally have higher densities, over 50 trees per kilometre of public road, although this varies by neighbourhood. In peninsular Halifax and Dartmouth, planted tree density is influenced by built form and available planting space in urban streetscapes.

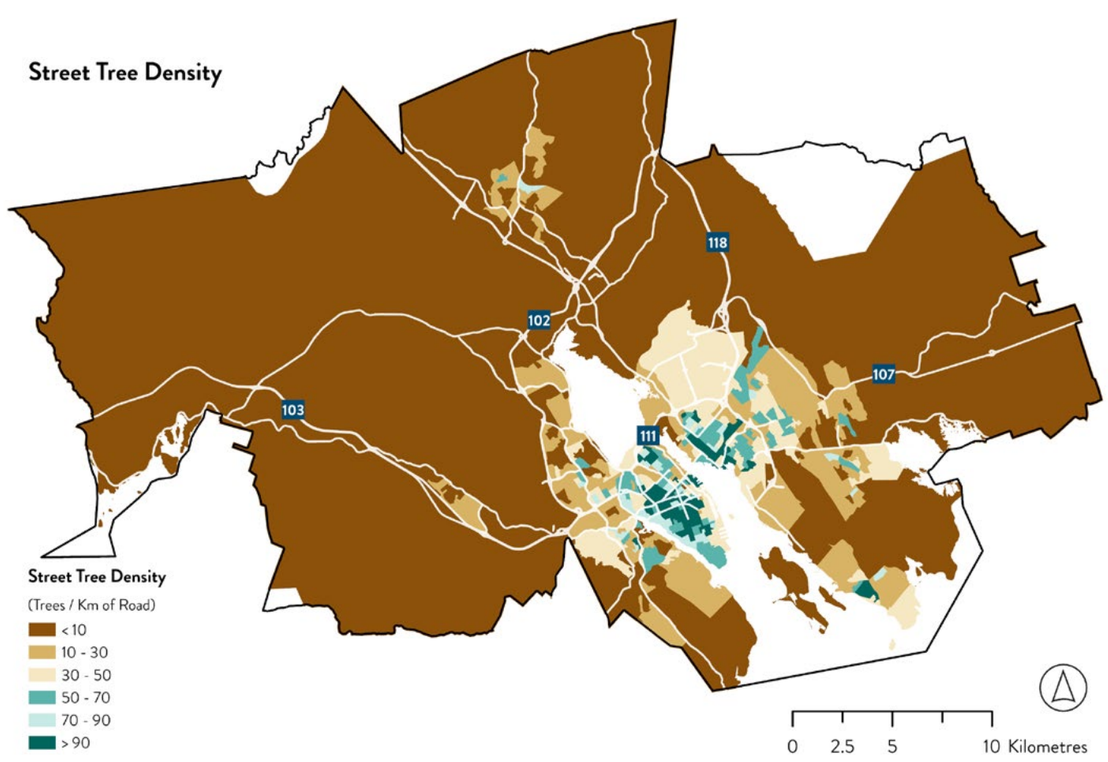


Figure 2-11. HRM planted tree density by DA in the urban core (2023).

SUCCESSION MANAGEMENT

Succession management describes a process of proactively removing and replacing trees that are reaching the end of their life. Succession occurs with or without a formalized approach in place. The benefit of a formalized approach is that the municipality can avoid entire streetscapes or neighbourhoods reaching the end of useful life along a similar trajectory. Today, this is a concern in some of the HRM's older subdivisions where trees were planted at the same time, with only one or two species, and are now aging along a parallel timeline.

Proactive succession management involves gradual removal and replacement of senescing trees, facilitating a more gradual canopy loss and allowing time for replacement trees to grow as older trees are removed. Proactive succession management also ensures future tree age classes are staggered. Converting monocultural neighbourhood palettes to a more diverse species mix also ensures trees have different life expectancies, and builds resilience to pests and disease.

While the current tree inventory does not include age data, it does provide diameter distributions. Diameter class can be used as a coarse proxy for age, although the relationship between size and age is not exact. **Figure 2-3** maps the HRM's dissemination areas with concentrations of relatively large trees (over 60 cm dbh). Dissemination areas with particularly high concentrations of large trees have been designated **Succession Monitoring and Management Districts (SMMDs).** In these districts, the Municipality will need to monitor old trees and begin to consider proactive approaches to managing successional replacement.

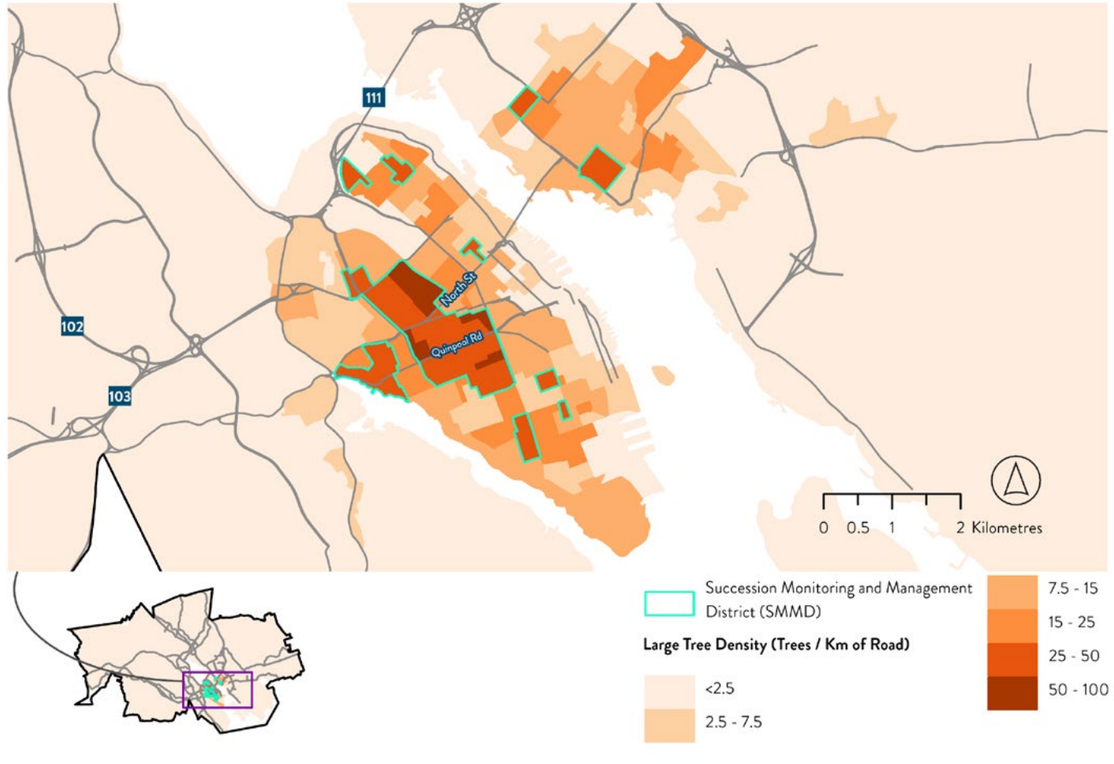
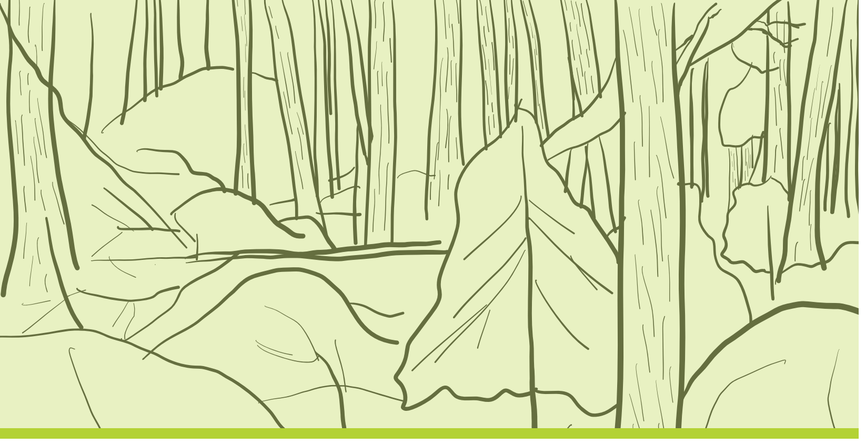


Figure 2-12. HRM large tree density and Succession Monitoring and Management Districts (SMMDs).



2.4. URBAN FOREST EQUITY

Studies have found that trees and tree canopy are often inequitably distributed within urban communities.[33,34] While specific patterns of inequity vary by local context, education level and income correlate with canopy cover in many urban centres. Tree inequities can often exacerbate uneven climate change impacts across demographic and socioeconomic profiles.[35,36] Older adults, for example, are often more vulnerable to extreme heat, and lower-income households may not be able to afford cooling systems.

Figure 2-17 contains current canopy equity mapping across census dissemination areas in the HRM using methods adapted from an approach pioneered by American Forests'.[37] The adapted methods support the calculation of a Tree Equity Score (TES) using census and climatic datasets widely available in Canada (Table 2-4).

TES is an evaluation of how well tree canopy and surface temperature aligns with localized income, employment, race, age, and health factors in a neighbourhood (in this case, census dissemination areas). Tree Equity Score values range from 0 to 100, with lower values corresponding to dissemination areas that have combinations of high land surface temperatures and low canopy cover relative to equity-deserving and vulnerable populations. Figure 2-13, Figure 2-14, Figure 2-16, and Figure 2-15 on the following page illustrates how TES is calculated. Census indicators (Table 2-4, Figure 2-14) are fused with urban heat mapping (Figure 2-13) to yield a 'priority score' (Figure 2-16), which is then combined with canopy mapping (Figure 2-15) and relevant canopy targets, to produce a final TES layer.

TES in the HRM ranges from 40 to 100, with a mean score of 95. The Municipality's dissemination areas with the lowest tree equity scores (bottom five percent), have TES scores of less than 80 (Figure 2-17).

> **African Nova Scotians/Canadians** expressed wanting better access to parks, green spaces, walking trails, and sidewalks in rural and suburban African Nova Scotian communities.

TREE EQUITY SCORE CALCULATION

Surface temperatures and a socioeconomic index that includes income, age, race and employment are combined to yield a priority index. Priority index is then combined with tree equity to yield a Tree Equity Score (Figure 2-17).

High priority index values are represented as the HRM's ECMDs (Figure 2-17). Low Tree Equity Score Values are represented as the HRM's UFEDs.

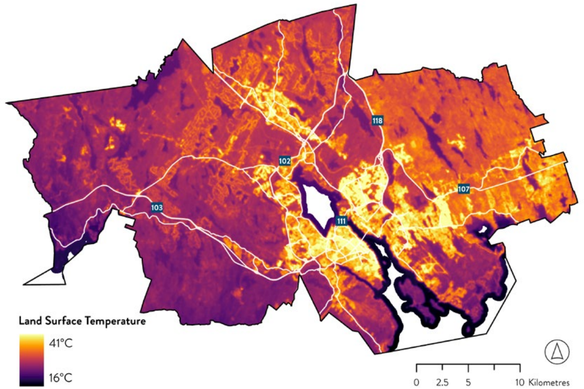


Figure 2-13. Mean surface temperature mapping in the HRM's urban core (July 2020).

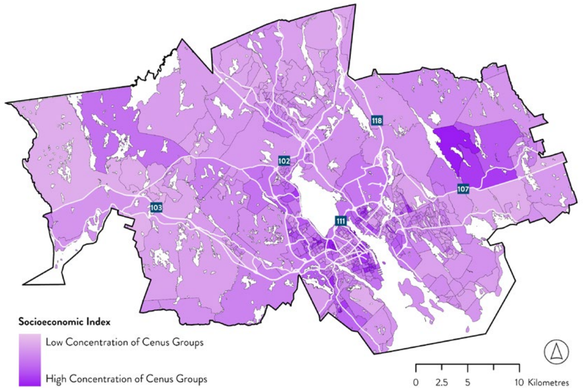


Figure 2-14. Socioeconomic indicators mapping in the HRM's urban core.

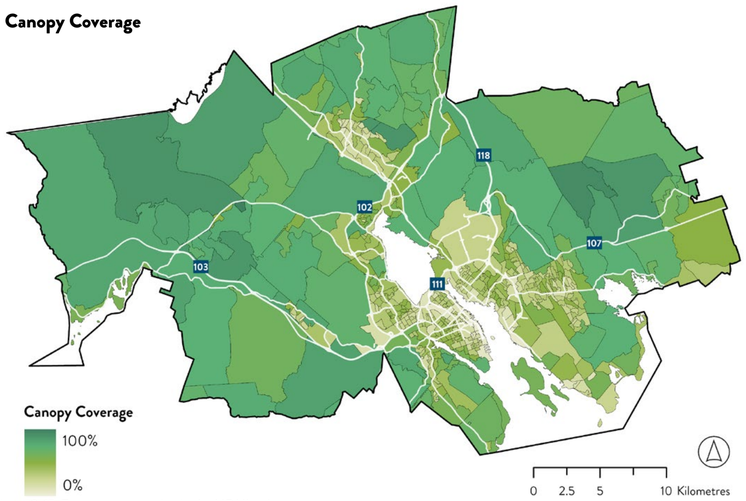


Figure 2-15. Tree canopy mapping in the HRM's urban core.

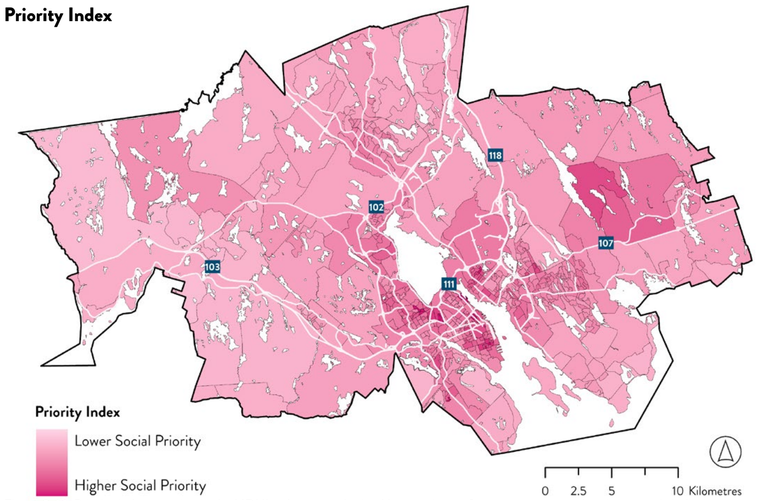


Figure 2-16. Priority index mapping in the HRM's urban core obtained by merging surface temperature and socioeconomic indicators.

Urban Forest Enhancement Districts (UFEDs)

Several areas of the HRM stand out in the Tree Equity Score mapping (Figure 2-17). These areas include:

- Bayer's Lake and Beechville,
- Parts of Glenbourne and Sherwood Heights,
- Parts of Southdale and Russell Lake West,
- Areas of the North End, Halifax peninsula,
- Parts of Mt Uniacke and Upper/Middle Sackville, and
- Parts of Cole Harbour and Westphal.

These are the areas where the HRM should place heightened priority on tree-supportive outcomes on both public and private land. This can be achieved through the regulation of private development, but may also involve incentives, subsidies, and special attention through capital works and construction projects.

Table 2-4. Demographic, economic, and environmental factors used in determining priority canopy areas within the HRM.

Factor	Description of Measurement
Climate	Average surface temperature, as measured from remote sensing data.
Income	Percentage of people living on incomes below 200% of the federally-designated poverty line (< CAD $40,000)
Age	Seniors (age 65+) and children (0-14) as a proportion of working age adults (15-64).
Race	Percentage of people who belong to visible minority groups, as defined by the Employment Equity Act and, if so, the visible minority group to which the person belongs.
Employment	Percentage of the labour force that do not have a job, but are available and willing.

Two new classes of management district have been established through this plan (Figure 2-17):

Urban Forest Enhancement Districts (UFEDs) and **Equity-Centered Management Districts (ECMDs)**

UFEDs are geographies where tree canopy is low, despite high concentrations of equity-deserving individuals. To reconcile this issue, the Municipality will prioritize tree planting and protection in such areas, as well as design and construction details on both private and public property that improve the provision of trees.

In contrast, ECMDs are areas characterized by high concentrations of equity-deserving individuals, but are also areas where tree canopy is already fairly high. In ECMDs, tree planting is therefore not necessarily an optimal equity-centered management approach. There may however be other management approaches and interventions that could support equitable outcomes in these areas.

Beyond select districts, the HRM can adopt management and outreach processes that ensure equitable outcomes are considered through management interventions, procurement, community outreach and engagement, and urban forest investment.

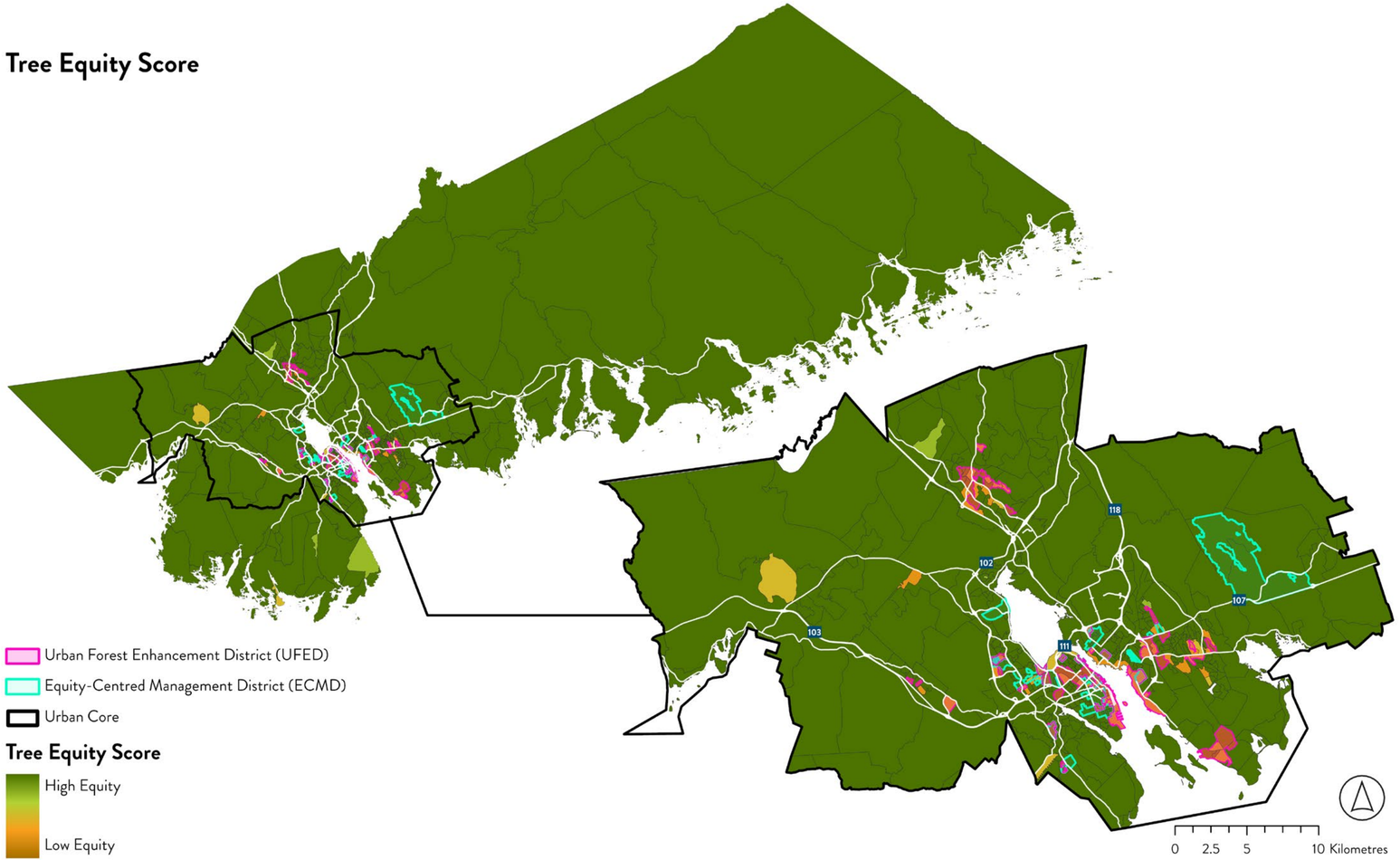


Figure 2-17. HRM's urban core TES mapping, equity-centered management districts (ECMDs) and Urban Forest Enhancement Districts (UFEDs) for illustrative purposes only. Full analysis conducted for the HRM and used in this to guide this plan.

Equity-Centered Management Districts (ECMDs)

Several areas of the HRM stand out in the Prioritization mapping (**Figure 2-16**), but not necessarily in the Tree Equity Score mapping (**Figure 2-17**). These areas include:

- Uniacke Square and surrounding residential area,
- Residential areas immediately surrounding South Street,
- Albro Lake and Harbourview neighbourhoods,
- Parts of Fairview and Clayton Park,
- Parts of Spryfield,
- Millview neighbourhood, and
- North and East Preston.

These areas, coined Equity-Centered Management Districts (ECMDs), generally have adequate tree canopy at present. As a result, tree planting may not be needed, but equity considerations should still inform management interventions and approaches. Several of these ECMDs are comprised of lower income, immigrant, refugee, and African Nova Scotian populations, including the two largest African Nova Scotian communities in Nova Scotia, East and North Preston. Uniacke Square, Fairview and Spryfield have a significant immigrant, refugee, and African descended population. Some of these areas may need more support for cleanup after significant storms, while others may need to be a priority for replacement replanting if trees are reaching the end of their life expectancy. In rural areas, equity-centered management might focus on building wildfire resilience or ensuring quality trails infrastructure on public lands meets community needs.

EQUITY AND PLANTED TREES

HRM can measure the extent to which it has contributed to tree equity gaps by mapping areas where tree equity overlaps with areas of low planted tree density (**Figure 2-18**). In areas with both low tree density and low tree equity, we can assume scarcity of Municipal investment in planted tree planting has directly contributed to lower tree equity. As an organization, the HRM will prioritize the introduction of new planted trees to areas with low tree equity.

In **Figure 2-18** below, **purple** can be viewed as areas of the municipality where tree equity and planted tree density are both high, **blue** as areas where tree equity is high despite relatively low planted tree density on Municipal lands, **vibrant green** as areas where tree equity is low despite relatively high planted tree density on Municipal lands (i.e., these are areas where low levels of planting on private land are driving urban forest equity gaps), and **muted green** as areas where planted tree density on Municipal lands and tree equity are both low (i.e., these are areas where a reduced presence of planted trees on Municipal lands may be contributing to existing urban forest equity gaps).

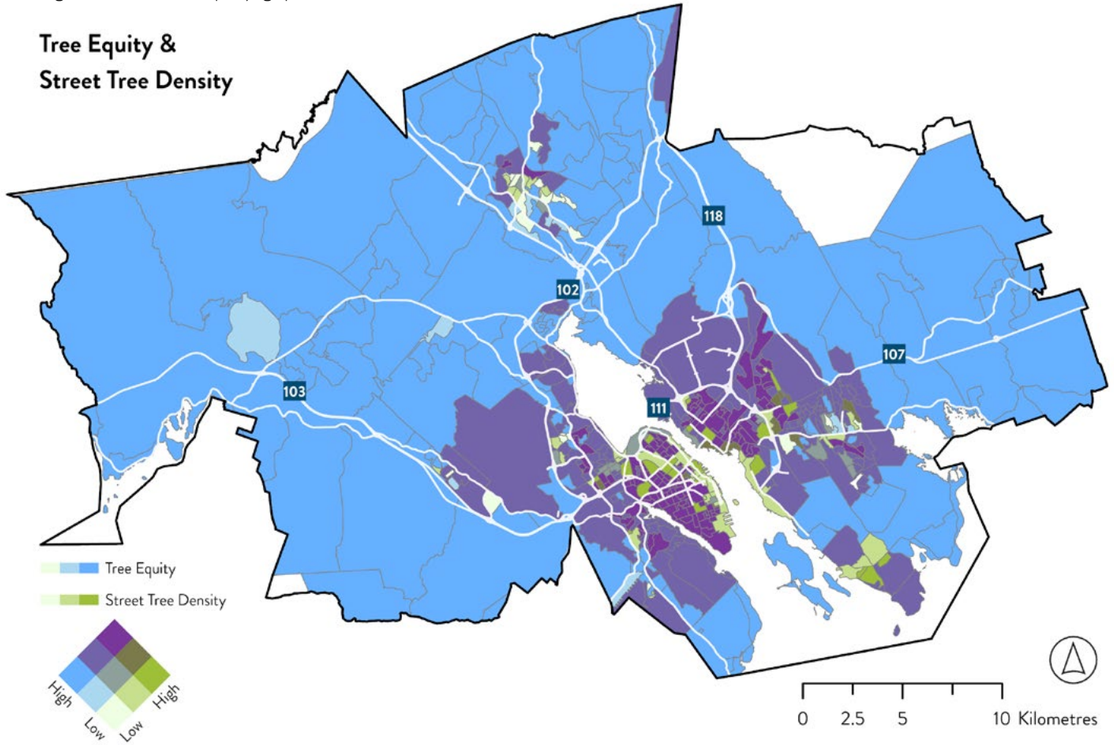


Figure 2-18. Bivariate equity-planted tree density analysis in the HRM's urban core (2023).

Our Program
Notre programme

3.1. HRM'S URBAN FOREST PROGRAM

The Urban Forestry Department, under the Infrastructure Maintenance & Operations Division of Public Works is primarily responsible for municipal trees in the HRM. This includes planted tree inventory, maintenance, planting, and removal (including stump removal), rural vegetation management, and coordination with other departments and external parties on tree-related matters. However, Urban Forestry is not the only entity involved in managing the HRM's urban forest. This section explores the roles, responsibilities, and interests of various entities and departments holding vested interest.

Public Works influences the urban forest through the HRM's capital design and construction processes, standards documents, and specifications. This includes engineering standards for rights-of-way and the management of trees during construction projects.

OTHER VESTED PARTIES

PARKS AND RECREATION

Parks and Recreation manages planted tree maintenance and planting within the HRM's parks but lacks arboricultural capacity and relies on Urban Forestry for tree care. Currently, the HRM has no formal program for managing the municipality's woodlands, meaning these assets are presently managed reactively as issues arise.

PLANNING AND DEVELOPMENT

Planning and Development significantly influences the urban forest through the HRM's planning and development processes, policy documents, and by-laws. The unit liaises with Urban Forestry, but tree-related outcomes on private property depend on planning policies and standards.

HALIFAX REGIONAL FIRE AND EMERGENCY

Fire and Emergency is responsible for emergency management and preparedness in the HRM, including storm response and wildfire. The unit collaborates with Urban Forestry on wildfire management initiatives that interface with municipal tree assets.

ENVIRONMENT AND CLIMATE CHANGE

Environment and Climate Change offers subject matter expertise and logistical support to the Urban Forestry team as needed. Some examples of these collaborative efforts include, supporting urban forest initiatives like the annual Tree Giveaway, collaborating on tree planting programs as they relate to naturalization programs, and managing the Invasive Pest Management Strategy which often overlaps with other urban forest management activities.

FINANCE AND ASSET MANAGEMENT UNIT

Finance and Asset Management influences urban forest management through administering the Municipal approach to asset management, which can encompass green infrastructure, such as trees. Efforts are underway to integrate planted trees into the HRM's planted asset management framework, with opportunities to enhance program resourcing through better planning and accounting processes.

GOVERNMENT OF NOVA SCOTIA

The Province manages trees along provincial highways, forest management on Crown land, and regulates forest practices on private land. It also oversees the *Halifax Regional Municipality Charter*, detailing the HRM's development regulation, taxation, and tree-related liabilities. The Province manages trees in Provincial Parks, Protected Areas, and Wilderness Areas, as well as administers *An Old Growth Forest Policy for Nova Scotia*.

HALIFAX WATER

The Halifax Regional Water Commission, publicly known as Halifax Water, is the municipal water, wastewater and stormwater utility serving the residents of the HRM, pursuant to the *Public Utilities Act*. Given its role in the upkeep and development of water infrastructure, Halifax Water has an important role in accommodating planted trees through their design work and construction activities. In addition, much of the HRM's water is sourced from surface water resources within the HRM's woodland watersheds. As the agency responsible for managing water quality in the HRM, Halifax Water has foresters on staff to support the management of water quality through ecosystem stewardship within critical source-water watersheds.

NONPROFITS AND COMMUNITY ORGANIZATIONS

Organizations like the Nova Scotia Nature Trust, Nature Conservancy of Canada, Ecology Action Centre and Ducks Unlimited influence the HRM's urban forest through conservation practices on their land. Collaborations with nonprofits and community organizations can support community initiatives and investment in the urban forest, enhancing community capacities.

NOVA SCOTIA POWER

Nova Scotia Power manages transmission lines in the HRM and addresses tree-related issues affecting power lines. The utility coordinates with Urban Forestry on clearance, maintenance, and storm cleanup.

PRIVATE RESIDENTS, BUSINESSES, AND LAND MANAGERS

With 71% of the HRM's land privately owned, most trees are under private ownership. While the HRM intervenes in specific circumstances (e.g., clearance pruning, hazard abatement), private property owners are responsible for most of the HRM's tree canopy. Residents and businesses can support the urban forest by practicing good tree care, planting trees, or participating in urban forestry events.

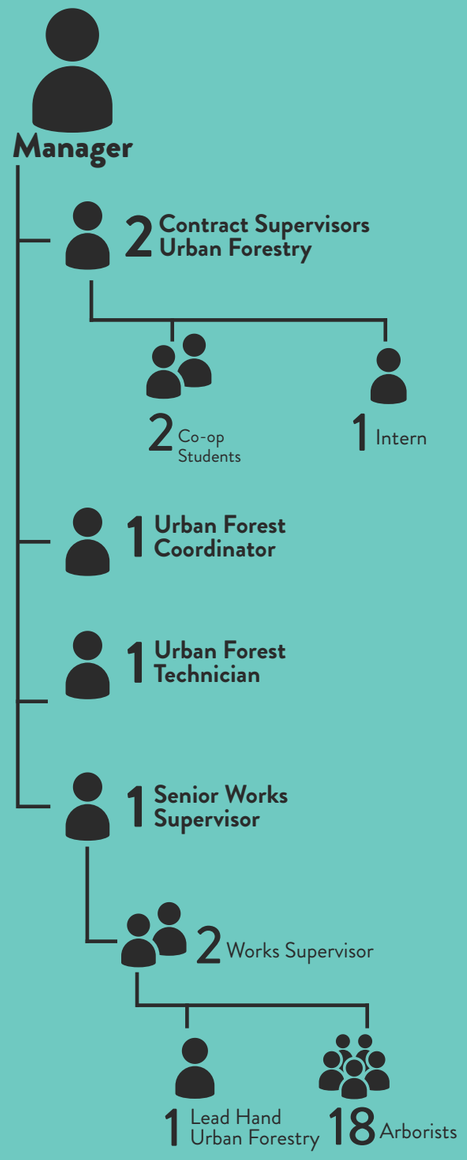


Figure 3-1. Urban Forestry Division organizational chart.

URBAN FORESTRY PROGRAM AT A GLANCE

HRM's Urban Forestry Division is the primary entity responsible for managing the Municipality's trees, consisting of a team of 30 staff (**Figure 3-1**). These front-line workers in urban forest management:

- Implement the HRM's proactive tree maintenance program,
- Undertake tree inspection,
- Liaise with other departments,
- Lead in storm response, and
- Administer capital contracts.

In 2023/24, Urban Forestry operated on a budget of $4.2 million (**Figure 3-3**). Capital funds totalling $1.7 million supported tree planting, and the annual tree giveaway. Since 2018, the HRM's Urban Forestry's operating budget has been tied to the number of assets under the Division's care. This is an industry best practice but is contingent on adequate base funding to meet service level commitments. As of 2023/24, the HRM's operating funding is approximately $10 per resident, $2 less per resident than the average among cities of similar size with populations over 100,000, and $4 per resident less than leading urban forestry programs (**Figure 3-3**).

Despite the lower per-resident funding, Urban Forestry has had success in its public tree planting program. Since 2018, the HRM has planted about 5,300 more boulevard trees than have been removed (**Figure 3-2**), averaging a minimum of 1,000 net new trees per year, though annual numbers have varied (partly due to COVID-19). These figures exclude new trees planted during development. These achievements are commendable but also highlight the Municipality's struggle to meet its annual planting targets as set out through the preceding 2013 Urban Forest Master Plan (**Figure 3-2**). Targets identified through the 2013 Urban Forest Master Plan have never been met and the shortfall between real planted numbers and the Municipality's cumulative planting target has grown steadily since 2014 (**Figure 3-2**).

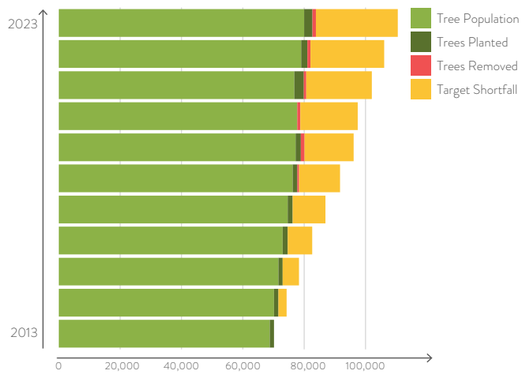


Figure 3-2. Tree inventory, removals, planting, and 2013 UFMP target shortfalls between 2013/14 and 2023/24.

The growing challenges in planted tree planting and maintenance have been compounded by resource constraints. The Municipality's commitment to a seven-year grid pruning cycle is undermined by insufficient budget, forcing a longer cycle at present. Proactive care for both young (i.e., structural training) and mature (i.e., grid pruning) trees are the hallmark of a sustainable forest management program and are widely recognized to net the best returns for public investment in tree care.

HRM's Parks Department holds responsibility in the management of municipality's woodlands. However, there are currently no formal programs or resources to support proactive management of HRM's large woodland network.

A Community of Storms

HRM frequently experiences major storms. The cleanup from these events is funded through capital budgets. Storm response can be one of the most significant capital expenditures in a given year, with individual storm cleanups often costing the Municipality hundreds of thousands, occasionally reaching a million or more. For example, tree-related cleanup from Hurricane Fiona in 2022 cost the Municipality an estimated $1.6 million.

As service demands continue to rise with population change, so too will the need for urban forest management resources to both maintain existing service levels and implement any identified expansions to the Municipality's urban forest program scope.

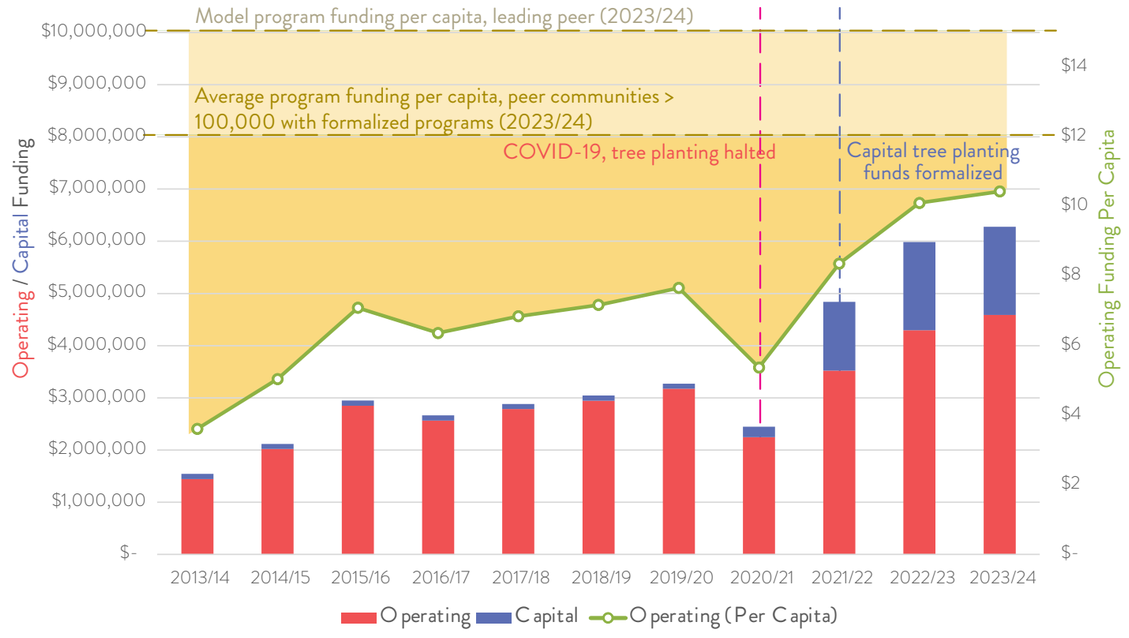


Figure 3-3. Urban Forestry operating and capital budgets by fiscal year.

3.2. HRM URBAN FOREST POLICY

HRM'S URBAN FOREST LEGACY

The Urban Forest Management Plan is not the HRM's first strategic urban forest document. Following council motions in 2001 to develop a management plan for urban forests and research conducted by the HRM and Dalhousie University on the HRM's urban forest in 2007, the HRM developed a comprehensive Urban Forest Master Plan in 2013. At the time of its adoption, the Plan was amongst the first of its kind in Canada, and aimed to address the impacts of rising temperatures, air and water quality concerns, stormwater and flood damage on community wellbeing.

ENGAGEMENT

Community engagement supporting the development of the Urban Forest Master Plan took place from 2010 to 2012. Four public workshops were conducted between May and June of that year. More than 100 citizens took part in the workshops. Nearly 500 individuals also took part in an online survey. It is worth noting the engagement program for this Plan did not include specific scope for consultation with equity-deserving population segments.

PLAN ARCHITECTURE

One of the primary objectives of the Urban Forest Master Plan was to reconcile challenges common to the multiple spatial scales at which an urban forest management program typically operates. The Urban Forest Master Plan sought to resolve this through a neighbourhood management approach that consisted of four spatial levels; i) the UFMP study area (which then excluded rural HRM), ii) communities, which followed boundaries of pre-amalgamation cities and towns, iii) neighbourhoods, which exhibit distinctive environmental and settlement patterns, and iv) neighbourhood divisions, consisting of unique land-use subsets within neighbourhoods. This spatial organization resulted in 111 urban forest neighbourhoods and became the operative unit to which the plan's strategic framework applied.

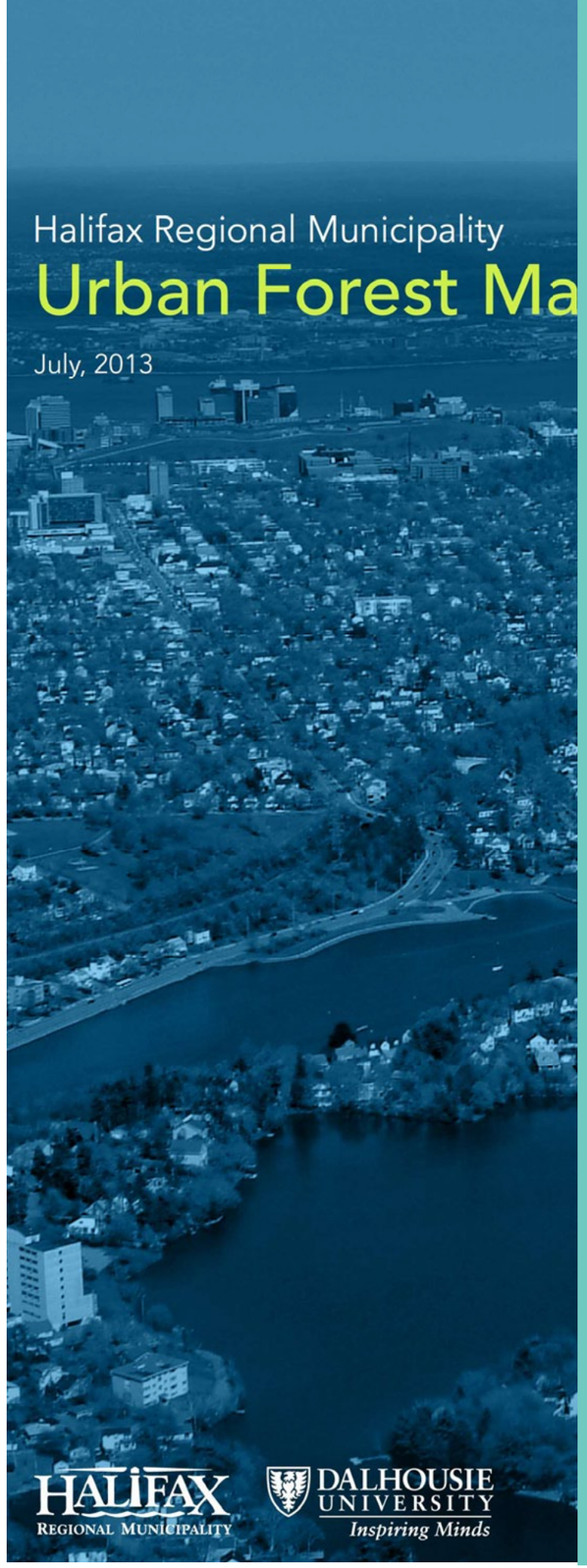
Fifteen operating principles informed the framework for the Urban Forest Master Plan and 32 broad program actions (often implemented through nuanced neighbourhood-level sub-actions).

IMPLEMENTATION

HRM's Urban Forest Master Plan has faced challenges in its implementation. Still, despite obstacles, the HRM's urban forest management program has matured considerably over the past decade. Current estimates are that a fifth of those actions contained to the Urban Forest Master Plan have been implemented in some capacity. As many as 40% of Urban Forest Master Plan actions may have been implemented since 2013, however with varying degrees of intentionality and limited means to retroactively confirm implementation where progress was often not tracked.

Three central challenges impeded the execution of the 2013 Urban Forest Master Plan more than others: retirements and turnover (i.e., responsibility gaps), over-prescription, and difficulties/gaps in monitoring and evaluating progress in implementation.

The strategic framework put forward by the revised and updated Urban Forest Management Plan attempts to resolve the challenges faced by the Urban Forest Master Plan, though remaining at a broader, strategic level to support operational discretion in implementation. Engagement processes involved in the development of this UFMP employed dedicated streams for reaching equity-deserving population segments (see **4.1. Plan Process**).



HRM'S 2013 URBAN FOREST MASTER PLAN: AT A GLANCE

Highlights

- Neighbourhood-level strategic units.
- Significant community turnout and support through plan development.
- Fairly novel document and approach amongst peer municipalities at the time.

Challenges

- Retirements, staff turnover, and silos between departments resulted in uncertainties around implementation responsibilities, a scarcity of internal "champions" of the document.
- The neighbourhood spatial scale was too prescriptive/restrictive for practical use in operations capacities.
- Challenges over the past decade (e.g., COVID-19, inflation, housing crisis) have taken centre stage and tightened municipal wallets.
- Limited formalized monitoring following adoption. The status of the Plan faced growing uncertainty over time as a result.

Successes

- Geospatial planted tree inventory.
- Commitment to a seven-year grid pruning cycle.
- Planting 5,300 net new trees

Opportunities

- Increased emphasis on equitable service delivery through the update.
- Increased focus on strategic-level program operations, giving operations greater latitude to make operational decisions and adapt.
- Improved framework for UFMP implementation and monitoring.

OTHER INFLUENTIAL DOCUMENTS

Beyond HalifACT and the IMP, there is a range of legislation, documents, guidelines, standards, and specifications that influence trees and tree protection in the HRM. These are briefly explored following.

THE HALIFAX CHARTER

The *Halifax Regional Municipality Charter* is the primary legislation under which the municipality operates. *The Charter* includes language identifying the HRM's powers respecting trees, as well as the Municipality's powers and capabilities with respect to by-laws and processes that influence trees. *The Charter* does not currently enable the HRM to collect parkland dedications, or cash-in-lieu, through intensification projects or redevelopment. *The Charter* also limits the Municipality's powers with respect to the types of lands that can be requested through redevelopment, as well as the circumstances under which a tree bylaw can be adopted.

LAND USE BY-LAWS

HRM is home to 22 Land Use By-laws, each specific to a plan area within the region. These by-laws identify applicable zoning within different areas of the municipality. Zoning prescribes minimum performance standards which new development must generally satisfy. Where more than 71% of the HRM's land is currently under private ownership, and development is the single greatest moderator of canopy change within urban communities, the requirements through the Municipality's *Land Use By-laws* are amongst the most influential guiding provisions affecting forest change in the HRM.

MUNICIPAL DESIGN GUIDELINES (THE 'RED BOOK')

HRM's *Municipal Design Guidelines* (i.e., the '*Red Book*') was developed to provide consistent guidance to the design and construction of public spaces in the HRM. These specifications are to be used as minimum standards in the design of streets, drainage, street trees and lighting, and associated municipal infrastructure. The *Red Book* is a key document in supporting the integration of trees in the municipal right-of-way and contains specifications supporting proven and emerging standards to better support the integration of trees in urbanized environments and streetscapes. The *Red Book* will be periodically updated to reflect best practices, new insights, and municipal experience.

REGIONAL PLAN

HRM's *Regional Plan* establishes long-range, region-wide planning policies outlining where, when, and how future growth and development should take place between now and 2031. A sustainable environment is core to the Plan's vision and guiding principles. The current plan has been in effect since October 18, 2014. In February 2020, Regional Council initiated its review, and an updated Draft Plan was released in June 2023.

The *Regional Plan* presents a key opportunity for the policies and direction put forward through the UFMP to make it into a critical policy document that steers municipal growth at the highest level. Integration of UFMP actions into the *Regional Plan* is critical in assuring trees are represented through the varied development, construction and planning processes that moderate growth within the community.

PUBLIC TREE BY-LAW

HRM's Public Tree *By-law Number T-600* primarily functions to describes the circumstances under which a member of the public may alter or remove a public (i.e., municipally-owned) tree. In brief, no member of the public may alter or remove a municipally-owned tree without the written consent of the HRM, or otherwise having secured a permit to do so from the HRM.

HRM does not currently have a private tree by-law, although the *Halifax Regional Municipality Charter* does enable such within the Municipality's Urban Service Area, or otherwise within Riparian Areas anywhere within the Municipality.

REGIONAL SUBDIVISION BY-LAW

The *Regional Subdivision By-law* details requirements for the subdivision of land within the Municipality and administered by the HRM's Development Officers. The Subdivision By-law sets out various design and process-related requirements that new subdivisions projects within the HRM are required to meet. Many of these processes and design requirements impact trees.

HALIFACT

HalifACT is one of the most ambitious climate action movements in Canada. It is the HRM's response to the climate crisis that will build a more resilient and healthy future in Atlantic Canada while preparing for current and future climate impacts. On June 23, 2020, Halifax Regional Council unanimously adopted *HalifACT* – a transformational plan to achieve a net-zero economy by 2050.

HalifACT contains various actions which have either been reiterated, or further supported through this UFMP. Where the Municipality has earmarked real and significant resources to support *HalifACT*'s implementation, those resources can often also support implementation of this Plan.

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INTEGRATED MOBILITY PLAN

HRM's *Integrated Mobility Plan* (IMP) is a strategic initiative designed to create a connected, healthy, affordable, and sustainable transportation network within the HRM. Where trees commonly share space with our transportation infrastructure (e.g., roads, sidewalks, multi-use paths), the IMP is an important guiding document to urban forest management- and the IMP itself recognizes this in several capacities. Projects supporting the continued implementation of the IMP will therefore also influence urban forest management in the HRM.

HALIFAX DIVERSITY AND INCLUSION FRAMEWORK

The Diversity and Inclusion Framework integrates equity into HRM policies and services, addressing systemic barriers. This framework supports the UFMP by ensuring that urban forest management decisions are inclusive and align with values of respect, diversity, and sustainability in community planning.

JUSTFOOD ACTION PLAN

The justFOOD Action Plan seeks to build a resilient and equitable food system in HRM, focusing on food justice, sustainability, and community engagement. The UFMP aligns with this by promoting urban forests as part of a sustainable food system, incorporating food production and waste reduction strategies.

3.3. URBAN FOREST REPORT CARD

HRM's urban forest management program has been evaluated against a sustainability model for urban forests, first introduced by Clark et al. (1997)[38] and subsequently updated by Leff (2016).[39] The framework was adapted by the Urban Forest Management Plan project team to better facilitate deployment in the HRM. These criteria and performance indicators help measure the program's status against an idealized state. Each criterion is linked to one of the five objectives and has been assessed through a detailed review of policies, analyses, and staff interviews. The reasoning behind the rankings can be found in **Appendix**.

HRM's urban forest management achieved a scoring of "Fair" in 2024. Key opportunities for improvement include:

- **Tree protection:** Strengthening protections for trees, sensitive ecosystems, soils, and permeability on private property. Also allocating resources for creating and implementing effective protective measures.
- **Woodland health:** Formalizing procedures for the management of the HRM's woodland ecosystems, and earmarking resourcing to support a sustainable management program.
- **Equity:** Improving processes and program outcomes to consider equity outcomes in program service delivery.
- **Community:** Leveraging community capacities and supporting community education toward improving urban forest outcomes on public and private lands.
- **Monitoring:** Developing modern datasets and data standards to best inform evidence-based decision making.
- **Risk management:** Formalizing the processes and procedures the Municipality undertakes toward managing the risk associated with planted trees.

The Urban Forest Report Card summarizes the assessment of each indicator, serving as a baseline for future comparisons. As the HRM implements its Urban Forest Management Plan, it will be essential to monitor progress and track improvements to guide ongoing efforts to enhance the forest.

Urban Forest Report Card

2024 program grade (in colour)

Poor | Fair | Good | Optimal

OBJECTIVE 1: PLANNING AND PROTECTION

- Awareness of the urban forest as a community resource
- Interdepartmental/municipal agency cooperation in urban forest strategy implementation
- Clear and defensible urban forest canopy cover
- Relative tree canopy cover
- Municipality-wide urban forest management plan
- Municipal green infrastructure asset management
- Municipal-wide biodiversity or green infrastructure strategy
- Municipal urban forestry program capacity
- Urban forest funding to implement a strategy
- Policies/regulations regulating the protection/replacement of private and Municipality trees
- Policies or regulations for conservation of sensitive ecosystems, soils, or permeability on private property through development
- Internal protocols guide Municipality tree or sensitive ecosystem protection
- Standards of tree protection and tree care observed during development or by local arborists and tree care companies
- Cooperation with utilities on protection (and pruning) of Municipality trees

OBJECTIVE 2: PLANTING

- Municipality planting and replacement program design, planning, and implementation
- Development requirements to plant trees on private land
- Streetscape and servicing specifications and standards for planting trees
- Equity in planting program delivery
- Forest restoration and native species planting
- Selection and procurement of stock in cooperation with nursery industry
- Ecosystem services targeted in tree planting projects and landscaping

OBJECTIVE 3: MAINTENANCE

- Tree inventory
- Knowledge of trees on private property
- Natural areas inventory
- Age diversity (size class distribution)
- Tree risk management
- Publicly owned tree species condition
- Maintenance of intensively managed trees

OBJECTIVE 4: STEWARDSHIP

- Citizen involvement and neighbourhood action
- Involvement of large private land and institutional land holders (e.g., schools)
- Urban forest research
- Regional collaboration

OBJECTIVE 5: MANAGEMENT AND MONITORING

- Emergency response planning
- Pest and Disease Management
- Waste biomass utilization
- Tracking of operational carbon footprints and urban forest carbon-cycle balance
- Species diversity
- Species suitability

The Path Forward

La voie à suivre

4 new

4.1. PLAN PROCESS

PHASE

1 Identifying key directions

a Listen and learn
Jan 2024 - May 2024

2 Draft plan

a Strategic planning and program actions
Mar 2024 - Jul 2024

b Collecting feedback
Jul 2024 - Nov 2024

3 Implementation
Dec 2024

Community engagement supporting the development of the UFMP took place over two phases. The first phase of engagement took place in the spring of 2024 and aimed to gather insights into core community values, concerns, and priorities in the management of the HRM's urban forest (see Appendix C: Engagement Summaries). Community input informed the development of the urban forest vision, goals, and the actions now contained in the UFMP's Action Plan (**Part 5**). The second phase occurred after the draft UFMP was released for public review in the summer of 2024 (see Appendix C: Engagement Summaries). The goal of the second phase was to ensure the final UFMP reflected community values and priorities.

Engagement activities included online surveys and mapping activities, community open houses, targeted workshops, interviews and focus groups. Tailored engagement programs were delivered to reach underrepresented segments of the HRM's population. Together, these activities helped identify priority concerns and aspirations in managing the Municipality's urban forest and supported the development of the Strategic Framework (**Part 5**).

COMMUNITY ENGAGEMENT PROCESS

Phase one of engagement took place in early 2024 and sought to gather insights into core community values, concerns, and priorities for the management of the HRM's urban forest. This input informed the development of the urban forest vision, goals, and the action plan now contained in **Part 5** of this document. The second phase occurred after the draft UFMP was released to the public, with the goal being to gather community feedback and ensure the draft reflected community values and priorities.

Targeted engagement opportunities were extended to Indigenous communities, African Nova Scotians/ Canadians, Francophone and Acadian communities, people with disabilities, and newcomers. Unique engagement approaches were prepared for each group to ensure diverse voices could be freely and comfortably expressed. Organizations were also engaged, and included government agencies, non-profit organizations, and industry representatives.

HRM'S URBAN FOREST MANAGEMENT PLAN VISION STATEMENT:

HRM is a municipality of trees. Through a shared legacy of sustainable management, the urban forest has been carefully woven into the fabric of our communities and neighbourhoods, which are characterized by biodiverse native ecosystems and large, mature trees lining our streets and parks. Our green network, consisting of its trees, forests, and other native ecosystems, benefits all members of our community and supports our identity as a diverse coastal municipality. These trees also support critical community benefits such as building urban resilience to the challenges faced under climate change.

PARTICIPATION BY THE NUMBERS

PUBLIC ENGAGEMENT

ONLINE

- **828 survey responses**
- **93 identified locations**
  54 places of value
  39 places needing improvements

IN-PERSON

- **3 open houses**
  ~45 participants

INDIGENOUS COMMUNITES

Represented by **71** participants from:

- Wasoqopa'q First Nation (Acadia)
- Wijewinen - Mi'kmaw Friendship Centre (multiple programs)
- Diamond Bailey Healing Centre
- Dalhousie Indigenous Student Centre
- Kiknu Indigenous Student Centre (St. FX University)
- Native Council of Nova Scotia
- Sipekne'katik Treaty Truck House
- Aboriginal Youth Outreach Program

PEOPLE WITH DISABILITIES

Represented by **8** participants from:

- The Office of Diversity and Inclusion, HRM
- Walk and Roll Halifax
- Canadian National Institute for the Blind

NEWCOMERS

Represented by **7** participants and the Office of Diversity and Inclusion, HRM:

Time in the HRM:

- 1-3 months
- 4-13 months
- Less that 2 years

FRANCOPHONE & ACADIAN COMMUNITY

Represented by **five** organizations:

- L'Acadie de Chezzetcook
- Alliance Française Halifax
- Conseil scolaire acadien provincial
- Conseil communautaire du Grand Havre

AFRICAN CANADIANS & NOVA SCOTIANS

Represented by **20** participants from:

- Historic African Nova Scotian communities
- Newcomer African-Caribbean Community
- Newcomer Continental African Community
- Rural, Sub-Urban and Urban communities
- Eleven community organizations

ENGAGED ORGANIZATIONS

Represented by **39** participants from:

- Federal, provincial, and municipal governments, such as Nova Scotia Power
- Not-for-profit organizations
- Arboriculture and development industries

COMMUNITY ENGAGEMENT HIGHLIGHTS

VALUES

More than 700 community members responded to survey opportunities. Of those who responded, 97% believed the HRM's urban forest was important. Respondents identified a range of valued benefits supported through the HRM's urban forest, including improving air quality, reducing urban heat, supporting wildlife and biodiversity, and enhancing the overall well-being of residents. The urban forest was recognized by many participants as an important component of a livable and environmentally sustainable municipality.

VISION

Survey respondents were invited to contribute to the vision statement for the HRM's urban forest management through to 2050. More than 700 written contributions to the shaping of the vision statement were received through the community survey, and countless more through in-person discussions, workshop, and engagement with targeted community groups. The vision statement for this Plan is a synthesis of that feedback.

CONCERNS

Open house participants, survey respondents, and engaged organizations expressed concerns about the impacts of development and climate change on the urban forest. Development activities, particularly those supported by clear-cutting, were viewed as a significant threat. In response to these threats, survey respondents identified their top three objectives for urban forest management over the next ten years as addressing climate change impacts, integrating urban forest policies into regional and community planning processes, and protecting, maintaining, and enhancing the urban forest.

PRIORITIES

PLANNING AND PROTECTION

> "I'd like to see the preservation of the urban forest be not just in balance but a precondition to development."

Urban Forest Management Priorities: Climate change, greater consideration for trees through planning and development processes, and tree protection were identified as the highest priorities for urban forest management over the next decade (phase one survey).

Tree Protection: Increasing tree protection during construction was supported by 86% of respondents, and tree protection was emphasized 23 times when respondents were asked about the need to balance urban forest protection with growth (phase two survey).

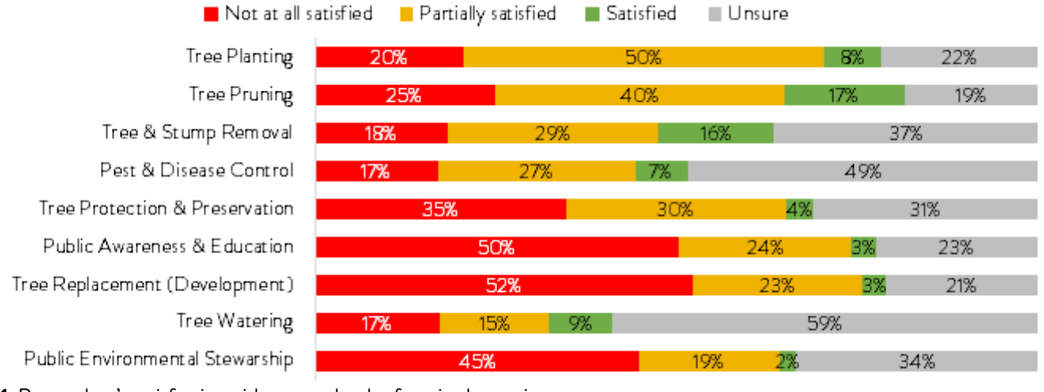

Figure 4-1. Respondent's satisfaction with current levels of service by service type

MAINTENANCE

> "[I would like to see] *increase*[d] *support to maintaining trees that are planted, especially in the first year of them being planted."*

A Management Priority: Improving tree maintenance and enhancement was identified as the third most important urban forest management objective, along with tree protection (phase one survey).

Pruning Satisfaction Levels: 25% of respondents were not at all satisfied with tree pruning in the HRM, and 17% for tree watering (phase one survey). Some suggested that increased funding for maintenance, and improved maintenance of establishing trees would help improve public perception of the HRM's maintenance service levels.

Proactive Maintenance: Phase two survey respondents encouraged proactive tree and park maintenance. Some respondents emphasized the need to ensure clearance requirements were met, particularly along bike paths.

Several other respondents preferred that tree pruning be balanced with tree health outcomes.

PLANTING

> "[the HRM should] *oversee or inspect tree planting in new subdivisions and where homeowners are required to plant species on their properties."*

Native Species Selection: Engagement participants advocated for the use of native, pollinator and bird-friendly species.

Improved Growing Conditions: Participants in the phase one technical workshop suggested the Municipality take bold actions to enhance boulevard growing conditions, such as burying utilities and requiring sustainable right-of-way standards to support tree inclusion in design. Argyle Street was used as an example.

▲ February 2024 phase one stakeholder workshop.

STEWARDSHIP

> "[The Municipality should] *inform residents about the trees in their neighbourhood (and/or the city) and how they can participate in caring for them. Take school children on tree walks to explain what's growing near their school. Invite people living in a particular neighbourhood on a tree walk to help them gain an understanding and appreciation of the urban forest."*

Emphasis on Community: Reflecting on the quick-start actions presented through the earlier draft of the UFMP, many engagement participants expressed a desire for enhanced positioning of public education and community stewardship actions as priorities within the Plan's strategic framework, including commitments to partnerships with NGOs, educators of all age groups, and more effectively using social media to increase awareness of the HRM's urban forest program (phase two survey).

Barriers to Participation: Participants identified the most significant barriers to participating in urban forest stewardship as cost, utilities, and limitations associated with ownership (phase one survey). Tree planting subsidies, tax credits, and educational materials around tree selection were often suggested as methods to reduce barriers to tree planting and maintenance on private property (phase one survey).

ADMINISTRATION AND MONITORING

Successful Management Indicators: When asked what would best demonstrate successful urban forest management, 67% of respondents agreed that increased tree protection and retention would be key (phase one survey). Other important indicators included increased tree canopy cover (62%), and equitable access to canopy cover (57%). These considerations have been incorporated into the UFMP's core monitoring framework.

INDIGENOUS ENGAGEMENT

Engagement methodologies rooted in Indigenous knowledge systems, including keeoukaywin (The Vising Way) and etuaptmumk (Two-Eyed Seeing), were used to better meet the needs of Indigenous nations. The practices emphasize rationality, respect, and the integration of Indigenous and Western ways of seeing and knowing to create more comprehensive and inclusive solutions. Engagement activities included direct outreach to Indigenous communities, facilitated visits, and interviews to gather diverse perspectives.

Indigenous communities highlighted the following priorities for the Urban Forest Management Plan. One priority was to **include Indigenous language in the plan**. Equally important was **supporting the sharing of Indigenous ecological knowledge**. Participants described this as involving the co-creation of an education plan to bridge Indigenous perspectives into the Urban Forest Management Plan. They also indicated it should embody etuaptmumk and Indigenous pedagogy, such as land-based learning, into broad education and engagement approaches. **Collaboration and partnerships** between the HRM and Indigenous communities were also highlighted as an important way to support urban forest outreach and management with Indigenous communities. This includes clarifying and strengthening internal collaborations within the HRM and streamlining dialogues and processes to improve efficiency for Indigenous organizations.

Indigenous communities also expressed a need for the **protection of culturally significant species**, especially birch, black ash, and white ash. These species hold cultural importance for Indigenous communities and need to be preserved through urban forest planning. Similarly, participants expressed a desire to **plant food forests** and support community food sovereignty, especially in areas where houseless community members reside or where access for Indigenous communities is limited. Participants also suggested introducing a greater variety of food and creating more opportunities for vertical farming and pollinator programs. **Creating urban spaces for ceremony and healing** was also prioritized as Indigenous communities need dedicated space to practice their cultural traditions and activities.

Participants also wanted the HRM to ensure **malleability and responsiveness** in its implementation of the Urban Forest Management Plan so it can evolve with

community needs and priorities. This would need to be supported by ongoing engagement with Indigenous communities to ensure continued alignment with their priorities. Additionally, **enhancing protection and restoration post-disaster** was important to Indigenous participants, especially in disaster-prone areas. Youth expressed a strong desire for a sustainable plan to protect and restore vegetation lost during storms and to **achieve a resilient and adaptive urban forest for future generations**.

AFRICAN NOVA SCOTIANS/ CANADIANS ENGAGEMENT

Engagement with African Nova Scotians/Canadians involved detailed in-person and online interviews and focus groups with community development specialists, heads of development organizations, educators, social workers, and recreation specialists. The engagement aimed to provide a historical and socio-political analysis of African Nova Scotian development challenges, highlighting seven key race and culture-specific themes to be considered by the Urban Forest Management Plan.

African Nova Scotian/Canadian participants aspired for robust and inclusive policies and programs that ensured diversity and equity, the protection of their community against commercial development and the preservation of their historical and cultural connections to the land.

Protecting urban forests from development was seen as critical to successful urban forest management, emphasizing the ecological and social benefits trees provide. Participants expressed support for **programs that grow the urban forest** and highlighted the **importance of planting fruit trees** and a food forest.

Participants suggested that **more knowledge and information** could empower African Nova Scotian/ Canadian to take care of trees, expressing their interest in **volunteering** in the HRM's urban forest initiatives. They also noted the need for **community involvement and partnership with the HRM in decision-making processes** and emphasized that low African Nova Scotian/Canadian participation in urban forest management activities was predominantly due to a lack of access to information, not disinterest.

African Nova Scotian/Canadian participants also shared culture-specific considerations and concerns, emphasizing the need to incorporate their viewpoints

"I think they need to talk more about how Black people interact with the environment, because the truth is that black people out here especially, we have a history with this place. We hunt, we hunted out here. We did everything out here."

"Our absence and erasure from historical narrative of settlements keeps us from connecting to the land and the trees on it."

"Meaningfully supporting relationships with Indigenous communities can be challenging without an Indigenous Framework to support direct interactions with the First Nations within the Halifax Regional Municipality. Some engaged communities have identified their approaches to engagement, which the HRM should meaningfully reflect on and incorporate into their own engagement processes."

into the Urban Forest Management Plan due to their historical and ongoing experiences of systemic economic neglect, social exclusion, and racial marginalization. A key concern revolved around their historical exclusion from civic affairs resulting in their lack of awareness of the 2013 HRM Urban Forest Master Plan. Despite this, participants expressed a high interest in learning about urban forest management and suggested **culture-specific public information channels**.

Participants emphasized the importance of building trust through transparent and inclusive engagement processes. Addressing issues of loss and trust through reparatory justice was highlighted as a critical aspect of successful urban forest outcomes for African Nova Scotian/Canadians. Participants discussed the need to acknowledge past harms and create pathways for healing and rebuilding trust between the HRM and African Nova Scotian and Canadian communities to support these efforts.

Participants felt that urban forest management should also consider **economic development opportunities** such as job creation in the tree care and maintenance industry, as well as income generation through sustainable timber harvesting. Participants noted the need for better access to green space, tools, funding and infrastructure to connect urban forest management with other emerging issues such as food security.

FRANCOPHONE AND ACADIAN ENGAGEMENT

Engagement with francophone and Acadian organizations was conducted through French-language interviews, with results translated into English to support accessibility.

Participants envisioned an accessible urban forest with mature trees and **greenery along active transportation routes**. They strongly supported the **protection of mature trees and forests** near schools, and advocated for improved access to natural areas by means other than driving. Participants had concerns around trees causing power outages during storms and suggested **enhanced tree care practices** like pruning and utility underground as potential solutions.

Participants also expressed they have been involved in urban forest activities such as tree planting or tree giveaway events and had interest in **more educational initiatives** such as 'urban forest walkabouts' about native

species, wildlife habitat maintenance, and invasive species removal.

Participants shared important cultural considerations, such as the role forests played historically in providing shelter for Acadians during the “Grand Dérangement” (Great Upheaval) and witnessing their ties with the Mi’kmaq People. They emphasized the importance for the Acadian community of **seeing the Mi’kmaq culture well represented in the plan**. Participants also noted that **French-language signage in parks** could increase access to the HRM’s greenspaces by making them more welcoming.

PEOPLE WITH DISABILITIES

Engagement with people with disabilities involved varying formats adapted to meet individual needs. The engagement highlighted diverse lived experiences. Individuals were given the opportunity to self-identify a disability; some of these included visual and hearing impairments, wheelchair reliance, autism spectrum disorders, and service dog use.

A key consideration was the importance of **accessible design principles**. Participants stressed that urban forest resources such as documents and online platforms must be usable by all community members. Barriers such as **poor color contrast, inadequate font size, and lack of alternative text for images** were identified as significant challenges. **Simplified, plain language** was also highlighted as essential to access to information regarding the urban forest.

Some cited concerns around **sidewalk safety**, noting issues like uneven pavement caused by roots, overhanging branches blocking paths, and dense tree placement limiting mobility. At night, **tree canopies can obstruct sidewalk lights**, casting shadows at intersections and reducing visibility. This creates a safety concerns, especially for those with partial sight. Current street lighting is deemed insufficient by the community, and **suggested ground-level lighting** and ongoing consultation with the Canadian National Institute for the Blind to ensure comprehensive solutions.

Participants called for **multi-sensory connections to the urban forest**, suggesting experiences that incorporate sound, touch, and smell while ensuring sensory inclusivity. Additionally, participants urged action on protecting nature, emphasizing the need to **preserve Halifax’s historic trees** and prioritize restoration effects to **maintain ecological and cultural heritage**.

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NEWCOMERS AND IMMIGRANTS

The engagement with newcomers involved various formats of interviews. Newcomers to Halifax highlighted the importance of **fostering connections to the land**, emphasizing that **building relationship with greenspaces helped them feel at home** despite language barriers. Parks and community gardens played **pivotal roles in forming initial friendships**.

Participants expresses a strong interest in **food sovereignty and community gardens**, advocating for spaces to grow traditional herbs and food not widely available in Halifax. They envisioned grass lawns to be repurposed for **growing edible plants**.

Newcomer participants expressed a strong interest in **education about native plants** and the integration of Mi’kmaq knowledge. Newcomers sought opportunities to learn about Indigenous plant practices, including traditional uses, growing techniques, and cultural stories. Programs fostering knowledge-sharing between newcomers and Mi’kmaq communities were viewed as valuable. Participants however noted language barriers would need to be addressed through translated materials.

Safety in parks is a significant concern, particularly for female and female-presenting participants. Parks with large canopy cover were generally considered as unsafe during lower light times and when parks are less populated. In community gardens, **experiences of racism and intimidation** were experienced, where individuals were bullied or harassed to leave. Newcomers **did not feel welcome** to participate in community garden space and have been **bullied or harassed into leaving**.

Newcomers noted that racism is not exclusive between dominant society and newcomers, but sometimes between other cultural groups. Creating inclusive spaces in the urban forest will require the awareness of these nuances.

4.2. RECAP: THE MAJOR CONCERNS

HRM's first urban forest plan was developed in 2013 out of a sense of urgency to respond to a series of destructive events including Hurricane Juan, several severe storms, and growing concerns around the introduction of invasive species. In the decade since, more hurricanes have reached the HRM's shoreline, wildfires have been felt, and new pests of concern have arrived in the community. Threats to the urban forest are increasing and, while the HRM's urban forestry program has made significant strides since 2013, more must be done to support the health of the urban forest for the enjoyment of future generations.

CLIMATE CHANGE AND EXTREME WEATHER

Climate projections for the HRM suggest we will see wetter, wilder weather in years to come. Extreme weather events like Hurricanes Juan (2003), Dorian (2019), and Fiona (2022) will become more common. Conditions like those that supported the 2023 Upper Tantallon wildfire may not be isolated occurrences. The relationship between our trees and climate is complex. What is certain is that climate change brings with it new challenges to urban forest management the likes and magnitude of which, the community has not experienced before.

PESTS AND PATHOGENS

HRM is an international port. The City has historically served as a gateway for the arrival of new invasive pests to the Province, and in some cases to Canada or North America. As trans-Atlantic shipping is likely to continue, so to will the threat of uninvited, invasive pests or disease. Now, emerald ash borer and hemlock woolly adelgid threaten the HRM's ash and hemlock trees. These are species of concern that have left destruction in their wake in the parts of North America that have been dealing with them over the past decade. It is not just invasive pests that are an ongoing concern, however. Under the influence of climate change the life-cycles, range, or behaviour of even native plants may deviate from what we have observed from them historically, and potentially problematically.

An Ageing Tree Population

Many of the HRM's trees lining streets and parks were planted in the early 20th century. These mature trees are a defining feature of the HRM's identity and contribute significantly to the urban tree canopy. However, as these trees near the end of their safe life expectancy, their loss could have a significant impact, especially in neighbourhoods where early 20th-century plantings dominate.

In some cases, proactive measures can delay the replacement of large, aging trees in urban landscapes. Targeted pruning, soil aeration, and, in certain cases, the installation of supportive cables can help reduce stress and extend the lifespan of older trees. While effective, applying these measures to all aging trees under the HRM's care is not feasible due to resource limitations.

To address this challenge, multiple approaches are needed. Many parks currently have low canopy cover, presenting an opportunity for proactive planting. Establishing young trees in these areas now will ensure that there are successors ready to replace aging trees in the future. Along streetscapes, a planned, phased approach to successional replacement is essential. By replacing trees in blocks as they reach the end of their lives, the municipality can spread the financial costs and minimize the visual and ecological impact of canopy loss over time.

Limited Program Resources

HRM's Urban Forestry program operates within the constraints typical of municipal departments, with most resources allocated to maintaining planted trees. The current maintenance plan targets a seven-year grid pruning cycle, but funding limitations prevent full achievement of this goal. Additionally, the HRM lacks dedicated funding for managing its woodland areas, despite the need for invasive species control, restoration, new tree planting, recreation management, trails upkeep, risk management, and fuels reduction in woodlands.

URBAN DEVELOPMENT

With nearly 275 years of urban history, the HRM has experienced numerous growth periods, the most recent spurred by the COVID-19 pandemic. Between 2016 and 2021, the municipality's population grew by nine percent, necessitating the development of thousands of new homes, commercial facilities, industries, and public services—primarily concentrated in the Urban Core.

Urban development can often result in tree removals and increase impervious surfaces, which can negatively impact the urban forest canopy and exacerbate stormwater runoff and urban heat. While some tree losses are inevitable, a balance must be struck to ensure that urban forest preservation accompanies growth. Trees and development are not mutually exclusive; both are integral to creating a complete, sustainable community.

Addressing the Challenges

The challenges facing HRM's urban forest require a diverse set of solutions. The Urban Forest Management Plan provides a vision and strategic framework to maintain and expand the tree canopy while adapting to the pressures of urban growth, climate change, and resource limitations.

▲ Tree down following Hurricane Juan. September 2003. CR: Peter Duinker.

4.3. STRATEGIC FRAMEWORK

The Strategic Framework for the HRM's Urban Forest Management Plan implements the 2050 urban forest community vision, which has been further distilled into three big ideas.

The Strategic Framework is applied through Five Objectives, which form the broad foundations of the HRM's Urban Forest Management Plan. Seventeen strategies further implement these five objectives, and 114 actions provide the detailed program actions the HRM will undertake toward achievement of the Municipality's 2050 urban forest vision.

Key components of the strategic framework:

- **Vision:** The vision shapes the objectives and strategies, ensuring the Plan is focused and impactful.
- **Three Big Ideas:** These ideas further refine the vision and provide more structure to the objectives and strategies.
- **Five Core Objectives:** These objectives guide the overall direction of the Urban Forest Management Plan.

Detailed implementation approach:

- **17 Strategies:** These strategies provide specific details on how each objective will be achieved.
- **108 Program Actions:** Grouped under the strategies, program actions detail the specific steps the Municipality will take in urban forest management from 2025 to 2050.
  - **20 Priority Actions :** These actions will have a significant impact on the success of the Municipality's program and implementation of this UFMP.
  - **Six Quick Start Actions :** These are actions the Municipality will implement in the early years of the Plan's life.
  - **82 Medium- to Long-Term Actions:** These are longer-term actions to support the achievement of the vision and core objectives

4.4. THREE BIG IDEAS

The broad aspirations for the Urban Forest Management Plan have been captured through this Plan's vision statement and three big ideas. Grounded in community priorities and values, more than 800 survey submissions and countless more discussions with engagement participants have refined the vision statement, which is further distilled through three big ideas, to be the guiding principals behind the Urban Forest Management Plan's Objectives, Strategies, and implementing actions.

THE VISION

The HRM is a municipality of trees. Through the shared legacy of sustainable management, HRM's urban forest has been carefully woven into the fabric of our neighbourhoods over the past 25 years. Characterized by a mosaic of native inland and coastal ecosystems as well as large, mature streetscape and park trees, the benefits our urban forest supports meaningful contributions to our health and wellbeing and supports the resilience of our community to the threats imposed by climate change. The protection of our urban forest and its resident biodiversity is central to our management approach and our vision for urban and rural sustainability.

3 BIG IDEAS

EQUITY

HRM's urban forest management program is both sustainable and equity-centered in its service delivery.

BALANCE

Balance between forest and biodiversity conservation and the continued growth of HRM.

COMMUNITY

Community values, education and stewardship capacities are prioritized- people are HRM's most influential urban forest management resource.

4.5. TARGET-SETTING AND MONITORING

To ensure success through UFMP implementation, the HRM will monitor progress, and remain flexible in the face of evolving community priorities and challenges.

CANOPY COVER TARGET

Community engagement highlighted a desire amongst participants for the HRM to adopt a formal canopy cover target to guide future development. Canopy cover is an effective metric for tracking large-scale changes in the extent and distribution of a community's urban forest. Consequently, many Canadian municipalities incorporate canopy cover targets into their urban forest management plans to measure progress toward long-term goals. These targets are particularly valuable because they can be easily integrated into planning policies and development processes, aiding in informed decision-making.

While canopy cover is a useful metric, it does not provide a comprehensive assessment of urban forest health or management outcomes. It fails to account for key aspects such as species diversity, tree age distribution, forest health, and ecosystem services. To gain a complete understanding of an urban forest's status and to evaluate the success of management efforts, it is essential to pair canopy cover monitoring with other performance indicators.

Leading urban forest organizations, such as American Forests, recommend that municipalities establish canopy cover targets based on local ecological conditions, population density, and land use constraints. Developing an informed canopy cover target for the HRM will require an understanding of tree protection policies, rates of replacement, historical rates of loss, projected rates of loss, and knowledge of future land use changes and development. Making assumptions about canopy change in the HRM is presently challenging due to several factors:

- Canopy cover datasets of a fine geospatial scale have only recently been acquired, meaning there is a limited historical record to understand how canopy cover has changed within the HRM (although coarse estimates exist, see section **2.2**),
- Private tree protection is currently negotiated through the development process, with limited formalized processes supporting private tree protection outside riparian setbacks, there is variability in tree retention through one development process to the next,
- Regional development will be informed by the Regional Plan, which is currently under review, and its direction will influence the rate, location and pattern of growth within the HRM over years to come,
- Development form and density are dictated by twenty-two Land Use By-laws that make it challenging to set targets at the regional level, and
- Recent legislative shifts to expedite the development approvals process create uncertainty in the relationship between municipal regulation, powers, and provincial initiatives and priorities.

As a result, the HRM's Urban Forest Management Plan is not proposing the Municipality adopt a canopy cover target at this time. Nonetheless, the Municipality has committed to five actions through the action plan (**Part 5. Action Plan**) that will support the establishment of an informed canopy cover target through future review of the UFMP:

1. HRM will plant a minimum of 1,000 ("ball and burlap") net new trees per year until at least the first review of the UFMP (**Figure 4-2**),
2. HRM will revisit the possibility of establishing a canopy cover target at the second (10-year) review of the UFMP, once the Regional Plan Update has been completed and the HRM is equipped with a decades' worth of change monitoring to support modelling efforts,
3. HRM will review its net new planting target at each five-year review and ensure committed rates of tree planting are being achieved, and contributing to desired urban forest outcomes,
4. HRM will continue to support reforestation and community planting events in addition to planting a minimum of 1,000 net new trees, per year, and
5. HRM will formalize planting opportunities mapping to support informed canopy modelling through a future review.

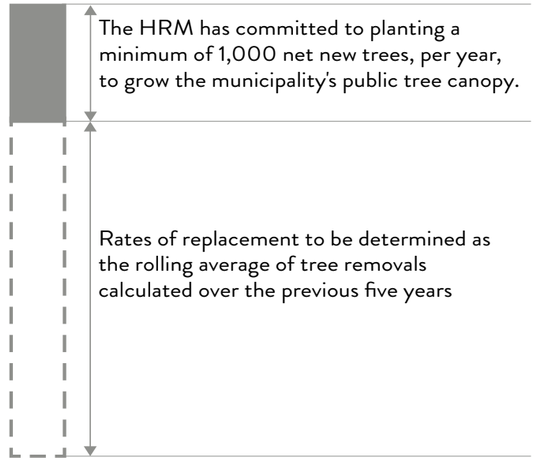


Figure 4-2. The HRM is committing to plant a minimum of 1,000 net new trees every year on top of replacement trees

MONITORING APPROACH

Monitoring is essential for the successful implementation of any strategic initiative. Urban forest management programs informed by current, high-quality datasets best support adaptive planning efforts. In addition to monitoring canopy cover, tracking several other indicators will provide information to evaluate successes and failures in implementation, allowing staff to plan, respond, and adjust to changes for better implementation outcomes. **Table 4-1** identifies the core monitoring framework to track successes and gaps in the implementation of this plan.

Table 4-1. Core monitoring framework to support the tracking of the UFMPs' implementation.

Indicator	Method	Assessment (iterative)	Baseline (2023)	Target (2050)
1. Canopy Coverage	LiDAR + Orthoimagery	Five years	65% in urban core; 58% in the HRM	No net loss until five-year review
2. Net basal area (m^2/ha) loss through capital projects	Survey	Five years	Unknown	To be established at five-year review
3. Proportion of communities where a recent (< five years old) FireSmartTM Risk Assessment has been completed			Unknown	None
4. Net new trees planted annually	Inventory	Annual	Roughly 1,000 net new "ball and burlap" trees per year in the HRM's parks and streetscapes	A minimum of 1,000 net new "ball and burlap" trees per year in the HRM's parks and streetscapes
5. Net new trees planting in Urban Forest Enhancement Districts (UFEDs)	Inventory, Spatial Data	Annual	26%	40%
6. Average tree dbh (diameter at breast height) at removal	Inventory	Ongoing	Unknown	To be established at five-year review
7. Grid pruning cycle	Inventory	Ongoing	More than nine years	Seven years
8. Risk management procedures	Risk Management Procedures	Ongoing	Not formalized	Formalized and achieved on an annual basis
9. Woodland condition ratings	Inventory	Ongoing	Unknown	To be established at five-year review
10. Annual volunteer hours		Annual	Unknown	To be established at five-year review (2030)
11. Resident satisfaction with municipal outreach and education programming	Survey	Annual	58%	80%
12. Annual research funding	Capital Budget	Annual	$50,000	$50,000

Indicator	Method	Assessment (iterative)	Baseline (2023)	Target (2050)
13. Dialogues with Indigenous Committee	Varied	Annual	Ad hoc	Annual ongoing meetings
14. Program funding per capita	Operating and Capital Budgets	Annual	$10 per capita	$15 per capita (inflation adjusted)
15. Frequency of working group meetings	Calendars	Ongoing	No working group	Twice annually
16. Planted tree condition ratings	Inventory	Ongoing	Unknown	To be established at five-year review (2030)
17. Public reporting on UFMP implementation	State of the Urban Forest Reporting	Five years	None	5 years, repeating

▲ CR: Natalie Bell.

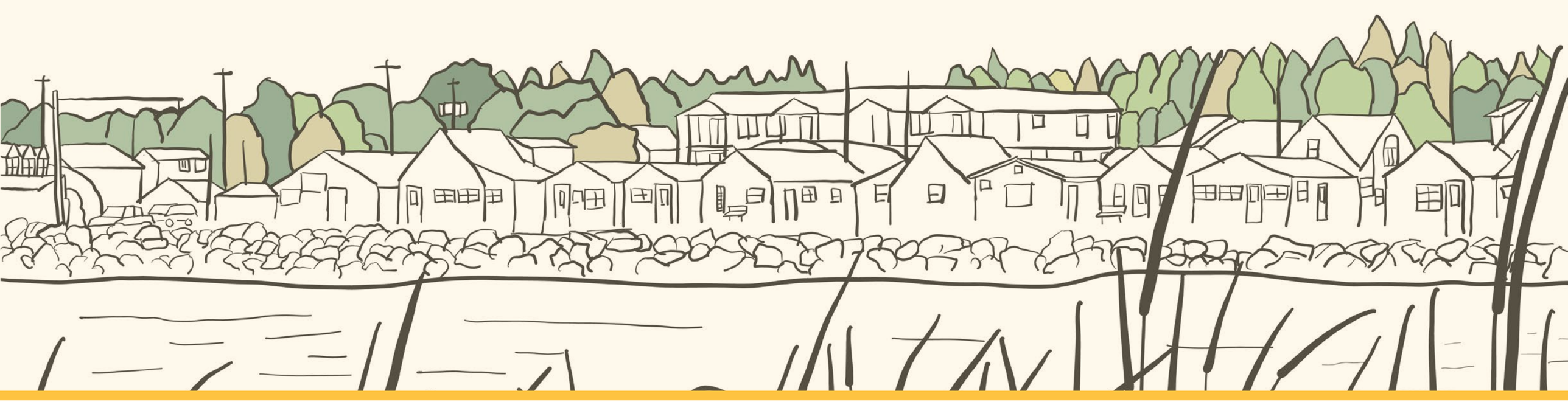
▶ Sample of the HRM's high-resolution tree canopy layer. The canopy layer will be regularly re-measured to support ongoing program monitoring .

Action Plan

Plan d'action

na'n

5



The UFMP action plan is organized around five objectives that address the essential components of urban forest management necessary to fulfill the plan's overarching vision. Each objective is supported by a set of strategies designed to guide action and ensure measurable progress.

Progress toward achieving each strategy can be tracked using identified indicators and targets at the strategic level. This framework provides a clear and transparent means of evaluating the UFMP's implementation. For detailed information on the monitoring approach, see section 4.3.

To operationalize the strategies, the UFMP outlines 110 actions that detail specific steps needed to implement each strategy effectively. When an action contributes to or aligns with another municipal initiative (e.g., HalifACT, IMP), it is marked with an accompanying badge to indicate its dual role in supporting broader municipal goals.

Occasionally, the cover of another strategic plan approved by the HRM is presented alongside an action in this Plan. This indicates that the action in this plan is supportive or is restated through one or more actions or initiatives identified through the plan indicated. In some cases, an action in this plan supports more than one plan, and so more than one cover is presented.

1. Planning and Protection

Objective: **HRM achieves sustainable balance between continued growth and the protection of the municipality's natural areas and features.**

Planning and protection are essential to sustainable urban forest management. Planning involves the processes, regulations, provisions, and standards the HRM uses to include trees in new developments, whereas protection focuses on retaining existing trees during development. Planning approvals often include tree protection requirements or conditions.

HRM's rapid growth presents a challenge in balancing development with the conservation of natural areas and features. Although development and tree protection can coexist, some development sites will inevitably require tree removal. The key is using planning tools to determine when the removal of trees to facilitate development is acceptable and to ensure trees are replanted on-site or elsewhere after construction.

Climate change and its full range of impacts can also present a source of tree loss. Coordinated planning can ensure tree management and development processes are supporting healthy trees and resilient urban environments so that the impacts of climate change are mitigated to the degree possible.

Actions and strategies in this section aim to support the HRM in achieving a balance between urban growth and conserving or enhancing natural areas and features. Strategies encompassing tree protection measures, planning tools, design-phase integration, and building climate resilience are each covered.

The strategies to achieve this objective:

- Ensure policies promote canopy cover in the Urban Core.
- Prioritize urban forests in the planning and design phase of projects.
- Build resilience to climate change impacts including wildfire threat and extreme weather.

Strategy 1.1: **Ensure policies promote canopy cover in the Urban Core.**

HRM's has two forms of policy at its disposal with respect to the municipality's trees: tree protection, and design-based intervention.

Tree protection focuses on preserving existing trees and woodlands on a site. Mature trees support significant canopy area and significantly more community benefits than smaller trees. It is in the community's interest to balance new development with the protection of mature trees and forested lands. In the HRM, public trees are protected by the Public Tree By-law, which requires permits for any activities by private entities that involve the removal of public trees. Private tree protection is typically negotiated during the development process, often as part of park dedication in greenfield developments, but this can vary by site.

Design-based policy interventions ensure the availability of suitable planting space and soils following development and are as important as tree protection. The HRM's varied development applications and permitting processes must consistently achieve a balance between supporting growth and leaving suitable areas for planted trees and green infrastructure.

Actions under **Strategy 1.1** aim to further tree protection requirements within the Municipality, as well as to better integrate trees into urban sites through enhanced specifications, site design criteria, and standards.

INDICATOR(S):
Canopy Coverage

BASELINE (2023):
65% in urban core; 58% in the HRM

TARGET (2030):
No net loss until five-year review

1.1 A Consider adopting a By-law to manage removal of trees on private property within the serviced areas of HRM, prioritizing riparian areas and focusing on larger properties with development potential.

1.1 B Consider updates to contract language which would require hold-backs for tree protection where private contractors are working around public trees.

1.1 C Periodically review the Municipality's Public Tree By-law to ensure design remains aligned with the needs of the HRM.

1.1 D Formalize internal procedures for the retention, removal, and replacement (if necessary) of trees in municipal capital projects considering when: (i) Urban Forestry review/ sign off is required, and (ii) construction work requires arborist supervision.

1.1 E Review the Municipality's engineering standards to promote tree and soil retention as a first priority for stormwater management.

1.1 F ! Develop new policies that will foster the acquisition and stewardship of forested environmental lands by the HRM, the Province and NGOs.

1.1 G ! Consider the planning policies and financial tools required to allow the Municipality to acquire new and improve existing parkland as part of urban infill and redevelopment projects.

1.1 H When amending Community Plans and Land Use By-laws, update site design and built form requirements to ensure site design both requires adequate tree planting with new development, and will support the long-term growth of newly planted landscape trees.

1.1 I Where the details of a Streets and Services permit trigger a Construction Management Plan, require tree planting in any rehabilitated street right-of-way to meet the requirements of the Municipal Design Guidelines.

1.1 J Consider opportunities to use incentive or bonus zoning to encourage the voluntary retention of quality private trees through the development process.

A CASE STUDY IN RIPARIAN PROTECTION

The City of Toronto's Ravine and Natural Feature Protection By-law requires a permit for various activities that would impact trees in the City's ravines and natural areas. The structure of the by-law provides regulations more tailored to woodland and ravine protection than a private tree by-law, and applies to features mapped through attached schedules.

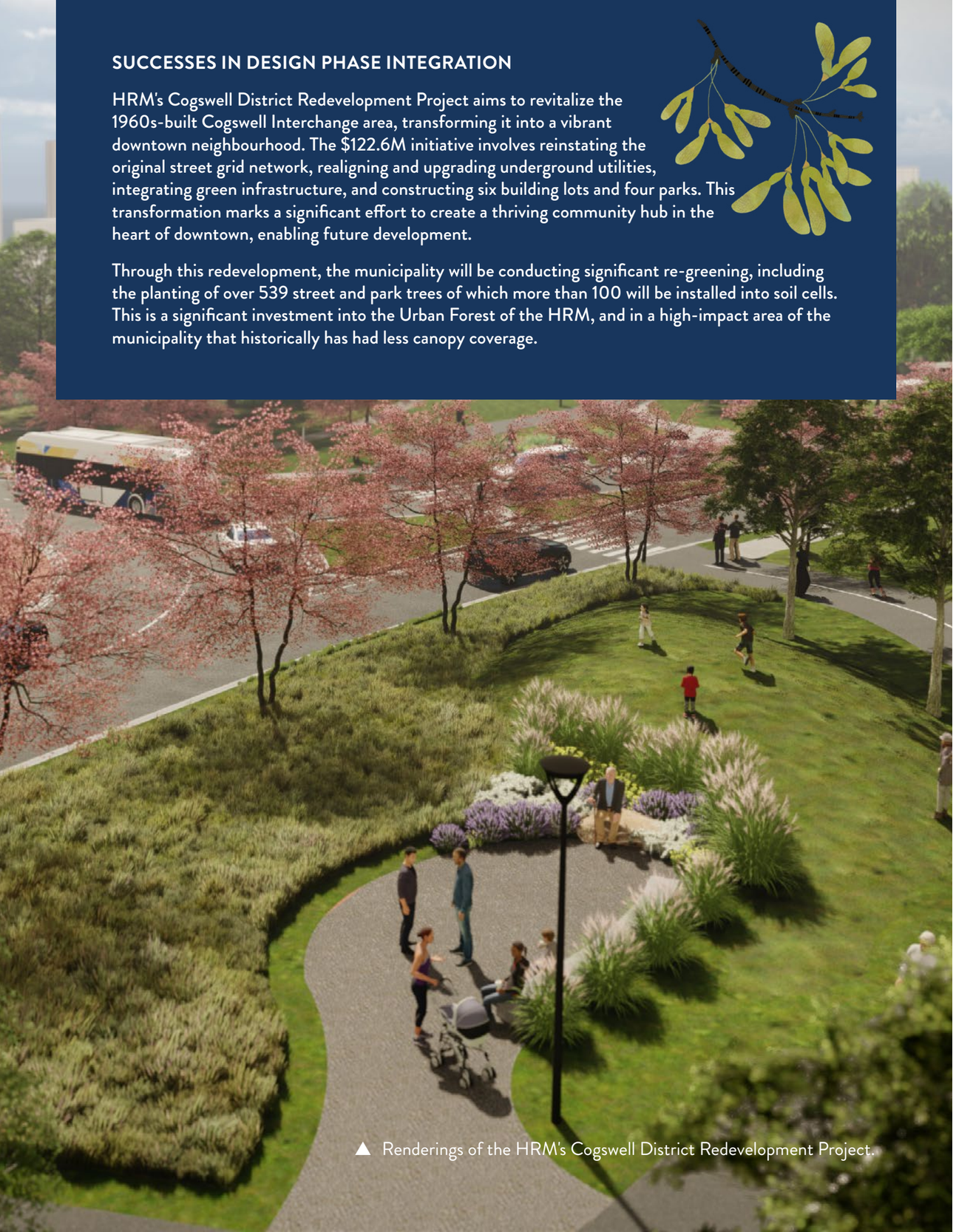
▲ CR: Natalie Bell.

! Quick start actions ! priority actions

SUCCESSES IN DESIGN PHASE INTEGRATION

HRM's Cogswell District Redevelopment Project aims to revitalize the 1960s-built Cogswell Interchange area, transforming it into a vibrant downtown neighbourhood. The $122.6M initiative involves reinstating the original street grid network, realigning and upgrading underground utilities, integrating green infrastructure, and constructing six building lots and four parks. This transformation marks a significant effort to create a thriving community hub in the heart of downtown, enabling future development.

Through this redevelopment, the municipality will be conducting significant re-greening, including the planting of over 539 street and park trees of which more than 100 will be installed into soil cells. This is a significant investment into the Urban Forest of the HRM, and in a high-impact area of the municipality that historically has had less canopy coverage.



▲ Renderings of the HRM's Cogswell District Redevelopment Project.

Strategy 1.2: **Prioritize urban forests in the planning and design phase of projects.**

The best outcomes for planted trees are achieved when trees are considered early in the project planning and design process. At this stage, opportunities for alternative approaches, tree-sensitive design, and bolstered protection measures are generally still feasible. Beyond the design stage, once detailed design has been completed or work has been brought to tender, the opportunities for positive tree outcomes in the event of an unforeseen conflict are significantly reduced. Adjustments to approach are often prohibitively expensive and can also compromise critical project timelines and put budgets at risk. The actions under **Strategy 1.2** seek to improve the consideration for trees during the design phase, through improved design-phase information, discretion in planning approvals, and enhanced consideration through capital projects.

INDICATOR(S):
Net basal area (m^2/ha) loss through capital projects

BASELINE (2023):
Unknown

TARGET (2030):
To be established at five-year review

1.2 A ! Consider amending plans and Land Use By-laws to introduce flexible development regulations that would incentivize protecting mature tree stands and/or forested areas on lands proposed for development.

1.2 B Consider requiring arborist reports or tree protection plans in all cases where it would support decision-making as part of development processes.

1.2 C Update procedures related to data acquisition and migration to the asset registry such that that tree removal and replacement through capital projects is more accurately accounted.

1.2 D Work with utility providers to establish preferred and minimum planting setbacks from infrastructure, and to identify acceptable solutions (e.g., utility sleeves, root barriers, vertical setbacks) to facilitate reduced setbacks.

1.2 E Explore opportunities for tree planting and green infrastructure integration in surface parking lots through facility design.

1.2 F Prioritize tree retention and strong tree planting standards for capital projects planned within the Municipality's UFEDs (**Figure 2-17**).

1.2 G Prioritize tree retention in the design and development of new active transportation infrastructure.

Strategy 1.3: **Build resilience to climate change impacts including wildfire threat and extreme weather.**

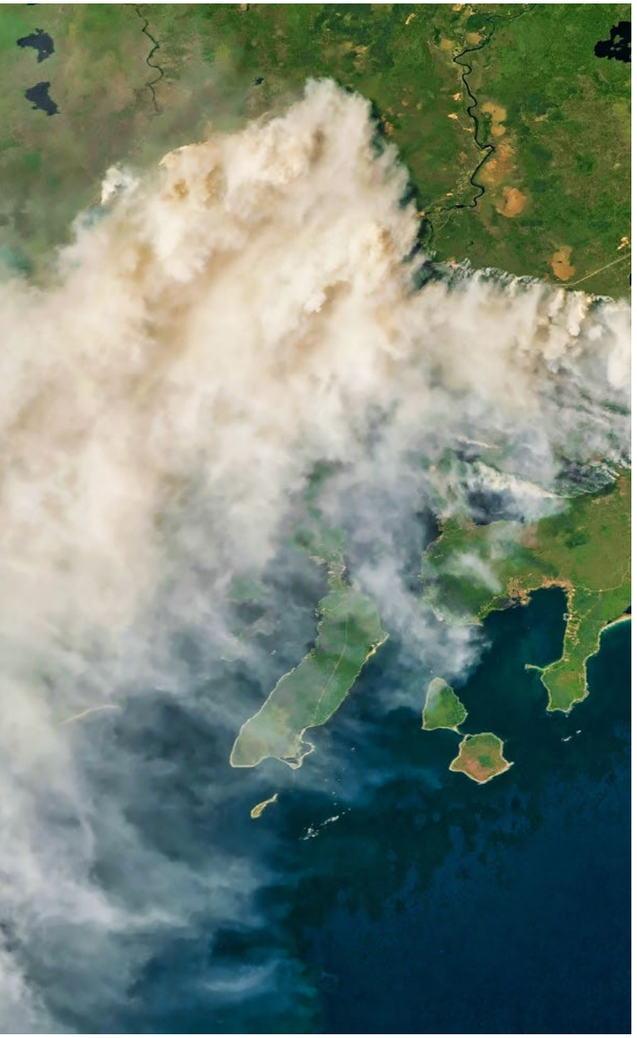
HRM's urban forest is increasingly vulnerable to the impacts of climate change. Challenges such as extreme weather events, heightened wildfire risk, and the spread of pests and diseases are expected to intensify in the years ahead, placing significant stress on both woodland and street tree populations.

To address these threats, the actions outlined under **Strategy 1.3** focus on enhancing the resilience of the urban forest . This strategy emphasizes proactive measures to adapt to climate change and ensure the long-term safety, health and functionality of the urban forest.

INDICATOR(S):
Proportion of communities where a recent (< five years old) FireSmart™ Risk Assessment has been completed

BASELINE (2023):
Unknown

TARGET (2050):
None



1.3 A	Identify and map the wildland-urban interface (WUI) and high fire risk areas.
1.3 B	Formalize wildfire risk mapping to inform wildfire within the wildland-urban interface.
1.3 C	Through the review of the Regional Plan, consider wildfire risk mapping in settlement patterns and develop planning policy to support risk mitigation.
1.3 D	Develop standards for transfer agreements that apply FireSmart principles and invasive species removal measures prior to those lands being conveyed to the municipality.
1.3 E	Work with local nurseries to identify fire susceptible and fire resilient landscaping plants at the point of sale.
1.3 F	Develop internal and external (i.e., contractor) expertise related to fuels and wildfire management in woodlands.
1.3 G	Record tree loss during extreme weather events in the Municipality's tree inventory to better inform future emergency preparedness.

2. Planting

Objective: **Tree planting is sufficient to offset canopy cover losses and increase canopy cover within the HRM's Service Area Boundary.**

This Plan commits the HRM to planting a minimum 25,000 net new ball and burlap trees over the coming 25 years. This is in addition to continuing to support such initiatives as the HRM's free tree giveaway and identifying opportunities for community planting events.

However, sustainable rates of tree planting are more involved than simply getting more trees in the ground. Perhaps more important, the strategies under the planting objective also ensure the HRM is planting trees where trees are most needed, and to ensure that the tree planting standards and specifications are supporting trees growing to maturity. The municipality's Equity-Centered Management and Urban Forest Enhancement Districts (**Figure 2-17**) are intended to bridge existing equity gaps in the design of the urban forest management program, alongside other actions toward the same ends.

The strategies to achieve this objective are to:

- Plant more trees.
- Bridge gaps in access to the urban forest and its benefits.
- Ensure planting standards are supporting long-term tree growth.

Quick start actions **priority actions**

Strategy 2.1: **Plant more trees.**

This Plan comes with a commitment for the Municipality to plant a minimum of 25,000 net new trees over the next 25 years. Rates of net new tree planting will be reviewed with each revisit of the UFMP. While Urban Forestry has achieved net new planting rates in the past five years, these rates have not met the commitments of the 2013 Urban Forest Master Plan or targeted specific neighbourhoods identified in that document for planting. The actions under **Strategy 2.1** support increasing rates of tree planting on both private and public property.

INDICATOR(S):
Net new trees planted annually

BASELINE (2023):
Roughly 1,000 net new "ball and burlap" trees per year in the HRM's parks and streetscapes

TARGET (2050):
A minimum of 1,000 net new "ball and burlap" trees per year in the HRM's parks and streetscapes

2.1 A Continue to support the Municipality's tree giveaway program, growing it if and when demand exceeds program capacity.

2.1 B Explore opportunities to work with institutional land owners toward planting programming on institutional lands.

2.1 C ! Plant a minimum of 1,000 net new trees per year in the HRM's parks and streetscapes.

2.1 D ! Create a spatial layer to document where opportunities for tree planting and reforestation exist on municipal property and consider identifying areas with high need for shade such as along sports fields and playground equipment.

2.1 E Continue to explore opportunities to support tree planting initiatives through grant funding.

2.1 F Prioritize use of native planting stock in planted plantings interfacing with natural areas (e.g., parks, interface subdivisions) to support native biodiversity, including birds.

2.1 G Develop a planting plan for lands within the Centre Plan's Downtown designation with the objective of a net increase in canopy cover over the lifetime of the UFMP.

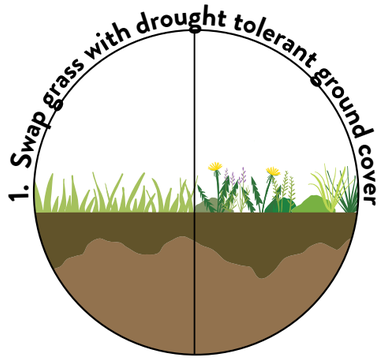
2.1 H Prioritize new tree planting along multi-use paths (MUPs) and active transportation corridors.

2.1 I Explore opportunities to partner with the Province and other organizations toward developing a plant nursery as a local source of container, bare root, and/or caliper planting stock.

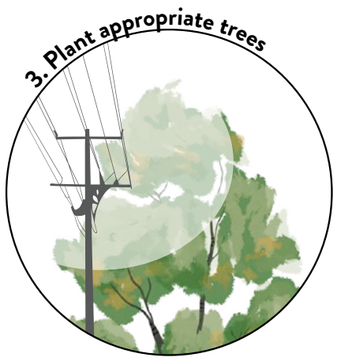
2.1 J Encourage local suppliers to consider production of native plant species as identified in the HRM Natural Areas restoration guidelines

▼ 'Ball and burlap' planting stock ready for installation, peninsular Halifax.

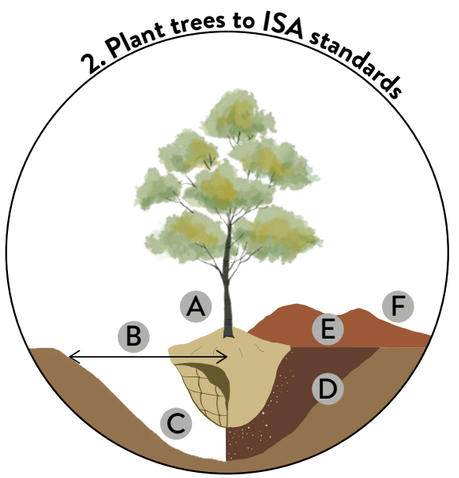
How can you contribute?



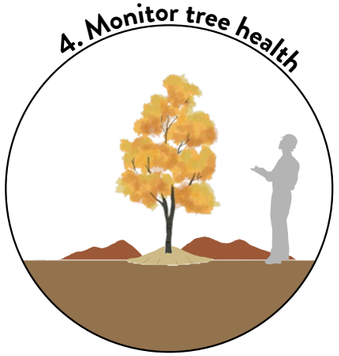
Grass removes moisture from the ground, reducing the supply to other organisms, including trees. Opting for a non-invasive alternative to grass preserves soil health around trees.



Selecting suitable trees ensure the proper growth of trees while also maintaining the safety of the surroundings. Small to medium trees can be planted close to powerlines.



A. Visible trunk flare above ground
B. Planting hole should be 2-3x the size of the root ball
C. Remove burlap or wire baskets from the top and sides of the root ball to prevent constriction of roots
D. Fill in the hole and apply gentle pressure (with your foot) to the surface of the now covered root ball
E. Mulch with 2-3 inches of coarse wood chips; make sure to not pile up against the trunk
F. Avoid fertilization unless required by soil test



A. Watch for foliage and stem damage.
B. Contact International Society of Arboriculture (ISA) certified arborist if you notice issues.
C. Report tree health concerns to HRM's online services: halifax.ca/home/online-services/trees

Tree pruning can help promote good structure and avoid structural problems from developing as tree ages. There are various pruning techniques to achieve desired purposes that can be found in the ISA guideline.

! **Quick start actions** ! **priority actions**

Strategy 2.2: **Bridge gaps in access to the urban forest and its benefits.**

Despite ample urban forest resources in the HRM, not all residents benefit equally from trees and green spaces. As the HRM continues to grow, equity must play a larger role in the delivery of urban forest services.

The Plan has identified several urban forest enhancement districts (UFEDs) and several more equity-centered management districts (ECMDs) (**Figure 2-17**). Urban Forest Enhancement Districts (UFEDs) are areas where tree canopy is low, despite high concentrations of equity-deserving individuals. This contrasts ECMDs, which are areas characterized by high concentrations of equity-deserving individuals, but are also areas where tree canopy is already fairly high. In ECMDs, tree planting is not necessarily the optimal equity-centered management approach, however there may be other approaches and interventions that could support equitable outcomes in such areas.

Outside of UFEDs and ECMDs, there are several initiatives that the HRM can initiate to enhance consideration for equity in urban forest management. The actions under **Strategy 2.2** aim to improve access to urban forest benefits and services.

INDICATOR(S):
Net new trees planting in Urban Forest Enhancement Districts (UFEDs)

BASELINE (2023): Average canopy cover of 26% across UFEDs

TARGET (2050): Average canopy cover of 40% across UFEDs

2.2 A Leverage the Municipality's Social Value Procurement and Supplier Code of Conduct to prioritize proposals and vendors that help bridge discrepancies in access and enjoyment of urban forest benefits, as well as those that work to bridge broader social inequities.

2.2 B ! Prioritize the retention of existing trees on public and private property within the HRM's UFEDs. (**Figure 2-17**).

2.2 C Allow advanced registration for residents living within an UFED interested in the HRM's annual tree giveaway. Undertake targeted advertisement of the tree giveaway to UFEDs. Reduce barriers to tree giveaway participation- such as enabling drop-off for residents with mobility challenges.

2.2 D ! Consider ECMDs in urban forest operations and management (Figure 2-17), including but not limited to:

- Prioritizing ECMDs with poor access to trails and parks in the development of trails on existing parkland,
- Considering ECMDs through storm response and cleanup activities,
- Prioritizing wildfire resilience programming and activities within interface ECMDs, and
- Prioritizing succession management activities within ECMDs that are also located within a Succession Monitoring and Management Districts.

2.2 E Update ECMDs and UFEDs as is warranted through future UFMP review periods (**Figure 2-17**)

Strategy 2.3: **Ensure planting standards are supporting long-term tree growth.**

The Municipality can require tree planting standards that support planted tree longevity by ensuring planting standards meet best practices in tree planting. This can include use of emerging technologies like soil cells to improve soil volumes in tight urban areas, ensuring setbacks to buildings and utilities will not lend to future conflicts with nearby trees, and ensuring urban design thoughtfully integrates trees into street sections, plazas, and parks.

As the HRM's population density increases in urban areas, heavy foot traffic can cause soil compaction and compromise the health of existing trees, leading to calls for hardscaping such areas. Surface treatments that accommodate foot traffic while maintaining existing tree roots and permeable surfaces may need to be explored in order to protect mature trees in heavy foot traffic areas.

The actions under **Strategy 2.3** outline the steps the Municipality will take to ensure that new trees on public land are planted in conditions that support their full life-cycles and overall health.

▼ Soil cell installation along Argyle street.

INDICATOR(S):
Average tree dbh (diameter at breast height) at removal

BASELINE (2023):
Unknown

TARGET (2030):
To be established at five-year review

2.3 A Continue to explore new surface treatments and design solutions that may reduce pedestrian-tree conflicts in high-traffic areas.

2.3 B Ensure all new trees entering the inventory are reviewed by Urban Forestry to confirm that stock and establishment standards are met before being added to the registry.

2.3 C Establish standards for tree planting in plazas and open spaces that are aligned with the specifications detailed through the Red Book (e.g., soil volumes).

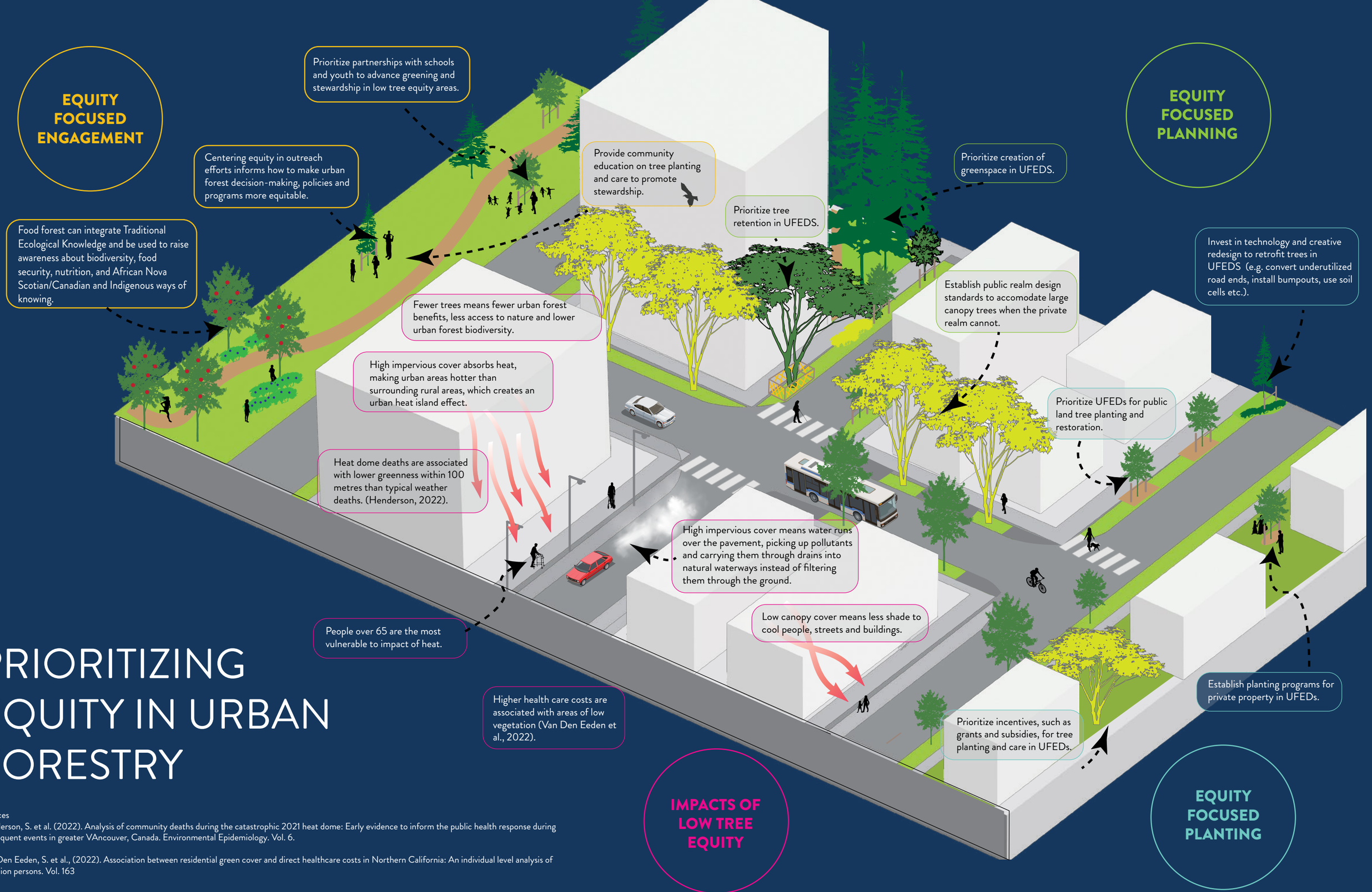
2.3 D Consider future climate hardiness informed by climate projections for the Halifax Region to inform stock selection for planted trees.

2.3 E Work with local researchers to evaluate the effectiveness of and recommend updates to new municipal design guidelines requiring soil cells and confirm whether they provide measurable advantages to tree growth over the use of structural soils.

2.3 F Undertake feasibility pilots of new climate-forward species and cultivars in open-grown parks settings.

! **Quick start actions** ! **priority actions**

PRIORITIZING EQUITY IN URBAN FORESTRY



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Henderson, S. et al. (2022). Analysis of community deaths during the catastrophic 2021 heat dome: Early evidence to inform the public health response during subsequent events in greater VAncouver, Canada. Environmental Epidemiology. Vol. 6.

Van Den Eeden, S. et al., (2022). Association between residential green cover and direct healthcare costs in Northern California: An individual level analysis of 5 million persons. Vol. 163

3. Maintenance

Objective: **HRM's tree assets are managed in accordance with best practices and planned service levels are achieved.**

Few aspects of urban forest management are as important as proper maintenance. Maintenance is a sweeping objective and encompass most activities we undertake to improve the health or longevity of trees and woodlands in the HRM.

Modern urban forest management programs that subscribe to industry best practices undertake periodic, proactive tree care for each planted tree under a community's care. This is often a relatively small resource investment as compared to the costs of reactive maintenance and is widely acknowledged to extend tree life-cycles, and reduce premature mortality. For example, proactive pruning can resolve structural issues in trees before they become severe and are more likely to result in failure or otherwise require the removal of the tree.

Within the HRM's municipal woodlands, the focus of maintenance shifts from the individual tree to the entire forest ecosystem. Despite owning over 5,000 hectares of woodland, the HRM currently lacks a program to guide and administer proactive forest management. Activities that could be a part of woodland management program do occur and include invasive species removal, risk management, trails development and maintenance, and tree planting. Such initiatives are however currently ad hoc and are not informed by any coordinated management approach. These initiatives are generally targeted in their scope, implemented across varied departments with varied intents and responsibilities, and not subject to any form of a prioritization scheme.

The strategies to achieve this objective are to:

- Enhance planted tree care practices.
- Formalize a risk management process.
- Formalize the management of the HRM's woodland areas.

Strategy 3.1: **Enhance planted tree care practices.**

Planted tree care practices are the keystone to all modern urban forest management programs. Tree pruning, a foundational tree care activity, is a practice where certain parts of a tree, typically branches, buds and roots are removed to improve the tree structure, appearance, or to direct new, healthy growth. Pruning can also help to control the size of a tree and provide clearance for foot traffic, vehicles, or overhead utilities. The HRM currently targets a seven-year grid pruning cycle. Current resourcing levels are only sufficient to achieve roughly a nine-year cycle. Other common tree care elements include watering and young tree 'training', and integrated pest management. The HRM's existing Integrated Pest Management Strategy and tree watering programs are considered to be sufficient. The actions under **Strategy 3.1** covers these critical program elements.

INDICATOR(S):
Grid pruning cycle

BASELINE (2023):
More than nine years

TARGET (2050):
Seven years

▼ Tree worker in a bucket truck.

3.1 A	! Achieve a seven-year grid pruning cycle for all planted trees in both streets and parks.
3.1 B	! Establish a three-year cyclical maintenance program for all newly planted trees for the first 10 years of their life, and integrate this work into the HRM's cyclical pruning program.
3.1 C	Implement, expand, and improve the HRM's Integrated Pest Management Strategy to ensure invasive species of concern such as hemlock woolly adelgid and emerald ash borer are monitored, treated, and controlled.
3.1 D	Formalize a process for increased monitoring and gradual replacement of planted trees within Succession Monitoring and Management Districts (SMMDs) (**Figure 2-12**). Update SMMDs as is warranted through future UFMP review periods.
3.1 E	Work with utility providers toward the establishment of best practices/terms for clearance pruning around utility assets.
3.1 F	Implement an internal training program for parks labourers working in proximity to municipal trees.

! **Quick start actions** ! **priority actions**

Strategy 3.2: **Formalize a risk management process.**

Risk management is an asset management convention through which an asset manager commits to measures which mitigate risk associated with an acceptable level. Risk management commonly involves formal monitoring requirements, formalized risk thresholds, and specific treatments given different risk exposures and tolerance.

Where trees exist amongst people and property in our neighbourhoods and can fail, there is an inherent risk in their presence. The Municipality has a social obligation to ensure that the risk associated with its trees and forested parks is appropriately managed. Note that tree risk management does not imply the elimination of tree-related risks, but rather that the risk associated with trees is managed at an acceptable level. Differing from many of its peer communities, the HRM currently has no formalized tree risk management process in place. The actions under **Strategy 3.2** detail the procedural changes the Municipality will undertake to formalize its urban forestry risk management processes over the coming 25 years.

INDICATOR(S):
Risk management procedures

BASELINE (2023):
Not formalized

TARGET (2050):
Formalized and achieved on an annual basis

3.2 A Formalize operational procedures for risk inspection frequency, mitigation priority, mitigation time frames, qualifications, and documentation.

3.2 B In consultation with the municipality's legal team, formalize a risk management policy encompassing all urban forest asset classes (e.g., planted trees and forested parks).

▲ A tree down in the wake of Hurricane Juan. September 2003. CR: Peter Duinker.

Strategy 3.3: **Formalize the management of the HRM's woodland areas.**

HRM is home to well over 5,000 ha of woodland area. Canopy cover in the HRM's (municipal, provincial, and federal) parks network makes up almost one tenth (**Table 2-1**) of the Municipality's canopy cover in the urban core. Beyond canopy cover, woodlands foster countless more social, cultural, and ecologic values, and represent biodiversity hotspots within the HRM's urban neighbourhoods.

The Municipality's forested parks face numerous threats including climate change, invasive species, wildfire, urban encroachment, and fragmentation. The HRM has no reason to expect the pressures to subside in the years ahead. At present, the Municipality has no coordinated approach in place to guide the management of its woodlands. The HRM must work to ensure that coordinated direction and resourcing is available to support these features and their sustainable management. Without woodlands, the HRM would not be as nice a place to live. The actions under **Strategy 3.3** sets out a path for the HRM to establish a sustainable woodlands management program.

INDICATOR(S):
Woodland condition ratings

BASELINE (2023):
Unknown

TARGET (2030):
To be established at five-year review

3.3 A Formalize priorities and objectives in managing the Municipality's naturalized parks, considering both ecologic and human uses.

3.3 B Coordinate with the province and private landowners to ensure fuel management activities on municipal land is supplemented, where possible and justified, by fuels management activities on abutting private or crown land, and vice versa.

3.3 C ! In cooperation with community and trails organizations, develop technical standards for forest trail construction and maintenance to ensure low impact to forest ecosystems.

3.3 D ! Establish an assessment framework supporting the evaluation of woodland health and function relative to long-term objectives in its management.

3.3 E Prepare an invasive species management strategy.

3.3 F ! Undertake woodland assessments on a regular cycle to understand current conditions within a woodland of interest, and to inform short-term management interventions.

3.3 G Undertake woodland management activities, supported by current data on woodland condition, and informed by long-term objectives in woodland management.

3.3 H Explore opportunities for partnership with First Nations, African Nova Scotians/Canadians, other equity-deserving communities, other nature-based NGOs, and the Province to support community-led sustainable forest management on crown or municipal forested lands.

! **Quick start actions** ! **priority actions**

4. Stewardship

Objective: **Leverage partnerships and the community in urban forest management.**

More than 71% of the HRM's land base is under private ownership. Given this, the HRM's single greatest resource in managing its urban forest is its people. Community members are the residents, assorted property holders and managers that have outsized influence on the maintenance and administration of trees within the Municipality.

Stewards are members of the HRM's public that are engaged and knowledgeable on urban forest issues. These are individuals that are invested in the urban forest, supporting important messaging, and often directly enhancing program capacities through their own time and resources.

The strategies to achieve this objective are to:

- Develop community capacities.
- Support community outreach and education.
- Support research partnerships and opportunities.
- Explore opportunities for the integration of Indigenous Knowledge and culturally sensitive management practices in urban forest management practices.

> Collaboration is a two-way process that will require the HRM to reach out to and involve community members. Indigenous and African Nova Scotian/Canadian engagement participants highlighted the importance of the HRM reaching out to and involving their communities in the work to implement this Plan and ensuring the municipality remains responsive to evolving community priorities. By doing so, the HRM can contribute to strengthening community connections and addressing historical wrongs that compromised those relationships.
>
> - African Nova Scotian/Canadian workshop participant

Strategy 4.1: **Develop community capacities.**

For the HRM, the development of community capacities to support urban forest management is critical to garnering broad support for the program, and for meaningfully supporting implementation of this Plan as well. The actions under **Strategy 4.1** focus on programming efforts that provide outlets for community members and urban forest stewards to support the Municipality's program, contribute to management, and enhance urban forest outcomes on private and public lands.

INDICATOR(S):
Annual volunteer hours

BASELINE (2023):
Unknown

TARGET (2050):
To be established at five-year review (2030)

A CASE STUDY IN HARNESSING THE POWER OF COMMUNITY

The City of Mississauga's **Garlic Mustard Task Force (GMTF)** utilizes community stewards to reduce the spread of Garlic Mustard in the City's parks and natural areas. The program has only recently been formalized, but has run since 2018. Volunteers are trained by City staff to ensure they understand what Garlic Mustard looks like and how to remove it, as well as to review procedures for working safely outdoors. Volunteers are provided with the necessary supplies and work independently at an (approved) park of their choosing throughout the summer. Volunteers track their own hours, and report on the amount of garlic mustard removed through a volunteer management system.

In 2021, the GMTF was supported by 18 volunteers across 10 parks. Volunteers dedicated nearly 200 hours and removed 260 garbage bags of Garlic Mustard. The City invested approximately 40 hours of staff time into program administration and training. In 2022, the number of volunteers enrolled in the GMTF more than doubled, as did volunteer hours.

4.1 A !	Explore opportunities to work with other the HRM business units, non-profit organizers, and community members to deliver community tree planting and invasive removal events.
4.1 B	Make urban forestry data, including tree canopy mapping and inventory datasets, publicly available and explore ways to use this information to educate and build awareness.
4.1 C !	Leverage and support the existing community programs and resources toward developing a community network with interest in the management of the HRM's woodlands.
4.1 D	Continue to support volunteer tree planting requests under Naturalization program.
4.1 E	Formalize responsibilities for regular engagement with community members and organizations, as the responsibilities of a specific staff member(s).
4.1 F	Leverage community capacities to support volunteer invasive species removal events.

! **Quick start actions** ! **priority actions**

Strategy 4.2: **Support community outreach and education.**

Community members have expressed a desire for more outreach and education on the urban forest and its management. While the Urban Forestry Division has had success in delivering periodic community outreach and education events in the past, programming has been inconsistent, supported only as existing staff capacities can absorb it outside of their regular duties and responsibilities. Consequently, UFMP engagement revealed gaps in residents' knowledge of urban forest management, as well as in the nuances of the HRM's urban forest management program and challenges it faces.

Enhanced outreach efforts and educational programming would develop the public as an urban forestry human resource, expanding the reach of program messaging and offerings, and potentially supporting new stewards. Enhanced communication would foster better dialogue between the HRM's Urban Forestry division and all residents and community members, ultimately generating greater community support for the implementation of the UFMP. **Strategy 4.2** includes actions that support improved Urban Forestry outreach and educational programming.

INDICATOR(S):
Resident satisfaction with municipal outreach and education programming

BASELINE (2023): 58%

TARGET (2050): 80%

4.2 A Explore partnerships with the Halifax Regional Centre for Education toward reaching youth in education and fostering urban forest education and interest amongst student demographics.

4.2 B Formalize the Naturalization programming which is inclusive of urban forest education opportunities and stewardship activities.

4.2 C ! Ensure that outreach to communities integrate culturally sensitive communication methods.

4.2 D Utilize door hangers to notify affected residents of planned maintenance on nearby boulevard trees and include brief educational material on the merits of (proactive) tree pruning.

4.2 E Leverage marketing materials and the program website to publish news, updates, and educational materials related to the urban forest and the UFMP.

4.2 F Enhance work with Marketing and Public Affairs to communicate key initiatives, messaging, benefits of and challenges impacting urban forest management in the HRM.

4.2 G Set up a publicly accessible digital dashboard to provide ongoing updates on trees planted, removed, conditions, and program design/fiscal health.

4.2 H Produce a quarterly (email) newsletter on the latest Urban Forestry developments and progress in UFMP implementation.

Strategy 4.3: **Support research partnerships and opportunities.**

There is hardly an urban forest research legacy as impactful as the one the HRM fostered with researchers at Dalhousie University for more than 20 years. In fact, the HRM's 2013 Urban Forest Master Plan, cutting edge in its time, was the product of this very relationship. The 2013 Urban Forest Master Plan was written by accomplished researchers like Dalhousie's Dr. Peter Duinker, as well as varying alumni that have since gone on to work as staff at the HRM, with the Province, and across the country. The Urban Forest Master Plan was just the tip of the proverbial iceberg, countless studies, reports of findings, scientific articles, and broad urban forest advancements owe their origins to this relationship. The actions under **Strategy 4.3** are shaped to pay respects to this legacy, and to continue to support and develop the crucial knowledge exchange that has benefited the program and wider profession over decades past.

INDICATOR(S):
Annual research funding

BASELINE (2023): $50,000

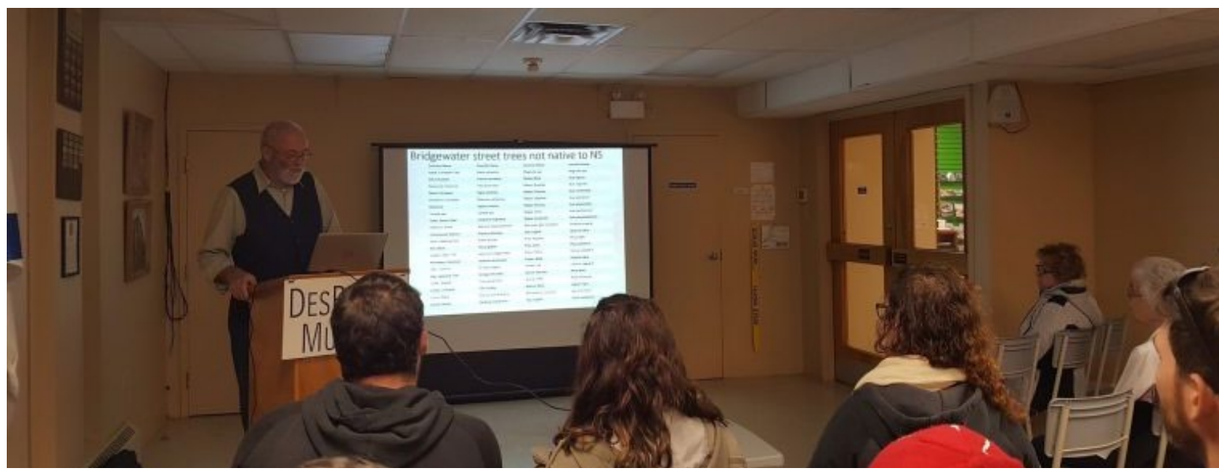
TARGET (2050): $50,000 (inflation adjusted)

4.3 A Continue to capitalize on opportunities for internship and cooperative placements.

4.3 B Support opportunities for partnerships with academia toward building climate resilience in the Municipality's forested landscapes.

4.3 C ! Support opportunities to support research partnerships with academia.

4.3 D Work with local institutions toward the establishment of an urban forest research chair



▲ Dalhousie University's Dr. Peter Duinker speaking to community members on the value of their trees.

! **Quick start actions** ! **priority actions**

Strategy 4.4: **Explore opportunities for the integration of Indigenous Knowledge and culturally sensitive management practices in urban forest management practices.**

For centuries, Relations have inhabited and cared for lands and ecosystems on which the HRM now sits. Their approach to forest management was inherently sustainable, rooted in a profound respect for the land and natural resources. Differing from early European settlers who viewed forests as commodities to be exploited, the Mi'kmaq have always considered the land and its gifts as sacred and strove for a harmonious coexistence. These enduring values and practices hold significant value for how we manage the urban forest in modern times. Recognizing the importance of Indigenous peoples and their cultural heritage, the HRM endeavours to honour their traditions, values, and stewardship which continue to this day. The actions under **Strategy 4.4** are to further explore and support opportunities to integrate Indigenous knowledge and practices into urban forest management.

INDICATOR(S):
Dialogues with Indigenous Committee

BASELINE (2023): Ad hoc

TARGET (2050): Annual ongoing meetings

4.4 A ! Work with First Nations and the Native Council of Nova Scotia to identify opportunities to integrate Traditional Knowledge into woodland management, and to support ongoing knowledge exchange.

4.4 B Identify urban sites for the establishment of medicine gardens to support healing while reclaiming and celebrating Indigenous culture.

4.4 C In consultation with Indigenous communities- explore opportunities to utilize placemaking and dedications to celebrate Indigenous language and culture.

4.4 D Work with First Nations communities to identify high priority forested stands within the community.

4.4 E HRM's Office of Diversity & Inclusion facilitate regular (e.g., annual) meetings with First Nations to review UFMP implementation progress, challenges and emerging opportunities for cooperation and partnership in urban forest management.

Indigenous community members in the HRM need accessible, safe locations for ceremonies and healing gardens, similar to the Halifax Public Gardens.

A CASE STUDY IN INDIGENOUS PARTNERSHIP

After years of planning and collaboration between the Village of Pemberton, Lil'wat Nation and the Province of British Columbia, the Spelkúmtn Community Forest (SCF) management plan was finally unveiled spring of 2022. The SCF consists of a nearly 18,000 hectares of forested land and is a partnership between the Village of Pemberton and Lil'wat Nation designed to promote reconciliation, increase community benefits from local resources and amplify local voices in regards to the management of the surrounding forest.

The SCF management plan aims to protect and maintain water quality; protect, restore and enhance wildlife and fish habitat; protect at-risk species; protect and enhance recreation values and uses; and to protect the function and productivity of forest soils, amongst other values.

5. Administration and Monitoring

Objective: **Develop program resourcing, governance, and monitoring that support gradual implementation of the UFMP.**

The strategies under administration and monitoring capture a broad range of program actions targeting administration and vehicles for proper monitoring of this Plan's implementation. One of the shortcomings of the preceding Urban Forest Master Plan was that progress in implementation was not adequately monitored across many program areas, and resources often did not match new and enhanced elements areas. Such gaps will continue to create challenges in the full implementation of this Plan if not meaningfully resolved.

Objective five captures actions that support the Municipality in achieving the varied strategies and actions found under the preceding four objectives. Put simply, objective five's strategies and actions are generally enabling, rooted in process and supportive of the applied actions elsewhere in the UFMP.

While enabling in nature, the strategies under part five are no less crucial to the implementation of this Plan. Levels of resourcing and robust monitoring measures must be in place to support the actioning of this Plan, or implementation will not be successful.

The strategies to achieve this objective are to:

- Enhance program resources.
- Practice effective program governance.
- Strengthen natural asset management practices.
- Prioritize reporting and program monitoring.

The evolving needs of **Indigenous people within the HRM** require a flexible plan that aligns with community priorities and fosters meaningful engagement. By continuously developing parts of the Urban Forest Management Plan, Indigenous communities can introduce new voices and initiatives, such as land-back projects, species reclamation, and youth engagement programs, ensuring ongoing collaboration and mutual benefit.

! **Quick start actions** ! **priority actions**

Strategy 5.1: **Enhance program resources.**

Securing adequate resources is essential for the success of an urban forest management program. Currently, the 30-member Urban Forestry Division is responsible for managing an estimated 80,000 municipality-owned trees, responding to service requests, and supporting emergency cleanups post-storm events. As of 2023/24, the HRM's program funding is approximately $10 per resident, falling below the average among municipalities of similar sizes.

Moreover, the Urban Forestry team faces increasing demand for tree services, driven by expanding tree planting initiatives and the escalating impacts of climate change and future development. **Strategy 5.1** aims to create sustainability in urban forest programming by assessing the resources required for UFMP implementation and exploring opportunities to secure these resources effectively.

INDICATOR(S):
Program funding per capita

BASELINE (2023):
$10 per capita

TARGET (2050):
$15 per capita (inflation adjusted)

5.1 A ! Develop new staff capacities within Urban Forestry as required to support increased service levels identified through this plan.

5.1 B Create an Education Officer position to support urban forest outreach and education programming, as well as coordinating partnerships with nonprofits, School Districts, Indigenous and African Nova Scotian/ Canadian groups, research institutions and other interested parties.

5.1 C ! Define levels of service for all asset classes (i.e., planted trees, park trees, forested areas), and resource requirement to support operational maintenance.

5.1 D ! Establish a FireSmart Coordinator role to support FireSmart programming on private lands and to support community education.

5.1 E Update the service agreement between Parks and Urban Forestry to reflect changes to levels of service that would result from adoption of the UFMP.

5.1 F ! Establish formal woodland management capacity, both staff and fiscal, to support monitoring, contract administration, outreach, and management activities with the Municipality's treed and woodland parks.

Strategy 5.2: **Practice effective program governance.**

Urban forest program governance encompasses the policies, rules, practices, and structures that guide the management and protection of the urban forest. Effective governance is an important ingredient in an accomplished urban forest management program, influencing staff capacity and competency, partnerships, and community support.

Key components of effective governance include integrated planning processes, interdepartmental and inter-agency partnerships, and adequate resourcing. **Strategy 5.2** includes a range of actions to support varied governance supports.

▼ Halifax Christmas Tree, Grand Parade.

INDICATOR(S):
Frequency of working group meetings

BASELINE:
No working group

TARGET (2050):
Twice annually

5.2 A Continue to support staff professional development and peer networking.

5.2 B Continue to participate in national programs, networks, and events.

5.2 C Undertake periodic community surveys to understand changing public perspectives, including those of targeted communities, on urban forest management and associated strategic priorities.

5.2 D ! Establish an inter-departmental working group with terms of reference identifying staff and departmental leads in implementation. The working group will meet quarterly to share progress, opportunities, challenges, experiences, and concerns.

5.2 E ! Prepare a financial plan to formalize resource requirements and assign strategic (i.e., departmental) leads for each action item shortly following plan adoption.

5.2 F Explore opportunities for the establishment of a stormwater (canopy) credit adjusted by the percentage of canopy cover on a property.

! **Quick start actions** ! **priority actions**

Strategy 5.3: **Strengthen natural asset management practices.**

Asset management is a methodology used to evaluate the value and needs of physical assets throughout their life-cycle. Municipalities are more and more adopting asset management principles to plan and budget for necessary investments in the maintenance, renewal, and replacement of public assets. This approach is valuable for budgeting and forecasting asset replacements.

At present, most municipal deployments of asset management frameworks focus on built infrastructure. However, there is increasing uptake of some natural asset classes (i.e., planted trees) into these systems. By utilizing asset management techniques for the management of the HRM's green infrastructure, the municipality can establish the required levels of service to optimize returns (i.e., maximize benefits and minimize risks) and allocate adequate resources accordingly. Asset management inputs like an up-to-date tree inventory can also support important municipal processes like succession management, proactive tree maintenance, storm response, and informed species selection.

While the HRM does have some natural asset management practices in place, there is a need for a formalized municipality-wide process. This Plan aims to provide guidance for formalizing asset management processes for both urban managed trees and natural areas. **Strategy 5.3** includes data acquisition and process-oriented actions which position the Municipality to readily integrate green infrastructure into an asset management framework.

INDICATOR(S):
Planted tree condition ratings

BASELINE (2023): Unknown

TARGET (2030): To be established at five-year review (2030)

- **5.3 A** Develop inventory standards to support a condition assessment of the HRM's woodland areas under Municipal ownership.
- **5.3 B** Maintain and expand the tree inventory to include urban park trees, condition ratings and year planted. Archive retired tree assets to track removals and guide regular maintenance and emergency management through time.
- **5.3 C** Formalize standards and thresholds for monitoring, management, and replacement of assets with SMMDs (**Figure 2-12**), as well as a timeline for SMMD delineation.
- **5.3 D** Scale Urban Forestry operating budgets with changes to levels of service and the number of assets under Urban Forestry's care.
- **5.3 E** Link the Municipality's inventory of urban forest assets to CityWorks.
- **5.3 F** Formalize levels of service for the management of Municipal woodland areas

SUCCESS IN ASSET MANAGEMENT

In 2023, the HRM contracted the Natural Asset Initiative (NAI, formally the Municipal Natural Assets Initiative) to conduct a pilot project within the Nine Mile River watershed. The watershed spans from the southern portion of Blue Mountain-Birch Cove reserve to Shad Bay. The project will evaluate the benefits that natural assets provide for stormwater management as well as four co-benefits, recreation, carbon storage and sequestration, physical and mental health, and cultural values.

Strategy 5.4: **Prioritize reporting and program monitoring.**

Program reporting and monitoring allows for an iterative approach to decision-making that allows for flexibility and adjustment in response to changing conditions, uncertainties, and new information. Given the dynamic nature of the urban forest, and the escalating uncertainties brought on by climate change and future development, the success of the UFMP implementation will depend on how well the HRM's processes to actively track these changes, and to bring forward formal reporting identifying their impacts on continued Plan implementation.

Various methods can be deployed to track change in the HRM's urban forest. For example, canopy cover can be tracked to understand changes in canopy extent over time. Woodland health monitoring is crucial for early detection of evolving forest health concerns, and can support prompt intervention to prevent irreversible damage. **Strategy 5.1** aims to establish monitoring and reporting mechanisms that support informed decision-making.

INDICATOR(S):
Public reporting on UFMP implementation

BASELINE (2023):
None

TARGET (2050):
5 years, repeating

- **5.4 A** Continue to monitor planting site technologies (e.g., soil cells, permeable pavement etc.) to understand their full life-cycle cost implications and measure the outcomes for the trees planted into them.
- **5.4 B** Continue to update Municipal Design Guidelines to account for new technologies and best management practices.
- **5.4 C** Produce a state of the urban forest report on a five-year interval to report on key program metrics and explore urban forest change since the preceding assessment.
- **5.4 D** Review the Action Plan in the Urban Forest Management Plan every 5 years.
- **5.4 E** Procure new LiDAR and four-band (Near Infrared or NIR as the 4th band), high-resolution imagery on a five-year repeating interval. Prepare a new canopy layer with the datasets procured to inform the monitoring of canopy change within the HRM.
- **5.4 F** Utilize four-band imagery to monitor canopy decline amongst conifers - see the case study adjacent as an example (e.g., HWA monitoring).
- **5.4 G** Utilize the UFMP monitoring framework (**Table 4-1**) to inform ongoing monitoring and adaptive management interventions through UFMP review periods.

! Quick start actions **! priority actions**

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Appendix A: Report Card

Annex A

Apendix 1. Sustainable Urban Forest Management Criteria and Indicators

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
PLANNING AND PROTECTION					
Awareness of the urban forest as a community resource	The urban forest is recognized as vital to the community's environmental, social, and economic well-being.	General ambivalence or negative attitudes about trees, which are perceived as neutral at best or as the source of problems. Actions harmful to trees may be taken deliberately.	Trees are widely acknowledged as providing environmental, social, and economic services but are not widely integrated in corporate strategies and policies.	Trees are widely acknowledged as providing environmental, social, and economic services and urban forest objectives are integrated into other corporate strategies and policies.	Urban forest recognized as vital to the community's environmental, social, and economic well-being. Widespread public and political support and advocacy for trees, resulting in strong policies and plans that advance the viability and sustainability of the entire urban forest.
Interdepartmental and Municipal agency cooperation on urban forest strategy implementation	Ensure all relevant municipal departments and agencies cooperate to advance goals related to urban forest issues and opportunities.	Little cooperation and conflicting among departments and/or agencies often leading to poor outcomes for trees.	Common goals but limited cooperation among departments and/or agencies and mixed outcomes for trees.	Municipal departments, affected agencies and urban forest managers recognize potential conflicts and reach out to each other on an informal but regular basis.	Formal interdepartmental working agreements or protocols for all projects that could impact municipal trees.
Clear and defensible urban forest canopy assessment and goals	Urban forest policy and practice is driven by comprehensive goals municipality-wide and at the neighbourhood or land use scale informed by accurate, high-resolution assessments of existing and potential canopy cover.	No assessment or goals.	Low-resolution and/or point-based sampling of canopy cover using aerial photographs or satellite imagery – and limited or no goal setting.	Complete, detailed, and spatially explicit, high-resolution Urban Tree Canopy (UTC) assessment based on enhanced data (such as LiDAR) – accompanied by comprehensive set of goals by land use and other parameters.	**The City has a complete, detailed, and spatially explicit high-resolution Urban Tree Canopy (UTC) assessment accompanied by a comprehensive set of goals, all utilized effectively to drive urban forest policy and practice municipality-wide and at neighbourhood or smaller management level.**
Relative tree canopy cover	Achieve desired degree of tree cover, based on potential or according to goals set for entire municipality and for each neighbourhood or land use.	The existing canopy cover for entire municipality is <50% of the desired canopy.	The existing canopy is 50%-75% of desired	The existing canopy is >75%-100% of desired.	The existing canopy is >75%-100% of desired - at the individual neighbourhood level as well as overall municipality
Municipality-wide urban forest management plan	Develop and implement a comprehensive urban forest management plan for public and private property.	No plan.	Existing plan limited in scope and implementation	Recent comprehensive plan developed and implemented for publicly owned forest resources, including trees managed intensively (or individually) and those managed extensively, as a population (e.g., trees in natural areas)	**Strategic, multi-tiered plan with built-in mechanisms developed and implemented for public and private resources**

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
Municipal green infrastructure asset management	Integrate green infrastructure assets into the municipal asset management system to support valuing and accounting for natural assets in the City's financial planning to build climate resilient infrastructure.	No recognition of value of natural or human-made elements that provide ecological and hydrological functions (green infrastructure)	Local government recognizes the value of green infrastructure but does not yet have information to include them in an asset management system.	Green infrastructure assets have been partially or fully inventoried and some assets are included in an asset management system, with the intent to ultimately capture all assets in the consolidated financial statements of the municipality.	Green infrastructure assets are inventoried and included in an asset management system and on the consolidated financial statement of the municipality.
Municipal-wide biodiversity or green network strategy	Acquire and restore publicly-owned natural areas in pursuit of meeting municipal-wide biodiversity and connectivity goals.	No or very limited planning and stewardship of natural areas.	Area specific management plans focused on management, restoration, and protection of natural areas.	Municipal-wide urban forest, parks or natural areas strategy guiding management, restoration, and protection of the existing natural areas network.	Biodiversity strategy or equivalent in effect to support management, restoration, and acquisition of natural areas network throughout the municipality.
Municipal urban forestry program capacity	Maintain sufficient well-trained personnel and equipment – whether in-house or through contracted or volunteer services – to implement municipality-wide urban forest management plan	Team severely limited by lack of personnel and/or access to adequate equipment. Unable to perform adequate maintenance, let alone implement new goals.	Team limited by lack of staff and/ or access to adequate equipment to implement new goals.	Team able to implement many of the goals and objectives of the urban forest management plan.	Team able to implement all of the goals and objectives of the urban forest management plan.
Urban forest funding to implement a strategy	Maintain adequate funding to implement the urban forest strategy.	Little or no dedicated funding.	Dedicated funding but insufficient to implement the urban forest strategy or maintain new assets as they are added to the inventory.	Dedicated funding sufficient to partially implement the urban forest strategy and maintain new assets as they are added to the inventory.	Sustained funding to fully implement the urban forest strategy and maintain new assets as they are added to the inventory.
Policy or regulations regulating the protection and replacement of private and City trees	Secure the benefits derived from trees on public and private land by enforcement of municipality-wide policies and practices including tree protection.	No or very limited tree protection policy.	Policies in place to protect public trees and employ industry best management practice.	Policies in place to protect public and private trees with enforcement but lack integration with other municipal policy to enable effective tree retention.	Urban forest strategy and integrated municipal-wide policies that guide the protection of trees on public and private land, and ensure they are consistently applied and enforced.
Policy or regulations for conservation of sensitive ecosystems, soils, or permeability on private property through development	Secure the benefits derived from environmentally sensitive areas by enforcement of municipality-wide policies in pursuit of meeting biodiversity and connectivity goals	No or very limited natural areas protection policy.	Policies in place to protect privately-owned natural areas without enforcement.	Development Permit Areas in place to protect privately-owned natural areas with enforcement but lack integration with other municipal policy to enable effective tree retention.	Biodiversity strategy or equivalent and integrated municipal-wide policies that guide privately-owned natural area protection and ensure they are consistently applied.
Internal protocols guide City tree or sensitive ecosystem protection	Ensure all relevant municipal departments follow consistent tree or ecosystem protection protocols for capital design and construction activities.	No protocols guiding City tree or ecosystem protection for capital design and construction activities.	Informal and inconsistent processes followed for City tree or ecosystem protection for capital design and construction activities.	Established protocols for City tree or ecosystem protection for capital design and construction activities but outcomes are inconsistent or sometimes unachievable.	Established protocols for City tree or ecosystem protection for capital design and construction activities are consistently followed and outcomes are successful.

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
Standards of tree protection and tree care observed during development or by local arborists and tree care companies	Consulting arborists and tree care companies understand city-wide urban forest goals and objectives and adhere to high professional standards.	Limited understanding or support for tree protection requirements.	General understanding or support for tree protection requirements but large variation in the quality of information and services provided.	General understanding or support for tree protection requirements and generally consistent quality of information and services provided.	Advocacy for tree protection requirements, engagement with City staff on improving processes and standards, and generally consistent quality of information and services provided to high professional standards.
Cooperation with utilities on protection (and pruning) of City trees	All 3rd party utilities employ best management practices and cooperate with the City to advance goals and objectives related to urban forest issues and opportunities.	Utilities take actions impacting urban forest with no municipal coordination or consideration of the urban forest resource.	Utilities inconsistently employ best management practices, rarely recognizing potential municipal conflicts or reaching out to urban forest managers and vice versa.	Utilities employ best management practices, recognize potential municipal conflicts, and reach out to urban forest managers on an ad hoc basis – and vice versa.	Utilities employ best management practices, recognize potential municipal conflicts, and consistently reach out to urban forest managers and vice versa.
PLANT / GROW					
City tree planting and replacement program design, planning and implementation	Comprehensive and effective tree selection, planting and establishment program that is driven by canopy cover goals and other considerations according to the UFS.	Tree replacement and establishment is ad hoc.	Some tree planting and replacement occurs, but with limited overall municipality-wide planning and insufficient to meet replacement requirements.	Tree replacement and establishment is directed by needs derived from an opportunities assessment and species selection is guided by site conditions, tree health and climate adaptation considerations.	Tree planting and replacement is guided by strategic priorities and is planned out to make progress towards targets set for canopy cover, diversity, tree health and climate adaptation within the timeframe of the strategy.
Development requirements to plant trees on private land	Ensure that new trees are required in landscaping for new development or, where space is lacking, there is an equivalent contribution to tree planting in the public realm.	Landscaping requirements do not address trees on private land.	Developments are generally required to plant trees but the outcomes are often in conflict with public trees and other infrastructure due to space limitations and not connected to meeting canopy cover targets.	Developments are required to plant trees or, where space is not adequate according to soil volume available, provide cash-in-lieu for equivalent tree planting on public land. The requirement is not connected to meeting canopy cover tar-gets.	Developments are required to provide a minimum density of trees per unit measure or, where space is not adequate according to soil volume available, provide adequate cash-in-lieu for equivalent tree planting on public land. Planting density is determined based on meeting a municipal-wide canopy cover target.
Streetscape and servicing specifications and standards for planting trees	Ensure all publicly owned trees are planted into conditions that meet requirements for survival and maximize current and future tree benefits.	No or very few specifications and standards for growing sites.	Specifications and standards for growing sites exist but are inadequate to meet urban forest goals.	Specifications and standards exist and are adequate to meet urban forest goals but are not always achieved.	All trees planted are in sites with adequate soil quality and quantity, and with sufficient growing space to achieve their genetic potential and life expectancy, and thus provide maximum ecosystem services.
Equity in planting program delivery	Ensure that the benefits of urban forests are made available to all, especially to those in greatest need of tree benefits.	Tree planting and outreach are not determined equitably by canopy cover or need for benefits.	Planting and outreach includes attention to low canopy neighbourhoods or areas.	Planting and outreach targets neighbourhoods with low canopy and a high need for tree benefits.	Equitable planting and outreach at the neighbourhood level are guided by strong citizen engagement in identified low-canopy/high-need areas.

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
Forest restoration and native species planting	Encourage the appreciation of climate suitable native vegetation by the community and ensure native species are widely planted to enhance native biodiversity and connectivity	Voluntary use of climate suitable native species on publicly and privately-owned lands.	The use of climate suitable native species is encouraged on a site-appropriate basis in public and private land development projects.	Policies require the use of climate suitable native species and management of invasive species on a site-appropriate basis in public and private land development projects but are not integrated across all policy or guided by a connectivity analysis.	Policies require the use of climate suitable native species and management of invasive species on a site-appropriate basis in public and private land development projects and through tree bylaw.
Selection and procurement of stock in cooperation with nursery industry	Diversity targets and climate adaptation/mitigation objectives guide tree species selection and nurseries proactively grow stock based on municipal requirements.	Species selection is not guided by diversity targets or climate adaptation/mitigation objectives.	Species selection is guided by diversity and climate adaptation/ mitigation but required stock is rarely available from nurseries and acceptable substitutes reduce diversity.	Species selection is guided by targets for diversity and climate adaptation/ mitigation and required stock or acceptable substitutes are usually available from nurseries.	Species selection is guided by targets for diversity and climate adaptation/mitigation and required stock is secured ahead of the planned planting year from contract or in-house nurseries.
Ecosystem services targeted in tree planting projects and landscaping	Incorporate ecosystem services objectives into public and private tree planting projects to improve urban tree health and resilience, carbon sequestration, stormwater management and cooling	Ecosystem services not considered in planting projects or intentionally designed into vegetated landscapes	Ecosystem services, such as stormwater interception, occasionally incorporated into City or private land planting projects and landscape designs.	Guidelines in place for planting projects and landscape designs on public and private land to deliver specific ecosystem services.	Ecosystem services targets are defined for the urban forest and policy requires planting project and land-scape designs on public and private land to contribute to meeting targets.
MAINTENANCE AND MONITORING					
Tree inventory	A current and comprehensive inventory of intensively managed trees to guide management, including data such as age distribution, species mix, tree condition and risk assessment.	No inventory.	Partial inventory of publicly-owned trees in GIS.	Complete inventory of planted trees and intensively managed park trees in GIS but inconsistently updated.	The municipal tree inventory is complete, is GIS-based, supported by mapping, and is continuously updated to record growth, work history and tree condition.
Knowledge of trees on private property	Understand the extent, location, and general condition of privately-owned trees	No information about privately owned trees.	Aerial, point-based or low-resolution assessment of tree canopy on private property, capturing broad extent.	Detailed Urban Tree Canopy analysis of the urban forest on private land, including extent and location, integrated into a municipality-wide GIS system.	The City has an i-Tree Eco analysis of private trees as well as detailed Urban Tree Canopy analysis of the entire urban forest integrated into a municipality-wide GIS system.
Natural areas inventory	A current and comprehensive inventory of sensitive and modified natural ecosystems and their quality mapped to Provincial standards to provide standardized ecological information to support decision-making.	No inventory of natural areas.	Natural areas inventoried in GIS but not recently updated and attribute information not to a standard that can support decision-making.	Natural areas inventoried in GIS and with standard and complete attribute information to support decision-making but not updated in the last 5 years.	Natural areas inventoried in GIS and with standard and complete attribute information to support decision-making and updated in the last 5 years.

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
Age diversity (size class distribution)	Provide for ideal uneven age distribution of all "intensively" (or individually) managed trees – municipality-wide as well as at neighbourhood level	Even-age distribution, or highly skewed toward a single age class (maturity stage) across entire population	Some uneven distribution, but most of the tree population falls into a single age class	Total tree population across municipality approaches an ideal age distribution of 40% juvenile, 30% semi-mature, 20% mature, and 10% senescent	Total population approaches that ideal distribution municipality-wide as well as at the neighbourhood level
Publicly owned tree species condition	Current and detailed understanding of condition and risk potential of all publicly owned trees that are managed intensively (or individually)	Condition of urban forest is unknown	Sample-based tree inventory indicating tree condition and risk level	Complete tree inventory that includes detailed tree condition ratings	Complete tree inventory that is GIS-based and includes detailed tree condition as well as risk ratings
Maintenance of intensively managed trees	Maintain all publicly owned intensively managed trees for optimal health and condition in order to extend longevity and maximize current and future benefits	Intensively managed trees are maintained on a re-quest/reactive basis.	Intensively managed trees are maintained on a request/reactive basis. Limited systematic (block) pruning and/or immature trees are structurally pruned.	All intensively managed trees are systematically maintained on a cycle determined by work-load and resource limitations. All immature trees are structurally pruned.	All mature intensively managed trees are maintained on an optimal pruning cycle. All immature trees are structurally pruned.
Tree risk management	Comprehensive tree risk management program fully implemented, according to ANSI A300 (Part 9) "Tree Risk Assessment" standards, and supporting industry best management practices	No coordinated tree risk assessment or risk management program. Response is on a reactive basis only.	Some areas within the city are prioritized for risk assessment and management. Little annual budget is available to develop a more proactive inspection program.	Priority areas of the City are inspected on a regular schedule and operational standards and budgets are in place for responding to and managing tree risks within an appropriate timeframe.	A comprehensive risk management program is in place, with all public lands inspected on defined schedules and operational standards and budgets in place for responding to and managing tree risks within an appropriate timeframe.
STEWARDSHIP					
Citizen involvement and neighbourhood action	Citizens and groups participate and collaborate at the neighbourhood level with the municipality and/or its partnering NGOs in urban forest management activities to advance municipality-wide plans	Little or no citizen involvement or neighbourhood action.	Community groups are active and willing to partner in urban forest management, but involvement and opportunities are ad hoc.	Several active neighbourhood groups engaged across the community, with actions coordinated or led by municipality and/or its partnering NGOs.	Proactive outreach and coordination efforts by the City and NGO partners result in widespread citizen involvement and collaboration among active neighbourhood groups engaged in urban forest management
Involvement of large private land and institutional land holders (e.g., schools)	Large private landholders to embrace and advance city-wide urban forest goals and objectives by implementing specific resource management plans	Large private landholders are generally uninformed about urban forest issues and opportunities.	Landholders manage their tree resource but are not engaged in meeting municipality-wide urban forest goals.	Landholders develop comprehensive tree management plans (including funding strategies) that advance municipality-wide urban forest goals.	As described in "Good" rating, plus active community engagement and access to the property's forest resource.
Urban forest research	Research is active and ongoing towards improving our understanding of the urban forest resource, the benefits it produces, and the impacts of planning, policy, design and management initiatives.	No urban forest research.	Isolated academic re-search occurs in the municipality's urban forest.	The municipality supports and has input on academic research occurring in its urban forest and knowledge transfer occurs.	The urban forest is a living laboratory - in collaboration with public, private, NGO and academic institutions - integrating research and innovation into managing urban forest health, distribution, and abundance.

Assessment Criteria	Objective	Indicator for Community Forestry Performance			
		Poor	Fair	Good	Optimal
Regional collaboration	There is cooperation and interaction on urban forest plans among neighbouring municipalities within the region, and/or within regional agencies.	Municipalities have no interaction with each other or the broader region for planning or coordination on urban forestry.	Some neighbouring municipalities and regional agencies share similar policies and plans related to trees and urban forest.	Some urban forest planning and cooperation across municipalities and regional agencies.	Widespread regional cooperation resulting in development and implementation of regional urban forest strategy.
MANAGEMENT					
Emergency response planning	A response plan guides call-out procedures, resources available and the clean-up response for extreme weather and earthquake.	Response plan not documented or not current.	Response plan is documented and includes call-out procedures, roles and responsibilities but lacks details to prioritize hazards and clean-up.	Response plan includes call-out procedure, roles and responsibilities, and criteria for prioritizing tree hazards and removing debris is in place.	A comprehensive response plan is in place and a response drill occurs annually.
Pest and Disease Management	An Integrated Pest Management (IPM) Plan guides treatment responses to existing and potential pest, disease and invasive species threats to the urban forest.	No integrated pest management plan and no pest management.	No integrated pest management plan and reactive pest management.	An integrated pest management plan is in place and implemented.	A comprehensive pest management program is in place, with detection, communication, rapid response and IPM practiced.
Waste biomass utilization	A closed system diverts all urban wood and green waste through reuse and recycling	Wood waste from the urban forest is not utilized.	Wood waste from the urban forest is utilized as mulch or biofuel.	Wood waste from the urban forest is utilized as mulch or biofuel and sometimes high value pieces are milled and stored for later use or sold on to local value-added industries.	Low value wood waste from the urban forest is utilized as mulch or biofuel and all high value pieces are milled and stored for later use or sold on to local value-added industries.
Tracking of operational carbon footprints and urban forest carbon-cycle balance	Organization will actively track their operational carbon footprints and their community-wide urban forest carbon-cycle balance and work with community partners to minimize greenhouse gas emissions (GHG) emissions while maximizing carbon sequestration and avoided GHG emissions.	Basic CO2/GHG accounting not considered for urban forestry operations	Basic CO2/GHG accounting and carbon cycle assessment and climate action plan undertaken for urban forestry operations and for the entire community with general goals and objectives to minimize community emissions	Basic CO2/GHG accounting and carbon cycle assessment and climate action plan undertaken with specific goals and objectives for urban forestry and formal policies in place to encourage use of trees and green infrastructure for carbon sequestration and energy conservation in buildings	Basic CO2/GHG accounting and carbon cycle assessment and climate action plan undertaken for urban forestry operations and for the entire community with specific goals and objectives for urban forestry and formal policies in place to encourage use of trees and green infrastructure for carbon sequestration and energy conservation in buildings, and to maximize urban wood and woody biomass utilization.
Species diversity	Establish a genetically diverse population across the municipality as well as at the neighbourhood scale	Five or fewer species dominate the entire tree population across municipality	No single species represents more than 10% of the total tree population; no genus more than 20%, and no family more than 30%	No single species represents more than 5% of total tree population; no genus more than 10%; and no family more than 15%	At least as diverse as "Good" rating (5/10/15) municipality-wide and at least as diverse as "fair" (10/20/30) at the neighbourhood level
Species suitability	Establish a tree population suited to the urban environment and adapted to the overall region	Fewer than 50% of all trees are from species considered suitable for the area	>50%-75% of trees are from species suitable for the area	More than 75% of trees are suitable for the area	Virtually all trees are suitable for the area

Appendix B: Peer Comparison

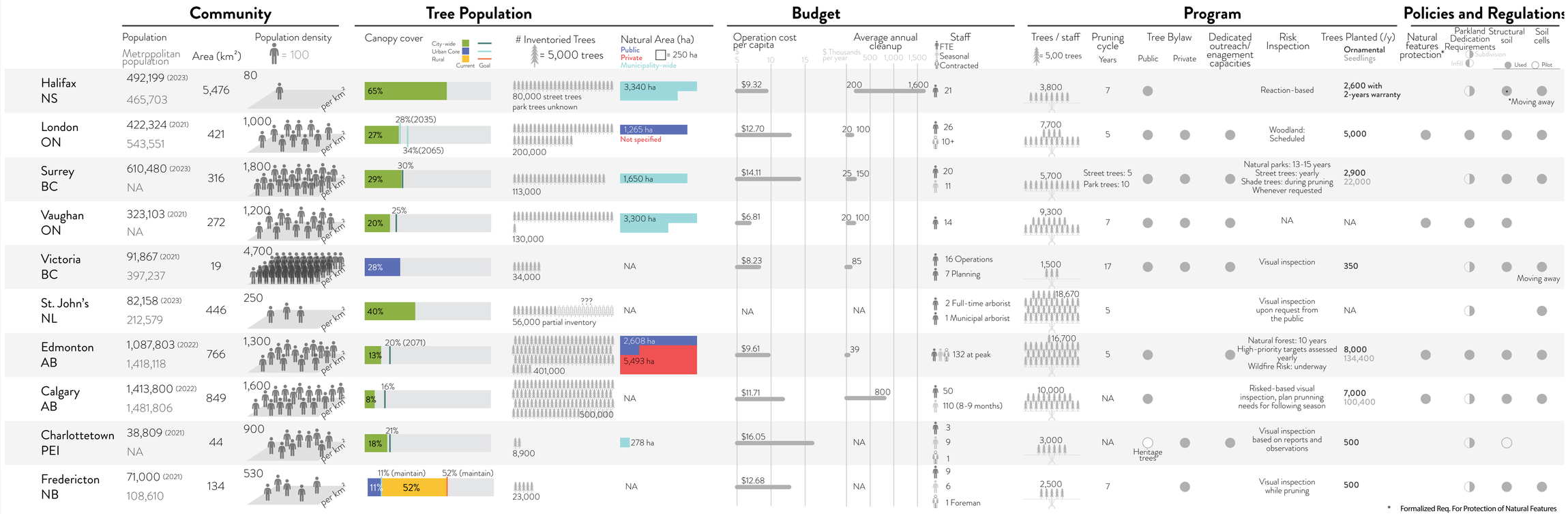
Annex B

HOW DOES THE HRM MEASURE UP?

As a Regional Municipality with a large rural area, the HRM is somewhat unique in its size, makeup, and responsibilities within a Canadian context. While this context impedes some direct comparisons to other municipalities, understanding how the HRM's program compares to its peers remains insightful, especially regarding shared program elements.

A jurisdictional scan was conducted as part of the UFMP update (Figure 5-1). Nine peer communities were selected based on qualitative criteria such as being a regional peer, having similar urban and rural areas, similar population, or comparable community densities. For example, Victoria, BC, a historic port city, is similar to peninsular Halifax-Dartmouth.

Contacts from each peer community were asked to complete a brief survey identifying key elements of their urban forestry programs. Survey responses were self-reported and standardized by project staff as much as possible. Significant differences in program structure, funding, and scope exist among Canadian communities, so this comparison provides only a rough evaluation of the HRM's urban forestry program relative to its peers.

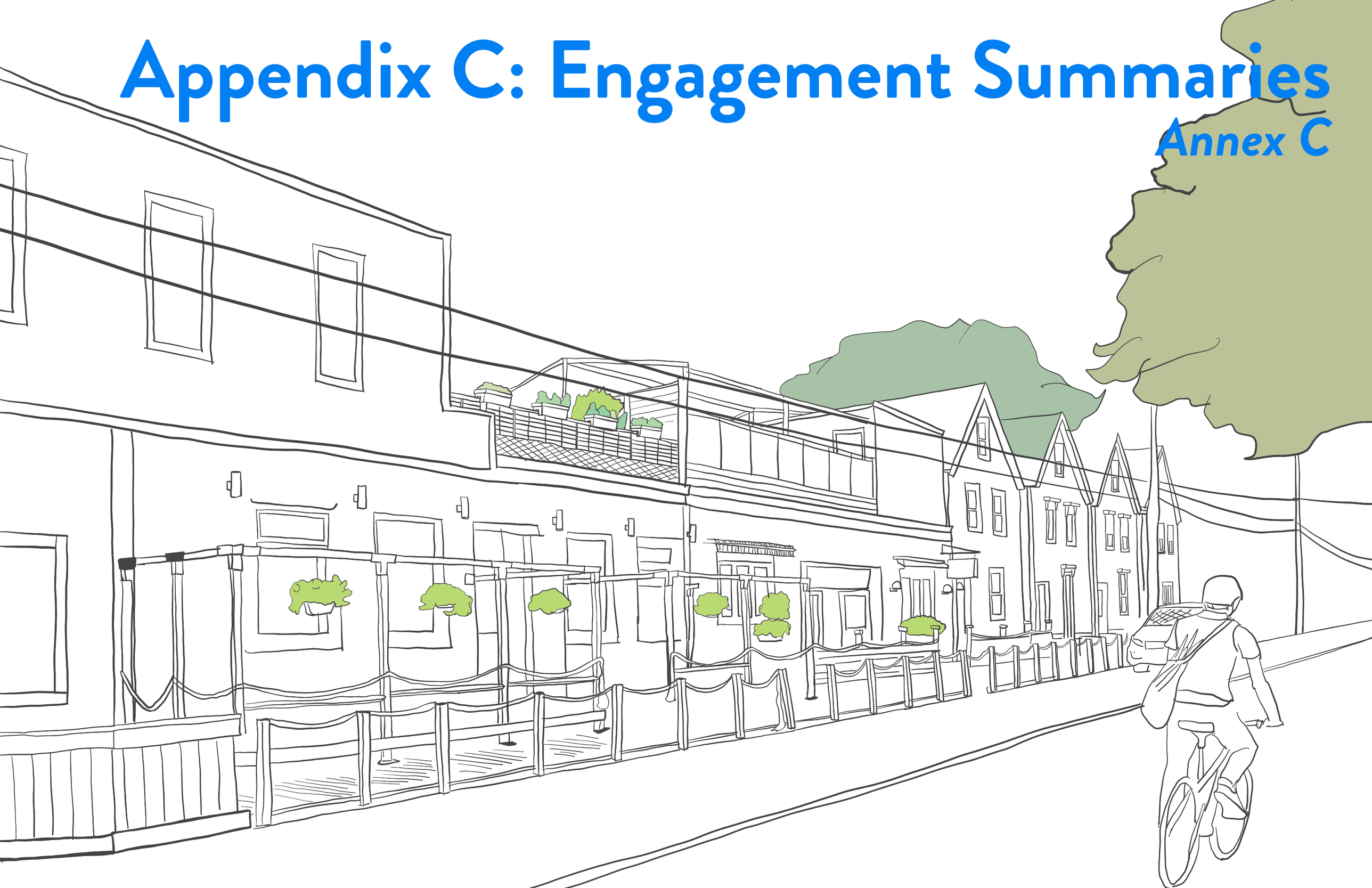


* Formalized Req. For Protection of Natural Features

Figure 5-1. HRM peer municipality comparison.

Appendix C: Engagement Summaries

Annex C



Halifax Regional Municipality
Urban Forest Management Plan

Phase 1 Engagement
General Public Engagement Summary

May 2024

Submitted to:
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Contents

Scope of the engagement

Halifax's current Urban Forest Master Plan was adopted in 2013 and has guided its urban forest management for the past decade. The plan has now surpassed its intended 10-year lifespan and needs to be updated to reflect community values and the current state of the urban forest. The new Urban Forest Management Plan (UFMP; the plan) will guide the management of the urban forest until 2034 through a period of rapid community growth and changing climate. The plan will guide the management and growth of Halifax Regional Municipality's (HRM) urban forest to maximize the benefits that it provides and address both current and emerging challenges.

Engagement

The first phase of engagement for the UFMP began in the winter of 2023 and finished in the spring of 2024. It focused on creating an initial vision for the future of HRM's urban forest and identifying initial management priorities for the HRM's urban forest. The general public engagement summarized in this report included opportunities to provide input online and in person. The project page on Shape Your City hosted a survey that asked for input on urban forest concerns and aspirations and a mapping tool that allowed participants to identify important urban forest locations. Two open houses were hosted on February 21st and 22nd, 2024, to provide information about the project and gather input on the ways people connect with the urban forest and their priorities for the plan.

Two targeted technical workshops were also hosted in person and online on February 23rd and February 28th. The workshop invites targeted groups and industries that work within or are closely connected to urban forestry and HRM partner organizations.

In addition to the general public engagement described in this report, targeted engagement also focused on gathering input from historically underrepresented communities including Mi'kmaq and Urban Indigenous communities, African Canadians, newcomers, people with disabilities, and Acadian and francophone organizations. Results from the targeted engagement are provided in separate reports.

Halifax Urban Forest Management Plan – Phase 1 General Public Engagement Summary

Engagement Activities

Community members, groups and industries that work within or are closely connected to urban forestry, and HRM partner organizations were invited to provide input through Shape Your City (online survey and map), two open houses, and two targeted workshops (Table 1). The Shape Your City project page kept community members informed with an overview of the UFMP project and information on upcoming engagement opportunities.

Table 1. Phase 1 summary of general public engagement activities

Date	Engagement Activity	Participants
February - May 2024	Shape Your City Survey	744
February - May 2024	Shape Your City Map	19
February 21nd, 2024 **February 22nd, 2024**	Open House 1 (Canada Games Centre) Open House 2 (Zatsman Sportsplex)	~45
February 23th, 2024	Targeted Workshop (In-Person)	27
February 28th, 2024	Targeted Workshop (Online)	12

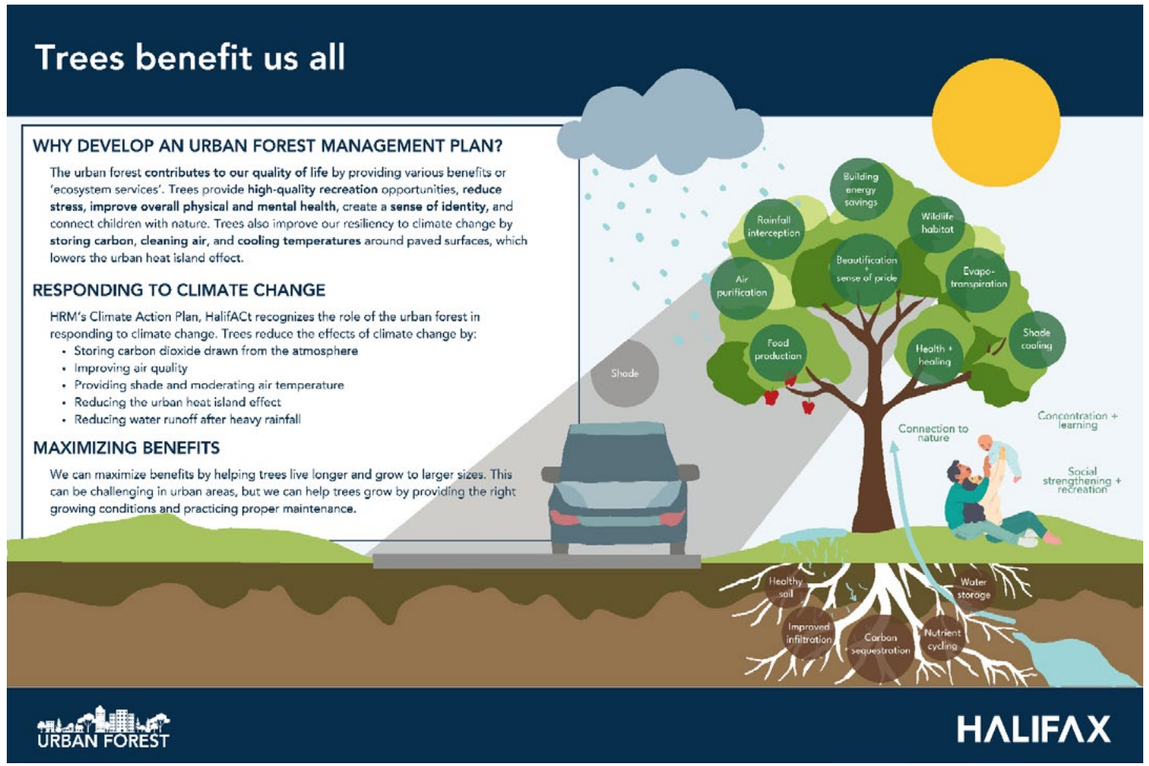

Figure 1. Example of a poster board presented at the public open houses on February 21-22nd, 2024

Who we heard from

Overall, we heard from 836 respondents, including 744 survey respondents, approximately 45 open house attendees, 19 map participants on Shape Your City, and 29 attendees of the targeted workshops representing 14 organizations.

On the Shape Your City project page:

- **760 "engaged" participants** contributed to one or more feedback tools
- **446 "informed" participants** visited multiple pages or downloaded a file from the page
- **3621 "aware" participants** visited at least one page

Detailed demographics

We were able to understand the demographics of some participants based on the information they shared via the survey, mapping tool, and the workshop invitation.

Shape Your City Tool Users

Survey

Among the 744 survey respondents:

- 63% were between the age of 35 and 64 (63%), 20% or lower were above 65 or below 35 years of age (Figure 2)
- 15% of respondents had a disability, 5% identified as racially visible, and 2% identified as Aboriginal

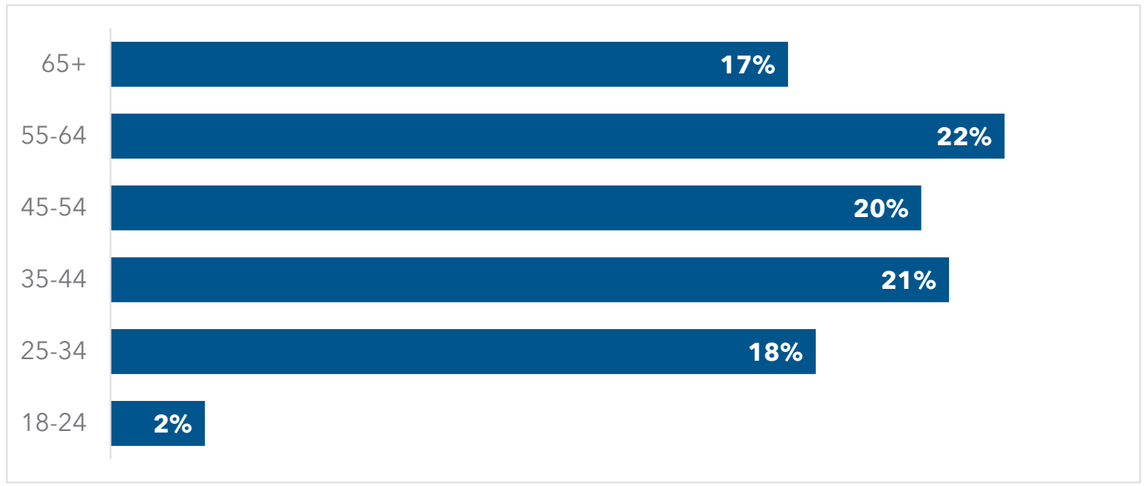

Figure 2. Age distribution of respondents (total respondents: 725)

Shape Your City Map

A total of 19 participants identified 64 urban forest places across the HRM that they either valued or thought needed of improvement. Most participants did not disclose their age or gender. Of those who did, the most common age groups were 35-44 and over 65 years old (Figure 3). None of the participants identified themselves as Aboriginal Peoples, people with a disability, or as racially visible.

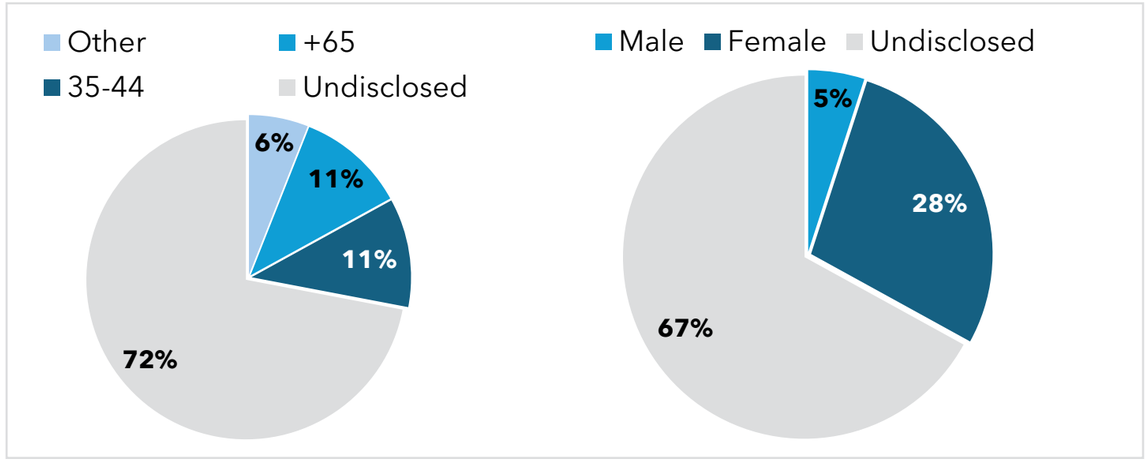

Figure 3. The age groups (left) and gender (right) of participants that used the mapping tool (total respondents: 19)

Targeted Organizations

Two workshops were hosted with groups and industries that work within or are closely connected to urban forestry and HRM partner organizations. The in-person workshop was attended by 27 people, and the online workshop by 12 people. The participants represented 14 organizations, including federal, provincial, and municipal agencies, business associations, environmental groups, and academics (Table 2).

Table 2. List of organizations whose representatives attended the online or in-person workshops

Organizations	
Government of Nova Scotia	Nova Scotia Health
Go North Halifax	East Link
Nova Scotia Power	Downtown Halifax Business Commission
Spring Garden Area Business Association	Ecology Action Centre
Trim Landscaping	Canadian Food Inspection Agency (CFIA)
Arbor Nova Scotia	Canadian Council on Invasive Species
Clean Foundation	Dalhousie University

What we heard

This section includes results from general public engagement and targeted technical workshops.

General Public

Opportunities for community members to provide their input about their concerns and aspirations for the plan included a Shape Your City survey and map, and two open houses.

Open House

Participants were invited to share their thoughts on urban forest places that they value or need improvement, how they used the urban forest, how they would support the urban forest, and challenges and opportunities that they saw in managing the urban forest.

Participants could mark urban forest places that they liked with green dots and places needing improvement with yellow dots on a map board (Figure 4). A total of 29 places were mapped, including 27 places people liked and 2 places needing improvement. Participants appreciated the wilderness and beautiful nature of the areas that they liked. However, more participants commented with sticky notes on improvements. They called for more protection of natural areas and urban trees from development activities. Concerns about invasive species were raised, with suggestions for more proactive maintenance.

Figure 4 Urban forest places submitted by open house participants

The most common uses of the urban forest included recreation and leisure (mentioned by 6 participants), shade and cooling in the summer (6), and observing wildlife and experiencing nature (6). Less common uses were exercising and relieving stress (3) and knowledge and learning (2). No one indicated that they harvested food and natural medicine from the urban forest.

To support the urban forest, participants indicated that they had planted trees on their property (3), volunteered with a community group (3) or at a planting event (3), maintained their trees regularly (2), planted pollinator-friendly and native plants (2), and learnt about tree care and health (1). Some participants who had not yet supported the urban forest through these approaches mentioned that they would like to plant pollinator-friendly and native plants (2), volunteer (2), and learn more about tree care and health (1).

Participants highlighted several critical issues regarding natural area protection and management and the impacts of urban development on HRM's urban forest. Firstly, participants highlighted the importance of protecting the upper watersheds to prevent cumulative downstream effects. Concerns were raised about the impacts of forest clearing on wetlands, including clearcutting up to the water's edge, prompting a desire for more proactive disaster planning. They stressed the protection of unique forest areas and urban wilderness. Specific sites such as Einsner's wetland, willow trees at the old Queen Elizabeth High School site, and Lovers Lane on Williams Lake were highlighted for their ecological significance. Participants pointed out that the previous plan did not address rural areas outside of the urban core, which meant that many wilderness areas were not adequately acknowledged or protected by the HRM.

Participants raised concerns about the removal of mature trees, for example with projects like the hospital development and clearcutting activities in some rural areas. They called for more proactive measures to prevent harmful practices like clearcutting enabled by development permits. Furthermore, many participants advocated for the establishment of active transportation corridors and greenways that connect destinations, and the enforcement of development offsets to mitigate environmental impacts. Additionally, participants emphasized the need for public education on invasive species to support natural area management.

Shape Your City Tools

Survey

The online survey focused on obtaining input on the following topics:

- Understanding of the urban forest in the HRM
- Threats to the urban forest
- Satisfaction with the current urban forest program
- Visioning the future of the urban forest
- Priorities for urban forest management
- Community stewardship of the urban forest

Understanding of the urban forest in the HRM

Most respondents (74%) had previously heard of the term urban forest, but 61% were unaware of HRM's previous Urban Forest Master Plan (Figure 5). Respondents overwhelmingly recognized the importance of

HRM's urban forest, with 88% rating it as "very important." Only 1% felt that the urban forest was "not at all important".

In their comments about how they would describe an 'urban forest', 519 participants depicted a collection of trees, shrubs, and other vegetation within HRM's boundary or urban areas. Some respondents noted that the urban forest could be diverse in terms of species (e.g., native and exotic species), forms (e.g., large, forested areas and individual trees), age and structure (e.g., old and new growth). Respondents highlighted a wide range of benefits that the urban forest could provide, such as improving air quality, reducing urban heat, supporting wildlife and biodiversity, and enhancing the overall well-being of residents. The urban forest was recognized as an important component of a livable and environmentally sustainable city.

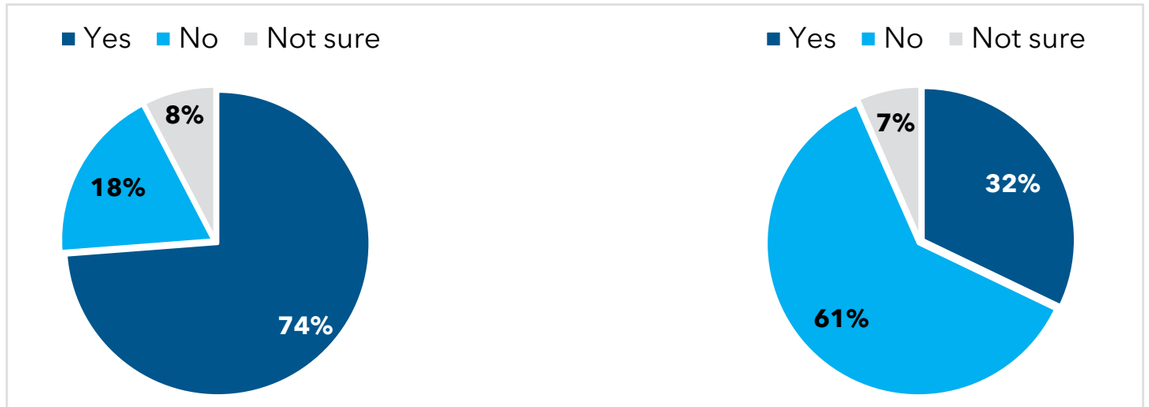

Figure 5. Proportion of respondents that have previously heard of the term 'Urban Forest' (left) and that were aware the HRM has had an UFMP since 2013 (right) (total respondents = 744)

97% of survey respondents believe that HRM's urban forest was 'Important' or 'Very Important'

Threats to the urban forest

When asked about what urban forest threats they found to be most applicable, 83% of respondents rated habitat loss due to development as the most significant threat. Following closely were climate change (rated as significant by 74%), insufficient funding for HRM's urban forestry group (53%), and invasive plants, insects, and diseases (51%; Figure 6). Sixty-eight (68) respondents commented on threats to the urban forest. Many respondents mentioned the **lack of public education and awareness** about the importance of the urban forest and **competing political priorities** when compared to development and policing, leading to insufficient funding and resources. **Development**, when resulting in the clear-cutting of trees, was viewed as a major threat, especially when it involved removing mature trees and natural habitats. Some respondents mentioned they felt that **poor planning and the disconnection between urban forestry and other municipal planning processes** exacerbate these threats. Other significant threats included **the use of pesticides**, **the sale of invasive species by retailers**, and **the lack of proper disposal methods for dead or diseased trees**.

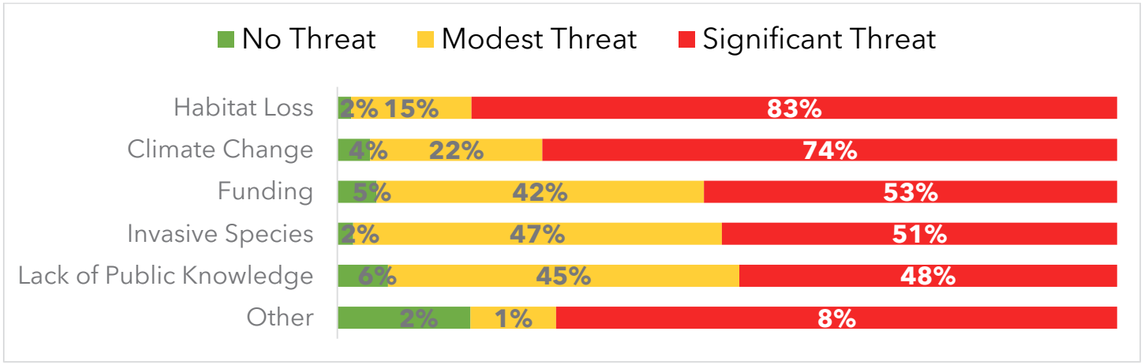

Figure 6. Respondents' perception of the most significant threats to the urban forest (total respondents: 742)

Satisfaction with urban forest management

Respondents shared their thoughts on how successful they thought the HRM urban forest management was in the last ten years since the adoption of the Urban Forest Master Plan in 2013 (Figure 7, below). A large proportion of respondents perceived the urban forest program as either unsuccessful or only partially successful overall. According to survey respondents, the program was least successful in increasing community awareness and knowledge about urban forestry, with 53% deeming it not successful at all and an additional 28% considering it partially successful.

Many respondents were uncertain about evaluating success in urban management. Specifically, over half of the participants (54% and 51%, respectively) expressed uncertainty about the HRM's collaboration with diverse people and organizations, and the allocation of staff and funding. On the other hand, tree protection, maintenance, and enhancement received more positive feedback, with 46% of respondents considering it partially successful and 6% successful.

In their comments about satisfaction with urban forest management in the last ten years, 407 respondents provided more details about what made them satisfied or dissatisfied. Many felt that the program had not been successful due to several key issues, including the loss of mature trees and green spaces to development, insufficient funding and enforcement of urban forest regulations, and ineffective invasive species management. Respondents called for stricter regulations and better enforcement to protect old-growth trees, as well as the creation of invasive species registries and action plans for better management outcomes. Additionally, there was a strong sentiment that more could be done to maintain biodiversity, ensure equitable access to green spaces, and integrate the urban forest with broader city planning and climate change initiatives. On the positive side, some respondents appreciated HRM's efforts to plant new trees and engage the community. However, the need for better communication and education about the urban forest program was highlighted, as many respondents felt uninformed about ongoing efforts and their impacts.

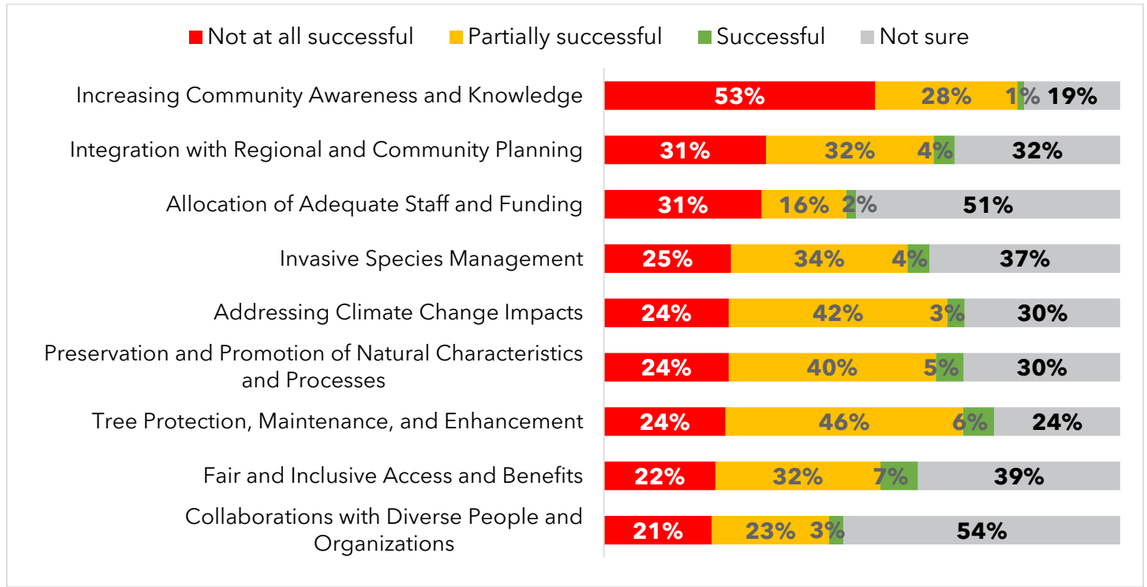

Figure 7. Respondents' perception of the performance of Halifax's urban forest management over the last ten years (total respondents: 746)

Participants were also asked to identify five aspects out of a list of ten statements that they believed would show successful management of Halifax Region's urban forest. The statements most commonly selected as good descriptors of success included the enhanced protection of trees during development (voted by 67% of respondents), increased canopy cover (by 62%), equitable access to the benefits of the urban forest (57%), higher rates of tree planting (56%) and greater species diversity and structural complexity (49%) (

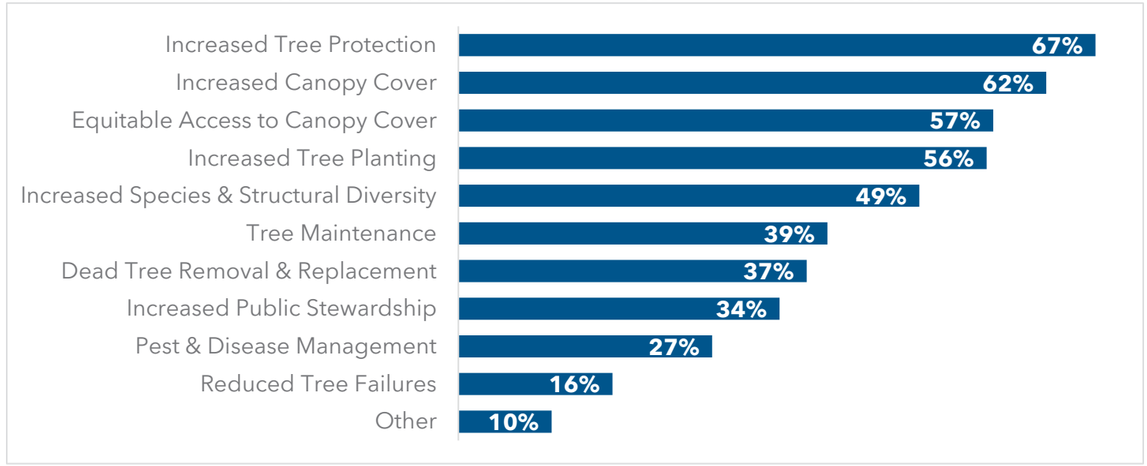

Figure 8). Conversely, aspects such as having fewer problems with pests and disease and having fewer falling trees and tree limbs were less frequently prioritized as successful aspects of HRM's urban forest management program.

Halifax Urban Forest Management Plan – Phase 1 General Public Engagement Summary

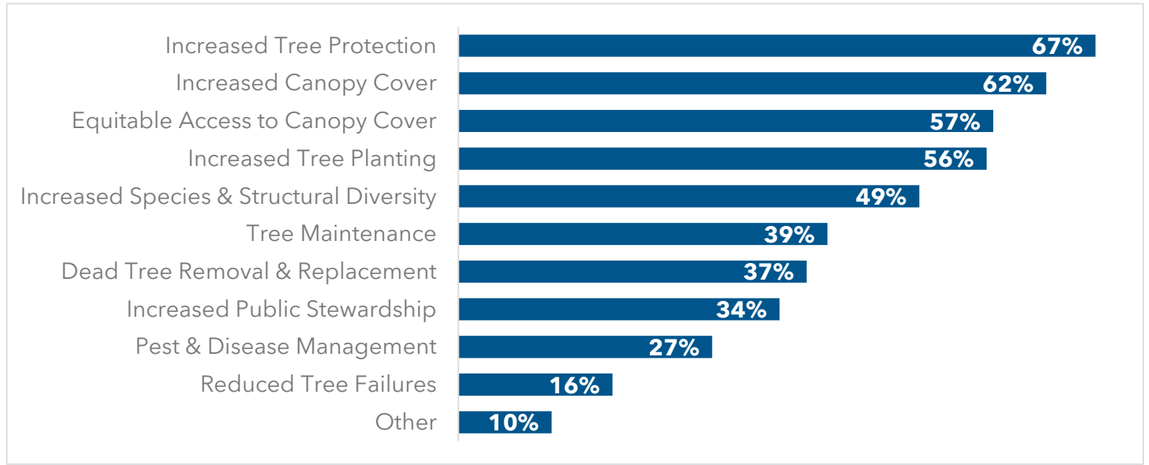

Figure 8. Respondents' perception of aspects that would best show the successful management of the HRM's urban forest (total respondents: 746)

Seventy-one (71) respondents shared more details about other things they thought would indicate that urban forest management in HRM was successful. Respondents thought that HRM could monitor the success of its program by measuring the **planting of native and diverse species**, including shrubs and ground cover, and **planting of fruit and nut trees** to promote food security.

Satisfaction with the HRM urban forest program

When it comes to people's satisfaction with the current urban forest levels of services provided by HRM, respondents generally had low levels of satisfaction (Figure 9). Many respondents were dissatisfied with the replacement of trees removed due to development and public education and awareness, with 52% and 50% of participants expressing dissatisfaction, respectively. Services with a higher level of satisfaction included tree planting (58% partially or fully satisfied), tree pruning (57%), and tree and stump removal (45%). Respondents were least certain about their satisfaction with watering and pest and disease control, which respectively had 59% and 49% unsure respondents.

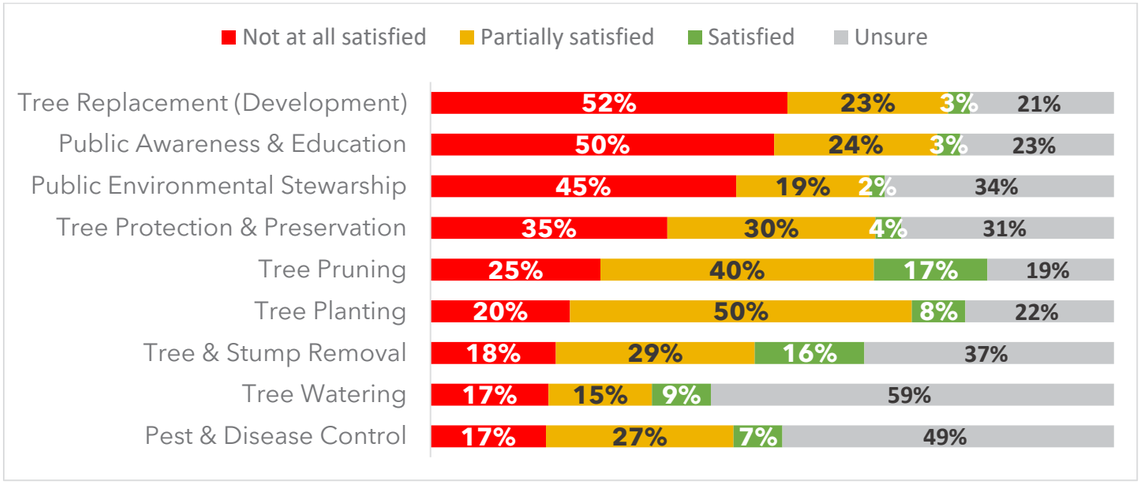

Figure 9. Respondents' satisfaction with current levels of service by service type (total respondents: 744)

A total of 528 respondents shared detailed responses about how HRM could help increase their satisfaction with the urban forest services offered. Most respondents emphasized the importance of enhancing tree protection during development and improving the enforcement of relevant policies and regulations. Some suggested more funding and staff resources for planting, maintaining, and replacing trees, especially native species. Many respondents also suggested improved maintenance of newly planted trees, stricter requirements for developers to plant/replace trees, and better integration of trees in urban planning. Some respondents called for more public education on the urban forest and invasive species, as well as increased engagement opportunities such as tree adoption and community planting events. They also emphasized the need for enhanced communication and visibility of urban forest efforts.

Sixty-three percent (63%) of respondents were willing to pay an additional $25-100 per year on property taxes to better support HRM's urban forestry program, while 16% were unwilling to contribute any additional amount (Figure 10).

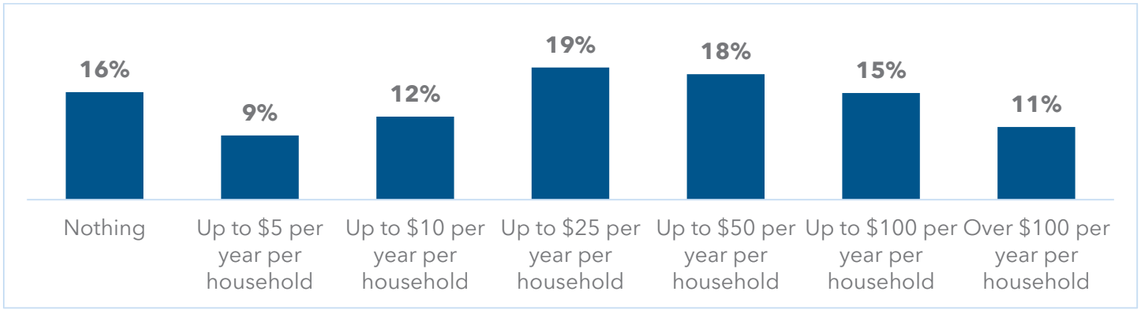

Figure 10. Willingness to pay additional property tax for improved urban forest management (total respondents: 737)

Vision for the future of the urban forest

A total of 643 respondents shared their vision of the future of Halifax's urban forest by the year 2050. Most envisioned an urban forest that was **healthy** (noted by 73 respondents), **diverse** (by 95 respondents), **well-managed** (71), and **expanding** (227). They pictured this thriving urban forest **across parks, private yards, streets, and natural areas** in HRM, and providing important **environmental** (e.g., cooling and supporting biodiversity) and **social** benefits (e.g., recreational space and fostering community identity).

Respondents also indicated how they would like the urban tree canopy to change over the long term. Eighty-two percent (82%) of respondents would like to see an increasing tree canopy, while 14% would like to maintain the current level of canopy, and 2% would like a declining tree canopy (Figure 11).

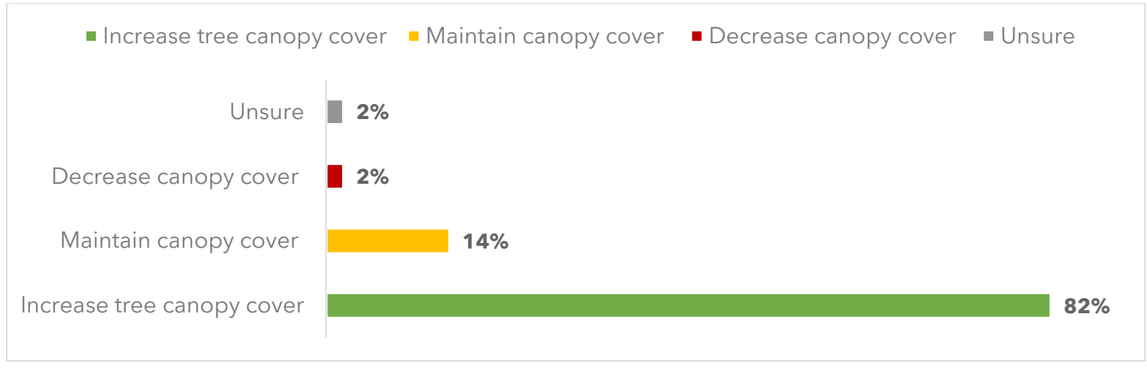

Figure 11 Respondents' preference for canopy cover over the long term

Priorities for urban forest management

Priority of urban forest management objectives

Respondents were asked to prioritize objectives for urban forest management over the next ten years (Figure 12). The top prioritized objectives included addressing climate resilience (1st), integrating urban forest policy into regional and community planning processes (2nd), and protecting, maintaining, and enhancing the urban forest (3rd). Ensuring fair and inclusive access to canopy cover and associated benefits, as well as increasing community awareness and knowledge about urban forestry were considered the lowest priorities among all.

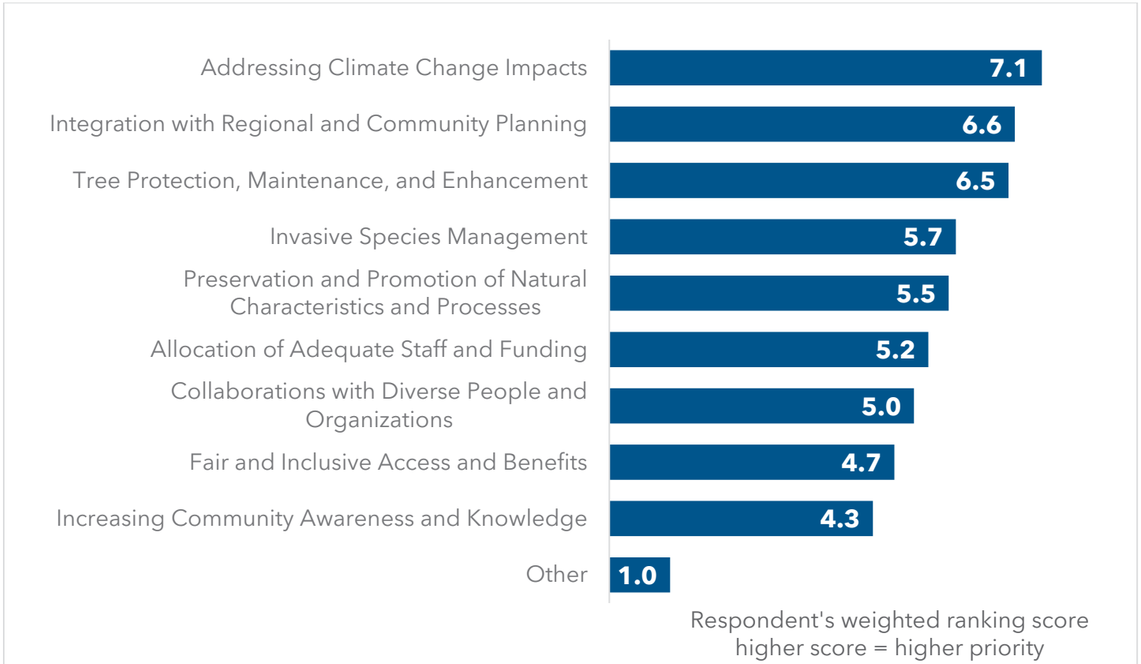

Figure 12. Respondents' ranking of the top ten priorities for urban forest management over the next ten years based on weighted averages (total respondents: 746)

A total of 186 respondents shared more insights on how HRM should prioritize urban forest management over the next ten years. Besides the priorities that were listed in the survey questions, respondents identified several other key priorities, including:

- Prioritizing **planting native species** that support local ecosystems and biodiversity. Some advocated for avoiding planting non-native species.
- Strengthening **enforcement and penalties** for unauthorized removal or damage of trees and vegetation. Respondents noted that this could include improving regulations around tree planting and maintenance, particularly in relation to power lines and other grey infrastructure.

- Creating **aesthetic and functional urban spaces** with trees and greenery, including integrating green spaces into urban planning, ensuring equitable and inclusive access, and enhancing the overall aesthetic appeal of Halifax.
- Increasing the number of **fruit and nut trees** to promote food security and incorporating edible plants into urban planting schemes.
- Adopting **innovative approaches** like rewilding urban areas, creating wildlife corridors, and developing mini-forests adjacent to highways and in roundabouts

"Focusing on planting native trees that are resilient and support the ecosystems they grow in."

- Survey Respondent

Priority locations for tree planting

When asked where HRM should prioritize tree planting, respondents strongly prioritized new tree plantings in parks (voted as a high priority by 82% of respondents), new development projects (80%), schoolyards (by 70%), natural areas (63%), and residential streets (58%; Figure 13). On the other hand, more than half of respondents considered planting in residential yards (66%), parking lots (65%), industrial areas (66%), and cemeteries (77%) a medium to low priority. Cemeteries were considered the lowest priority among all locations, with 30% voting as low priority.

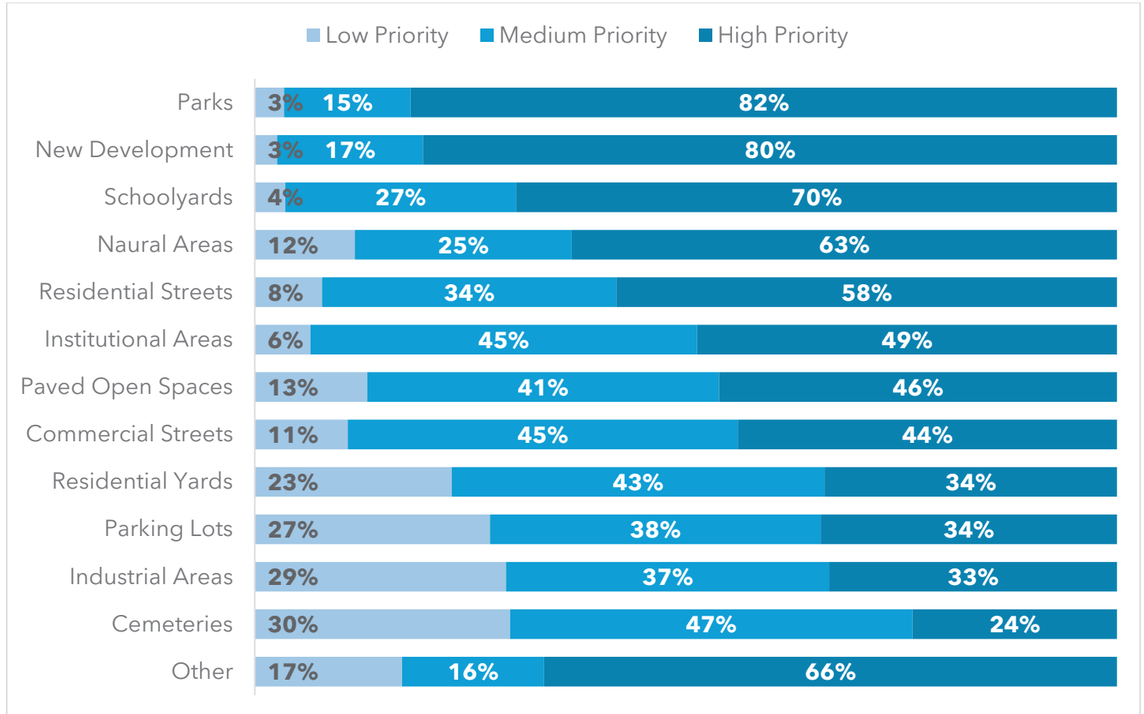

Figure 13. Respondents' preference for suitable tree planting locations (total respondents: 734)

Sixty-six percent (66%) of respondents felt that 'other' areas should be prioritized for planting, and 127 respondents suggested alternative locations for tree planting. As had been identified in the multiple-choice question, most respondents preferred more tree planting **along streets, bikeways, and sidewalks**. They also indicated a higher priority for planting in the downtown core and other densely built areas with significant asphalt and concrete surfaces. Another preferred location for planting was **community and recreational spaces**, including schoolyards, playgrounds, community gardens, and other recreational areas such as Halifax Common and Citadel Hill. Respondents also highlighted the importance of planting in **areas that connect existing green spaces** and support wildlife and people, as well as **in special areas and facilities**, such as coastal areas, hospitals, medical centers, and areas adjacent to provincial highways and bus stops.

Priority of urban forest actions on municipal property

Participants were asked to prioritize activities that the HRM could undertake on its properties. The highest priority actions identified were improving species selection guidelines to ensure trees were appropriate for the planting sites (fully supported by 66%), constructing new tree planting spaces to accommodate more trees (by 65%), and planting more trees along streets and in parks (by 63%; Figure 14).

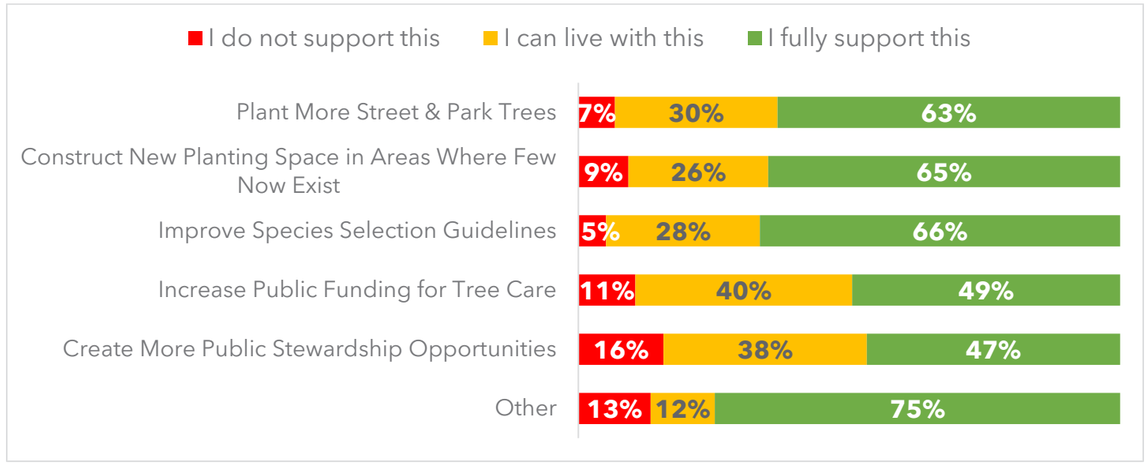

Figure 14. Respondents' support for urban forest activities on municipal property (total respondents: 734)

Among the 130 respondents who provided detailed feedback, many emphasized the importance of **engaging local groups**, such as youth groups and school children, through community events and public educational programs. When it comes to planting, participants stressed the importance of **using native species to increase biodiversity**, and **planting in currently barren and underutilized areas**, such as planting medians and areas with limited tree canopy. They also highlighted the need for **regular pruning, watering, and removals of deadwood and invasive species** with **increased funding**. The **implementation and enforcement** of policies to protect trees and promote best practices were considered as priorities for the HRM.

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"All of the above actions are equally important and should be integrated in a well thought out UFMP."

- Survey Respondent

"I think allocating planting spaces where none previously existed is ideal and will make up for some of the lost built heritage."

- Survey Respondent

Priority of urban forest actions on private property

Survey respondents were also asked about their level of support for HRM actions on private property, more respondents showed a higher support for activities on private property than for those on municipal land. The most supported activities included requiring tree planting with development sites for rainwater management and shade provision (fully supported by 91% of respondents), increasing tree planting requirements in development areas (by 86%), enhanced tree protection during construction (86%), retaining more trees in development areas (83%) (Figure 15). Fewer participants fully supported a tree by-law regulating trees on private property, with 45% indicating full support and 22% indicating they did not support it.

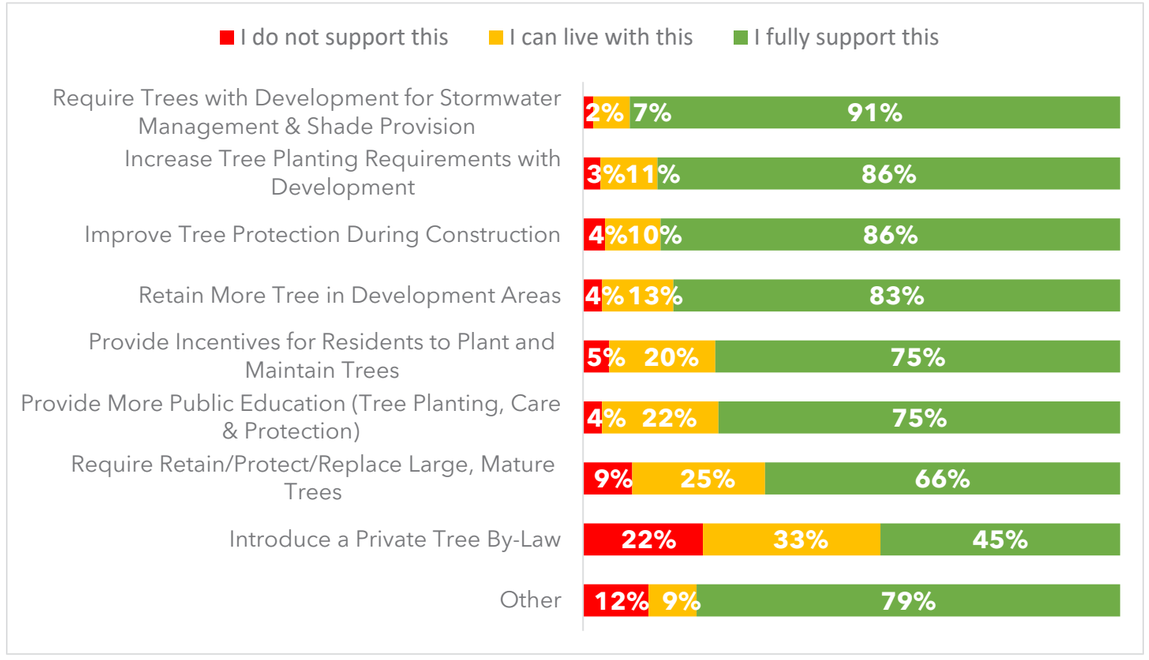

Figure 15. Respondents' support for urban forest activities on private property (total respondents: 735)

A total of 118 respondents shared more about their views on 'other' actions to improve the urban forest on private property. They expressed strong support for the protection of mature trees during development via relevant bylaws and banning the sale of invasive species. Additionally, education and engagement related actions to enhance awareness and participation in tree planting and care programs were well supported among participants. This included providing educational materials, offering incentive programs (e.g., financial incentives for low-income households, and incentive for planting fruit-bearing native trees), and hosting community events (e.g., community tree giveaway program). Respondents emphasized the need to enforce regulations to retain existing trees while allowing flexibility for necessary removals.

Community stewardship of the urban forest

Barriers to tree planting and maintenance on private property

When asked about what barriers prevent them from planting or maintaining trees on their property, the most significant barriers included cost (23% of respondents identified this as a barrier), utility line obstructions (23%), and property constraints (do not own or manage the property) (23%). Time constraints (3%), lack of interest (do not want a new tree; 5%), physical effort (7%) and space (11%) were less of a concern to most respondents.

A total of 188 respondents shared more details about the barrier for them to plant or maintain trees on their properties. **Cost** was one of the most significant barriers, with many citing high expenses for purchasing, planting, and maintaining trees. **Space limitations**, especially for those living in high-density areas, also pose a challenge. On the other hand, many already well-treed properties lacked room for more trees. Some homeowners were concerned about **potential damage** to water and sewer lines from tree roots and other risks due to wildfire and windstorms. Other prioritized sunlight for gardens or solar panels, making additional tree planting less desirable. **Site conditions** such as **rocky or thin soil layers** and **deer eating young trees** were also cited as common issues. **Physical limitations** hindered some people from planting or maintaining trees. Some respondents expressed a need for **better guidance on species selection and tree care**.

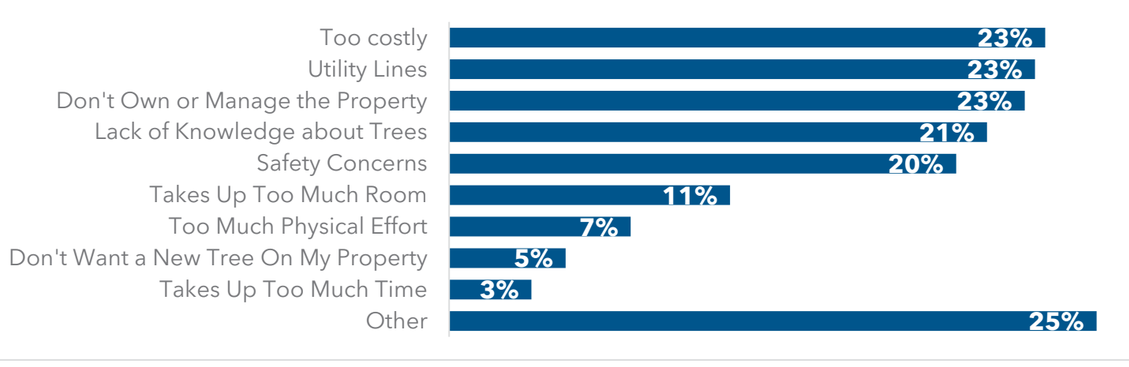

Figure 16. Public perception of the barriers preventing tree planting and maintenance on private property (total respondents: 735)

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Approaches to encourage tree planting on private property

To encourage tree planting on private property, 53% of respondents thought that the most effective approach would be to provide additional subsidies and tax credits, such as tree planting subsidies and utility or property tax credits. Respondents hoped for training and guidance on tree planting and care, including learning about choosing the right trees for their yards (49%), learning what trees were suitable for the region (38%), and training on tree planting and maintenance (37%). Only 6% of respondents thought nothing would encourage them to plant or care for trees on their property.

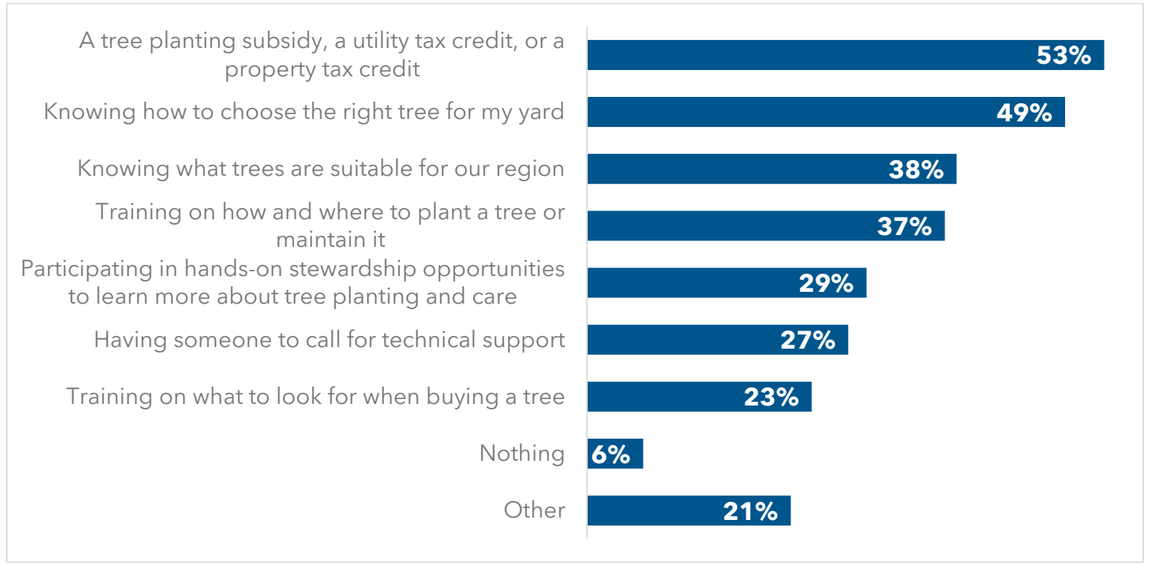

Figure 17. Respondents' perception of ways to encourage tree planting and maintenance on private property (total respondents: 735)

A total of 155 respondents explained further about what could encourage them to plant trees on their properties. Many respondents who did not own a property or have limited space indicated that **a program providing trees for renters or those in shared housing** would be beneficial. **Offering subsidies, tax benefits, or other financial incentives for planting native or fruit-bearing trees** (e.g., covering tree delivery and planting) would alleviate financial and logistical burdens. **Physical assistance**, especially for seniors or those with limitations, and community programs where enterprises sponsor tree planting in neighbourhoods would foster a collective planting effort. Some respondents thought that **addressing concerns about existing invasive species** and offering support for their removal, as well as **offering guidance on species selection, tree planting and care**, could further motivate tree planting. They also suggested **public awareness campaigns, educational workshops, and free/subsidized landscape designs or consultations for new homeowners** to promote tree planting.

Shape Your City Map: Important Urban Forest Places

The online map allowed community members to share urban forest locations they valued or thought needed improvement. They could provide comments explaining their submissions further. Out of 64

locations identified by 19 respondents, 27 (42%) were places of value, and 37 (58%) were identified as needing improvements.

Places of Value

Places of value (27) were concentrated around the Bedford Basin and Halifax Harbour in Halifax, Bedford, and Dartmouth. The highest concentration of valued places was found in Shaw Wilderness Park (8 mentions) around Williams Lake and Colpitt Lake. Sandy Lake Regional Park (2) and a forested stand in Clayton Park West near Layton Rd (3) were also mentioned. A full list of the places of value can be found in Table 3 (below), and their locations are mapped in Figure 18.

Respondents valued these areas because they provided habitat for wildlife and improved the health of streams, lakes, and watersheds through cooling and erosion control (14 mentions). They also mentioned the peace and tranquillity of these spaces (1). Respondents further highlighted the importance of canopy cover (24), plant diversity (23), and scenic beauty (18) made accessible by walking paths and trails (14). On the other hand, respondents were worried that development around valued urban forest areas could lead to the removal of important trees and forested areas (9). They suggested strengthening protection measures in these areas, planting more trees, and adding amenities such as picnic tables and signage.

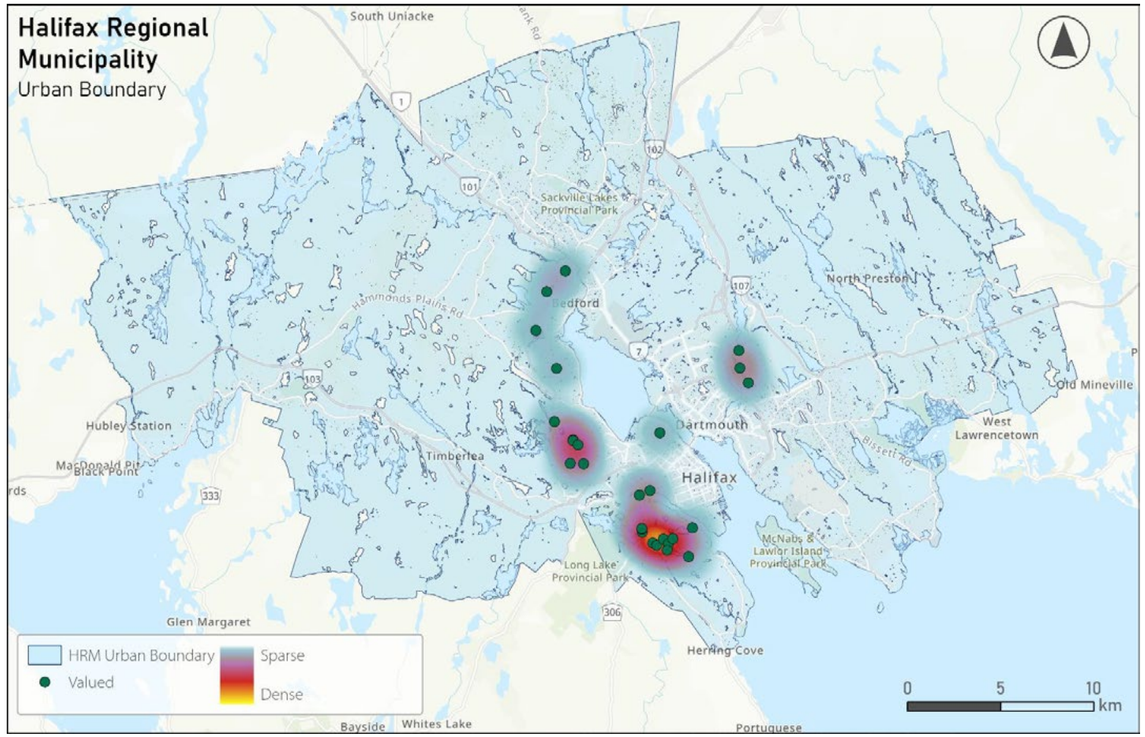

Figure 18. The locations of valued urban forest places within the HRM urban boundary based on the online mapping tool (total respondents: 27)

Table 3. List of valued urban forest places mentioned in online mapping tool comments (total respondents: 27)

Locations added as valued urban forest places	
Williams Lake	Purcells Cover Backlands
Sandy Lake Regional Park	DND Bedford Rifle Range
Colpitt Lake	Novalea
Darthmouth's Entrance	Governor's Brook
West Park	Paper Mill Lake
Lacewood Dr Park	Fleetwod Trail
Paper Mill Lake	Chains of Lakes Watershed

Places Needing Improvement

Places needing improvement (37) were concentrated in Clayton Park West, or along roadways and in parks scattered throughout Halifax, Bedford, and Dartmouth (Figure 19 and Table 4). The most suggested improvements were to increase canopy or shade cover (15 mentions), restore and maintain greenspaces or trails (13), and mitigate hazards along paths (7). People also suggested planting trees along roads to serve as wildlife corridors, privacy screens, and sound barriers (5). Other suggestions included increasing connectivity between trails and parks (4), preventing materials dumping (4), and traffic calming (3).

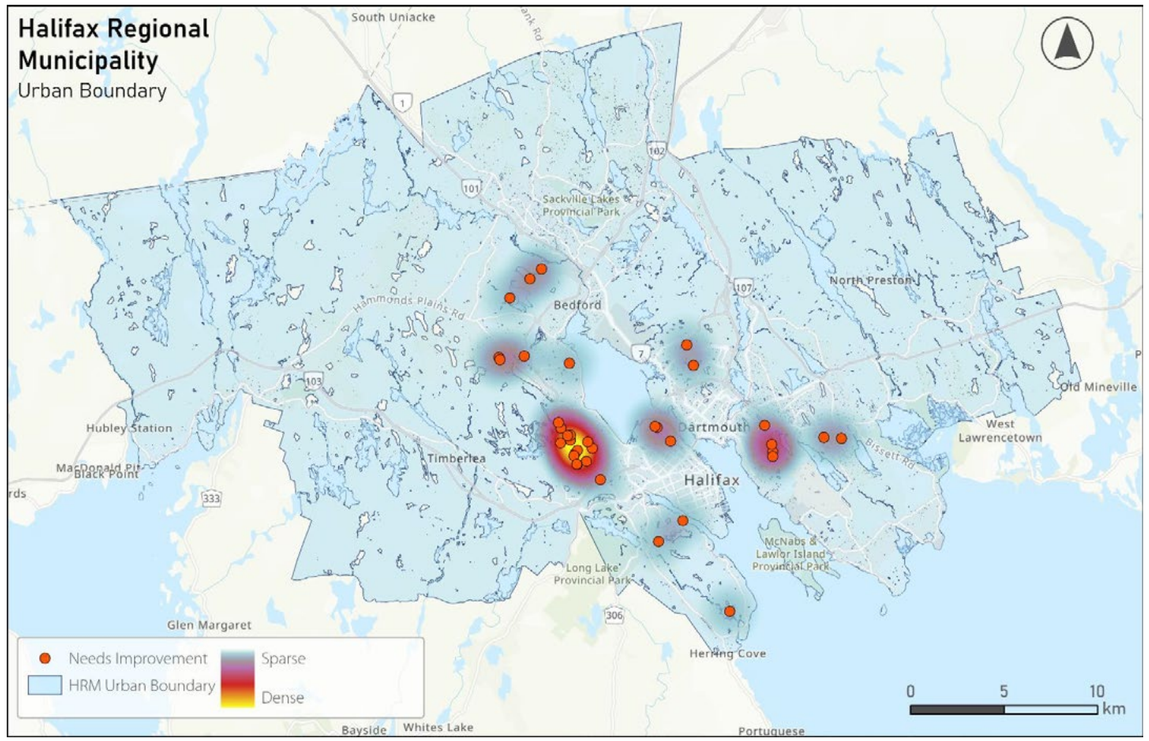

Figure 19. The locations of urban forest places that could use improvement within the HRM urban boundary based on the online mapping tool (total respondents: 37)

Table 4. List of urban forest places that could use improvement mentioned in online mapping tool comments (total respondents: 37)

Locations added as places where the urban forest could be improved	
Route 207	Sandy Lake (West Side)
Highway 111	Purcells Cover Backlands
Highway 102	Northwest Arm Path
Marsh Lake	Peverill's Brook

"Although closed to public access, the 600 acres of forest at the DND Bedford Rifle range is contiguous with the forests of Sandy Lake Regional Park. There is likely wildlife movement through here, and extensive wildlife habitat, including for a few species at risk."

- Mapping Tool Respondent

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Targeted Technical Workshops

Participants at the online and in-person targeted workshops included members from various federal, provincial, municipal, and Aboriginal governments such as Nova Scotia Power, Halifax Water, the Canadian Food Inspection Agency (CFIA), as well as others. The intention was to identify current challenges and opportunities, think about a vision for the future, and identify solutions to achieve that vision through the plan's implementation. Participants were asked to discuss challenges and opportunities, their vision for the future and solutions for how to achieve it around four urban forest themes: tree planting, tree protection, urban forest management and urban forest engagement.

Figure 20. Participants of the targeted workshops for partner organizations

Planting

Participants encouraged HRM to take bold action to **enhance growing conditions along streetscapes** by burying utilities, formalizing utility setbacks, and meeting rights-of-way (ROW) standards using consistent sources of developer funding. Argyle Street served as a notable example of where this has been accomplished. Participants noted that the inclusion of trees in intensification projects has been inconsistent. They suggested **establishing planting and species selection standards** for street trees that consider existing challenges like snowplows. Participants recommended that planting goals and actions **prioritize native species and bird-friendly planting palettes** and help **increase species diversity** by creating list of native, bird-friendly, and less common but suitable tree species. Identifying areas with low species richness would also help prioritize the location of planting efforts to increase tree species diversity. Participants addressed the need for **better maintenance of street planters**, especially on Lower Water Street and Bedford Row. To make downtown more vibrant, they suggested **planting more trees and planning new**

parks such as Granville Park, and designating tree planting sites for non-profit organizations like Scouts Canada. Some participants also raised the importance of balancing urban forest canopy goals with **the need for programmable and active-use spaces** due to potential trade-offs between the two.

Protection

Protecting vegetated waterways and wetlands in areas of suburban expansion was perceived as critical by many participants. Participants suggested that urban forest protection should be **mainstreamed across HRM planning policies**. Emphasizing the importance of **tree protection over replanting in new subdivisions**, they noted that road construction often involved considerable tree removal, followed by replanting with small-stature trees, leading to runoff and erosion. They recommended **creating urban forestry positions** within the planning department to support tree retention during the planning and development phases. These positions could also help acquire parkland that included forested areas, thereby enhancing biodiversity outcomes and ecosystem service provision.

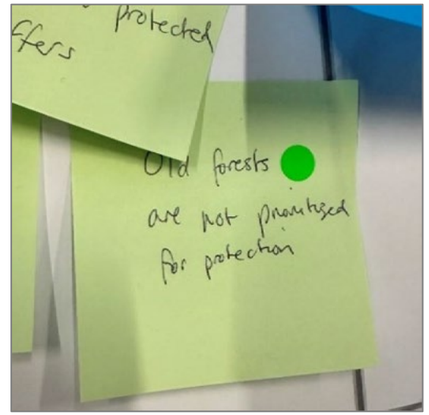
Respondents expressed a desire for **clearer street tree protection requirements** as well as **protection and retention fees** when widening ROW for active transit. They highlighted the need for better strategies to **balance competing priorities**. They specifically called for **changes to the Red Book (Municipal Design Guidelines)** to make development outcomes more predictable, potentially by including an urban forestry-specific section. They also emphasized the importance of **incorporating biodiversity (including wildlife) considerations** into the UFMP and advocated for **retaining dead trees** to preserve their habitat value.

Management

Respondents called for **an invasive species management plan** and **proactive measures to address potential pest and diseases**, such as the emerald ash borer. Emphasizing the need to **manage risks after extreme weather events**, respondents would like to see a focus on reducing the risk posed by the most vulnerable trees and providing clear cleanup guidelines. They also suggested **using woody debris as a resource** instead of treating it as waste. Respondents desired clearer urban forestry goals and associated requirements for development. Specifically, the development community sought **clarity** on where the HRM wanted them to concentrate on green amenities (e.g. along streets or in riparian areas). Participants suggested an annual progress report to the council and UFMP reviews every five years for transparency and accountability. Additionally,

Halifax Urban Forest Management Plan – Phase 1 General Public Engagement Summary

respondents requested a comparison of the previous Urban Forest Master Plan with the new draft UFMP to evaluate performance in terms of canopy cover, temperature, and impervious cover changes.



Engagement

Respondents believed that community engagement was crucial for fostering a sense of ownership and understanding of urban forestry initiatives, ensuring long-term support and success. They stressed the need for **mandatory engagement with developers** and **improved communication strategies** to reach community members, including targeting non-forestry related community groups. They advocated for **incorporating Indigenous values and knowledge** in urban forest management. They also suggested promoting ecological diversity in **school tree plantings**, as well as **conveying the financial value of early investment in treatment** to prevent larger-scale invasive species issues.

Participants highlighted the need for governing bodies to understand the value of greenspace and for **accessible property boundary information** through GIS to facilitate ownership determination. They recognized the **contributions of urban forestry NGOs**, specifically Peter Duinker, and called for increased engagement with HRM residents.

"Silos between park, private, and street trees present challenges to protecting tree out of scope"

- Workshop Participant

Synthesis of feedback

Results from the first phase of public engagement are summarised around the following themes:

- Developing a **vision** for the future urban forest, i.e., imagining Halifax's ideal urban forest after the plan's implementation and understanding what community members would like to see in the plan to feel their community is represented
- **Maintenance and Monitoring:** Maintaining the urban forest, i.e., pruning, watering, and other activities that assist with the establishment and growth of trees, and enhancing the levels of services to establish a more proactive maintenance program.
- **Management**: Managing the urban forest, i.e., managing the urban forest as natural assets, monitoring and tracking the conditions of the urban forest, and managing threats to the urban forest, such as invasive species and climate change.
- **Planning and Protection**: Planning and protecting the urban forest, i.e., protecting trees from removal or damage from activities, such as development and construction, and creating planning tools and policies that help enhance the urban forest.

- **Planting**: Planting the right trees in the right places, prioritizing areas where few trees currently exist, replacing removed trees to offset canopy cover loss, and sustaining and increasing the urban forest and its benefits to the community.
- **Stewardship**: Stewarding for inclusive urban forest management, i.e., participation from community members, landowners, and community organizations to steward the urban forest (e.g., tree planting, watering, invasive species management, education, and access, etc.).

Summary of feedback for the urban forest long-term vision

Urban forest vision

- By 2050, survey respondents would like to see a healthy, diverse, well-managed, and expanding urban forest across parks, private yards, streets, and natural areas in Halifax that provides important environmental and social benefits.

Urban forest benefits

- Survey respondents acknowledged a wide range of benefits that the urban forest can provide. They considered the urban forest as an important component of a livable and environmentally sustainable city.
- Mapping tool participants valued forested areas in and around parks and natural areas because they were accessible spaces that offered ecological values, peace, tranquillity, and scenic beauty.

Canopy change

- 82% of survey respondents would like to see an increasing tree canopy

Summary of feedback for urban forest maintenance

Requirements for developers

- Technical workshop participants highlighted the need for more clarity on green amenity requirements for developers

Proactive tree maintenance

- Survey respondents highlighted the need for regular pruning, watering, and removal of deadwood and invasive species with increased funding.

Summary of feedback for urban forest management

Monitoring and reporting

- Technical workshop participants suggested:
  - An annual progress report to the council and UFMP reviews every five years.
  - A comparison of the previous Urban Forest Master Plan with the new draft UFMP to evaluate performance
  - Provision of accessible data for easier determination of ownership.

Urban forest management program performance

- Survey respondents thought the HRM's urban forest management over the last ten years was only partially successful. They identified critical issues in the following aspects:

  - Community awareness and knowledge about urban forestry
  - Integration with regional and community planning
  - Funding and staffing
- Survey respondents believed that a successful urban forest management program should:
  - Enhance tree protection during development
  - Increase tree canopy
  - Ensure equitable access to tree canopy and associated benefits
  - Increase tree planting
- Survey respondents were partially satisfied with the current levels of service. They were particularly unsatisfied with:
  - Replacement of trees removed due to development
  - Public education and awareness
- Survey respondents were more satisfied with the following levels of service:
  - Tree planting
  - Pruning
  - Stump removals
- 63% of survey respondents are willing to spend an extra $25-100 per year on property taxes to support improved urban forest management.

Incorporation of Indigenous values and knowledge

- Technical workshop participants suggested the incorporation of Indigenous values and knowledge in urban forest management

Manage urban forest threats and risks

- Survey respondents identified the most significant threats to the urban forest as habitat loss due to development and climate change.
- Survey respondents prioritized the following urban forest management objectives:
  - Climate resilience (1st)
  - Integrating urban forest policy into regional and community planning process (2nd)
  - Protection, maintaining, and enhancing the urban forest (3rd)
- Technical workshop participants suggested to:
  - Create an invasive species management plan
  - Introduce proactive measures to address pests and diseases
  - Manage risks after extreme weather events
  - Use woody debris as a resource rather than a waste
- Open house participants called for more proactive disaster planning

Summary of feedback for planning and protection of the urban forest

Integration with strategic plans and process

- Technical workshop participants recommended to:
  - Mainstream urban forest protection across HRM planning policies
  - Plan new parks
  - Update the Red Book (Municipal Design Guidelines) and include an urban forestry-specific section

- Create new urban forestry positions within planning departments to support the integration
- Incorporate biodiversity/wildlife considerations

Balance competing priorities

- Technical workshop participants emphasized the importance of balancing tree planting with competing priorities, such as housing, and the need for programmable and active use park spaces

Protection of natural areas

- Open house participants:
  - Stressed the importance of protecting upper watersheds, unique forest areas and urban wilderness
  - Suggested specific sites for protection due to their ecological significance.
  - Called for more protection of areas outside service zones

Protection of existing trees

- Open house participants:
  - Raised concerns over the removal of mature trees for major developments and clearcutting activities in rural areas.
  - Called for more protective measures to stop clearcutting enabled by development permits.
- Survey respondents:
  - Showed more support for improving tree protection during construction on private land. But they were the least supportive of a tree protection bylaw on private land.
  - Suggested prioritizing enforcement and penalties for unauthorized removal or damage of trees.
- Technical workshop participants suggested to:
  - Prioritize tree protection over replanting in new subdivisions
  - Establish clearer street tree protection requirements
  - Introduce protection and retention fees when widening ROW for active transit
  - Retain dead trees as habitat

Enhancement of green space connectivity/accessibility

- Open house participants suggested establishing active transportation corridors/greenways to improve green space connectivity.

Summary of feedback for planting of the urban forest

Priority planting locations

- Survey respondents:
  - Prioritized new tree planting in parks (by 82% of respondents), new development projects (by 80%), and schoolyards (70%).
- Open-ended responses suggested other priority locations, including along streets, bikeways, and sidewalks.
- Mapping tool participants identified areas that needed improvement, mostly located along roadways and in parks. Key suggestions included increasing canopy cover, restoring green spaces

and trails, planting trees along roads for wildlife corridors, and improving connectivity between trails and parks.

Priority urban forest activities

- Survey respondents showed more support for the following activities on municipal property:
  - Planting more street and park trees
  - Constructing new planting space in tree-deficit areas
  - Improving species selection guidelines
- Survey respondents showed more support for the following activities on private property:
  - Requiring trees with development for stormwater management and shade
  - Increasing tree planting requirements with development

Planting space requirements

- Technical workshop participants suggested to:
  - Enhance growing conditions along streetscapes
  - Improve maintenance of street planters
  - Designate planting sites for non-profit organizations

Species selection

- Survey respondents who shared open-ended responses suggested to prioritize:
  - Planting native species and fruit and nut trees (for food security)
  - Trialing innovative approaches to rewild space
- Technical workshop participants suggested to:
  - Establish planting and species selection standards that consider existing challenges like snowplows
  - Prioritize native species and bird-friendly planting palettes
  - Increase species diversity, especially in areas with low species richness

Summary of feedback for public stewardship of the urban forest

Current public perceptions and knowledge

- 74% of survey participants had previously heard of the term urban forest, but 61% were unaware of the existing Urban Forest Master Plan

Public education, communication, and stewardship

- Open house participants called for:
  - More public education on invasive species and natural area management
- Technical workshop participants suggested:
  - Improved communication strategies to reach all community members (including non-forestry related groups)
  - Mandatory engagement with developers
  - Creating school tree planting programs
  - Approaches to convey the financial value of early investment in treatment of invasives species

Barries to tree planting and care on people's own property

- The biggest barriers indicated by survey respondents:
  - Costs (cited by 23% of respondents)
  - Utility obstructions (23%)
  - Property ownership constraints (23%)
  - Time, interest, physical efforts, and space were less of a concern to most respondents
- Survey respondents suggested that incentives for tree planting on private property could include subsidies, tax credits, training and guidance on tree selection, tree planting and care.

Halifax Regional Municipality
Urban Forest Management Plan

Phase 1 Engagement
Acadian and Francophone Engagement Summary

May 2024

Submitted to:
Halifax Regional Municipality
5251 Duke St, 3rd Floor, Suite 300
Duke Tower
Halifax, Nova Scotia
B3J 3S1

Submitted by:

DIAMOND HEAD
3559 Commercial Street
Vancouver, BC 604.733.4886

Scope of the engagement

In spring 2024, as part of the process to update the Halifax Regional Municipality's Urban Forest Management Plan (UFMP; the plan), targeted interviews were held with a few community organizations representing Acadian and Francophone communities.

Who we heard from

To reach the Francophone and Acadian communities, HRM's French Services Advisor from the Diversity and Inclusion Office sent out requests for invitations to organizations across the region. The interviews were conducted in French and the results were translated into English for accessibility to the greater community. Five representatives from the following organizations were interviewed between March and May 2024:

- **L'Acadie de Chezzetcook**, a community organization that represents the Acadians and Francophones of the greater West-Chezzetcook and Grand-Désert region.
- **Alliance Française Halifax**, a not-for-profit association dedicated to the promotion of the French language and of French-speaking cultures
- **Conseil scolaire acadien provincial**, the only Francophone school board in Nova Scotia
- **Conseil communautaire du Grand Havre**, acts as a representative of the francophone community of the HRM and develops programs and services for the Francophone and Francophile community.

What we heard

This section summarizes the key points raised by Acadian and Francophone organizations during the interviews.

Urban Forest Vision

Many participants highlighted the importance of making the urban forest more accessible by means other than cars. They particularly noted the challenge of accessing large, forested areas from the urban core without driving. Some participants also highlighted the importance of protecting mature trees and suggested enhancing street trees and greenery along pedestrian and cycling corridors. They highlighted the connection with Halifax's 'City of Trees' history as a way to showcase the historical importance of trees to the urban core's community character and well-being. A participant raised interest in seeing the plan provide a clear explanation of the pillars of the UFMP and why they were prioritized.

Protecting the Urban Forest

Participants spoke about the importance of protecting mature trees and forested areas near schools. Many of the organizations interviewed spoke to various community events hosted in parks and natural areas highlighted the importance of protecting such areas to guarantee community access to the urban forest across the HRM, particularly in the urban core.

Halifax Urban Forest Management Strategy – FRANCO Phase 1 Engagement Summary

Maintaining the Urban Forest

Many participants mentioned that trees often cause power outages during storms. Some participants noted a concern that community members might pre-emptively remove trees to avoid power outages and highlighted the importance of providing adequate information, pruning trees, and perhaps undergrounding utilities to reduce conflicts. Participants were also interested in learning more about how HRM currently manages its urban forest and how other community organizations are involved in management.

Growing the Urban Forest

The Conseil scolaire acadien provincial mentioned that they partner with the province to offer seedlings at Earth Day events to encourage students to grow the urban forest. Other organizations also mentioned participating in tree-planting events on their or other organizations' properties.

Stewardship of the Urban Forest

All the Acadian and Francophone organizations interviewed mentioned that they interact with the urban forest through activities ranging from hiking groups and elder walks to community and pollinator gardens, outdoor classrooms, and day camps. Many participants were interested in receiving more educational information about the urban forest, including how to plant native species, maintain good wildlife habitat, and remove invasive species. Some organizations mentioned an interest in events like 'remarkable tree walks' to learn about the urban forest. They also suggested involving students, particularly through the schools' green committees.

Culture-Specific Considerations

While Acadians and Francophones now live throughout HRM, the urban core of Halifax was not an Acadian or Francophone area during the early days of European settlement. West Chezzetcook is the largest Acadian community within the HRM. L'Acadie de Chezzetcook highlighted the historical importance of the forest as a location where Acadians hid to avoid deportation during the "Grand Dérangement" (Great Upheaval) with the help of Mi'kmaq Peoples. As a result, l'Acadie de Chezzetcook highlighted the importance of the ties and friendship between Acadian and Mi'kmaq People. They emphasized importance of seeing the Mi'kmaq perspective and knowledge well represented in the UFMP.

The Conseil communautaire du Grand Havre (CCGH) also highlighted the importance of French language for accessibility to Acadian and Francophone communities. The CCGH noted that including French language on HRM signs in parks could improve access for unilingual French speakers and make the spaces more welcoming to Francophone community members.

When it comes to important urban forest locations, Porters Lake's downtown was mentioned as important for the Chezzetcook Acadian community. Concerns were raised about that area becoming increasingly paved as it develops. Participants also mentioned that one of the forested areas currently accessed by students of École Secondaire Mosaïque in Burnside is slated to be cleared and will limit the students' ability to access natural areas near their school. Some of the organizations mentioned that

Leighton Dillman Park in Dartmouth hosts a community garden that is used for many Francophone social gatherings and that Point Pleasant Park is an important destination for students of École Mer et Monde.

Indigenous Engagement Report

Kjipuktuk (Halifax) Regional Municipality Urban Forest Plan

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Project Overview

In the Fall of 2023, Diamond Head Consulting approached pipikwan pêhtâkwan to build a partnership supporting diverse engagement in urban forest planning for the Halifax Regional Municipality (HRM). pipikwan pêhtâkwan supported planning efforts and travelled to Kjipuktuk (Halifax), Nova Scotia, in November 2023 and again in February 2024. We conducted engagement visits with various Indigenous Organizations and individual community members. Building relationships and getting to know the community is critical to this work. Indigenous People were identified as a gap in the previous Urban Forest Management Plan (UFMP) version. Our team members visited to understand better the Indigenous community in and around Kjipuktuk (Halifax) and their priorities. We met Elders, youth, and community members who identified the needs and gaps within the current context of the UFMP and the HRM itself.

In another vein of the project, pipikwan pêhtâkwan has supported the continued dialogues with new immigrant community members and people with disabilities. At the time of this report, only preliminary dialogues have occurred. Dialogues are scheduled to be completed by June 2024. An appendix of findings will be included to reflect those dialogues.

Key Findings

The Indigenous engagement identified the following as key priorities, which are expanded upon in the report's Key Findings section.

- Inclusion of Indigenous language
- Protected species of cultural significance (Birch, Black Ash and White Ash)
- Urban, accessible and safe space for Ceremony and healing
- Indigenous collaborations and partnerships
- Food forest development
- Increased education and knowledge sharing
- Malleability and community responsiveness in the plan
- Protection and restoration after natural disaster

About pipikwan pêhtâkwan

pipikwan pêhtâkwan is an Indigenous-owned, -led, majority-staffed public relations and engagement agency. We focus on elevating Indigenous voices and their stories and facilitating meaningful engagement and planning to build trust and lasting relationships with Indigenous communities. We primarily serve Indigenous businesses, organizations and communities to bring their voices to the mainstream media and general public while ensuring Indigenous Peoples maintain ownership of their initiatives and stories.

At pipikwan pêhtâkwan, we pride ourselves on being helpers who understand the barriers and know the language that resonates with our Peoples. We collaborate with our partners to build communications strategies that work for Indigenous communities. Our vision, mission, and values guide us as we engage existing and new clients.

Engagement Overview

In November 2023 and February 2024, various community sessions were held to listen to community members share their priorities, values and experiences. These conversations helped the team identify gaps and opportunities the Indigenous Community had regarding the updated Urban Forest Management Plan.

A range of perspectives was heard throughout the community—pipikwan pêhtâkwan connected with 71 people affiliated with eight different Indigenous organizations through multiple facilitated visits and interviews.

The goal of these engagement visits was to listen to the community, provide clarity, and share any gaps or concerns with the client on behalf of the community. These findings will inform recommendations and themes that may impact the revision to the previous UFMP and the development of a healthy urban forest for all residents of Kjipuktuk (Halifax).

Additionally, pipikwan pêhtâkwan supported several public engagement sessions alongside Diamond Head Consulting Ltd in February 2024. Our role was to be available for potential Indigenous community participation. The collaboration also supported improved alignment and understanding of how each approach could inform the writing of the UFMP. Two Indigenous community members (a mother and son) attended one public engagement session.

Methodology

We honour the territory of the Mi'kmaq peoples, where Kjipuktuk (Halifax) is situated. While our company brings a unique Indigenous lens to this work, we acknowledge the unique history, context, culture, language, and ongoing realities of the Mi'kmaq peoples and want to build meaningful relationships that recognize this. Our team was grateful and honoured to uplift historically marginalized voices in this work and believe the partnership with Diamond Head Consulting Ltd. allowed us to do this work well.

As part of this project, pipikwan pêhtâkwan developed an engagement strategy to facilitate engagement sessions and activities with local Indigenous communities relying on keeoukaywin, The Visiting Way (Gaudet, 2019) to build lasting relationships with Indigenous partners rooted in trust and reciprocity. keeoukaywin is based on Métis and Cree knowledge systems rooted in relationality. This approach centres on the importance of conversation and connection and acknowledges the critical way these connections manifest in the outcomes of the work. The engagement team worked with Diamond Head Consulting Ltd, Delvina Bernard, and the City of Halifax to identify existing and new relationships to guide this work and interviewed key partners with insight into the project.

Another approach to our work is etuaptmumk or two-eyed seeing. The term was coined by Elder Albert Marshall of Eskasoni in Unama'ki, Nova Scotia. Through this approach, we work directly alongside our

partners, such as Diamond Head Consulting, to deliver a product that combines the best of the Municipality and public perspectives with traditional knowledge of the Indigenous people in and around Kjipuktuk (Halifax).

Approach

- Individual Visits (Interviews)
    - The purpose of visiting is to use engagement techniques in a decolonized approach that emphasizes relationality and the accountability of visiting. The goal is to approach these visits as the beginning of a relationship. In some cases, multiple visits were required before work could begin.
    - We facilitated individual visits in cases where travel to a collective space was difficult for an individual or where a participant may have been identified and recommended by a participant later in the engagement process.
- Group Visits (Focus Groups)
    - pipikwan pêhtâkwan organized small group visits with organizations with multiple participants interested in sharing perspectives. Each session was formatted and adapted to meet the individual group's needs. Groups included participants such as Elders, Grandmothers, Indigenous Leadership, Indigenous community members and Indigenous experts in relevant sectors.
    - The purpose of the small group visit is to create an environment where many voices can be heard and build off each other. Using Circle process, we can create a culturally sensitive space responsive to different experiences, knowledge and understanding of a topic.
- Collaboration
    - pipikwan pêhtâkwan shared engagement boards used in public engagement with Indigenous participants. While not an Indigenous-specific approach, this approach allowed us to compare findings from public engagement alongside Indigenous dialogue. In particular, we understand how community members currently and would like to engage with the urban forest.

Participants

pipikwan pêhtâkwan made direct outreach to communities in the Halifax region to build new or expand upon existing relationships, doing our best to ensure that both urban Indigenous perspectives and rights-holding First Nations communities were meaningfully engaged in this project. Partners engaged as part of this work are reflected below:

- Members of Wasoqopa'q First Nation (Acadia)
- Wijewinen - Mi'kmaw Friendship Centre (multiple programs)
- Diamond Bailey Healing Centre
- Dalhousie Indigenous Student Centre
- Kiknu Indigenous Student Centre (St. FX University)

- Native Council of Nova Scotia
- Sipekne'katik Treaty Truck House
- Aboriginal Youth Outreach Program

Questions

Please see the appendix for the outline of facilitation used to support this engagement. Some of the guiding questions used to support this reporting included:

1. How do you *connect* with the urban forest?
2. How do you *support* the urban forest?
3. How do you *use* the urban forest?
4. What needs do you, your clients, or community have around the urban forest? What are the current gaps?
5. Have you seen or heard about other ways to connect Indigenous knowledge to the land that you think are important to HRM?
6. If you opened the UFMP, how would you know Indigenous People were involved?
7. How would you know the HRM Urban Forest plan was successful? What would you need to see?
8. What would you have to see to want to be involved in the UFMP in an ongoing, and meaningful, way?

What Was Heard

Reflections

- Our team learned that meaningfully supporting these relationships can be challenging without an Indigenous Framework to support direct relationships with the First Nations in which the Halifax Regional Municipality works. Some engaged communities identified their approaches to engagement, which the HRM should meaningfully reflect on and incorporate into their engagement processes.

- At the request of First Nation communities with reserve lands within the HRM (Wasoqopa'q, Sipekne'katik, and Millbrook), an increased engagement window and a letter from the Municipality requesting formal engagement were provided. Through follow-up dialogue, it was learned that Nations were already collaborating on land priorities with a department at the HRM and would use that relationship to bring forward their priorities and concerns. HRM should assess and reflect on how internal information sharing is being done and how HRM is ensuring that Indigenous priorities are being included in relevant work.

Recommendations

Inclusion of Indigenous language

A UFMP with local Indigenous languages (Mi'kmawi'simk) elevated within it would connect stronger with Indigenous community members. Suggestions for including Indigenous language were: a) exploring a naming Ceremony for the title of the plan; b) Using traditional place names when referring to locations; c) Using traditional names for flora and fauna; and d) Ensuring Mi'kmawi'simk words preceded the English descriptions.

Language revitalization was of particular importance to youth. Participants shared that language is a connection between Elders and youth. As the language is verb-based, opportunities to learn the language and embody the understandings that come alongside it are important for a holistic plan for the future.

Protected species of cultural significance

Many species of trees and medicines have been used historically for Indigenous practices. Trees, such as the birch, have been harvested for canoes and baskets since time immemorial and are still practiced today. There are significant teachings around species, such as black and white ash. Where black ash is more commonly used today, it was shared that traditionally, white ash was a significant species ingrained in the Mi'kmaq creation story. Indigenous community members would like to see additional protections for these species, along with a restoration plan.

Trees such as cedar are used as an Indigenous medicine and are very valuable to Indigenous ceremonies; providing access to these types of resources within city limits can alleviate many cultural barriers Indigenous people have in accessing traditional materials.

Accessible and safe urban ceremony space

Within the HRM, Indigenous community members made significant mention of a need for an accessible and safe location for ceremony and a healing garden; references compare a space similar to the Halifax Public Gardens to the missing needs of the urban Indigenous community.

Indigenous community members acknowledge that there would need to be ongoing dialogue with Elders and organizations about *how* best to create a safe and sacred space. Needs identified were: a) A dedicated space for Ceremonies such as Sweat Lodge and sacred fires; b) a medicine and berry garden; and c) a reflective space to pray and connect with land abundant with flora and fauna.

Many Indigenous people who live throughout the Kjipuktuk (Halifax) area need more access to traditional lands for ceremony practice. Of the thirteen (13) zones structured under the Native Council of Nova Scotia, it was shared that two (2) zones cover the HRM boundaries, with more than 50% of the total membership residing in these areas. Being on the land is essential for Indigenous People to access teachings, traditional medicines, and a place to practice ceremonies. Facilitating access to urban forest space to accommodate Indigenous Ceremonies would benefit Indigenous communities, the connection

to land, and the sustainability of nature within the urban forest.

An immediate need identified was connecting to natural spaces for spirituality and healing. Many low-income neighbourhoods in the HRM do not have direct access to abundant vegetation or a deeper connection to the land. Innovative solutions, like increased access to public transportation or complimentary taxi vouchers, help provide access to existing urban forest spaces so everyone who wants to use green space in the community can. Currently, some families may not be able to afford the cost of public transportation or a vehicle to get to these locations. This would provide more immediate solutions to neighbourhoods that do not have green space until such a time that HRM can co-create a sacred space for Indigenous People.

Indigenous collaborations and partnerships

Programs that bloom from the UFMP—for example, the current tree giveaway program—must include Indigenous collaborators and partners if they aim to increase Indigenous participation. Rather than HRM aiming to manage Indigenous engagement in community programs, Indigenous participants shared that they would need to *see* Indigenous people leading these initiatives to know they were meant for them. There was a strong willingness to support and develop common goals and programs that could be led by Indigenous organizations, with reciprocity and shared resources from the municipality.

Indigenous participants across *every* engagement referred to a need for more collaboration between the HRM and Indigenous organizations. As mentioned in our reflections, opportunities to grow Indigenous participation will remain limited without a municipal-wide Indigenous Framework to support relationships.

It should be noted that collaboration and partnerships were separate from the relationship between the HRM and Indigenous organizations. More clarity from the community is needed on why Parks and Urban Forestry departments within the HRM were independent. While fragmentation of roles and responsibilities can be helpful in a municipal planning space, Indigenous participants wish to see stronger collaborations between departments within the HRM teams. By strengthening internal collaboration, HRM will streamline dialogues and reduce the burden on Indigenous organizations to navigate the system when aiming to work with HRM. The need for a simplified process to bring concerns about urban forests (including parks areas) forward was especially true for some nations that still need to participate in a full-scale engagement. One Nation, in particular, identified that they were already working on priorities with one department and did not feel it was an effective use of their limited time to engage on a similar issue with a separate department. Urban Forestry would benefit from evaluating its internal process for information sharing and partnership with alternative departments.

Food forest development

Building a substantial food forest is an opportunity to create space that supports community food sovereignty. While there are community gardens and fruit-bearing trees and bushes within the HRM, Indigenous participants discussed the need for a more abundant food forest with improved access for Indigenous People. The factors identified that would create a thriving food forest were: a) Higher density of food forest in places where houseless community members reside; b) Access to a variety of foods less common to a typical food forest, for example, corn, squash and beans; c) Development of vertical farming spaces; and d) Increased development of pollinator programs.

Increased education and knowledge sharing

To create a UFMP that is diverse and inclusive of Indigenous epistemology, participants recommended a co-created education plan that would bridge Indigenous perspectives into the UFMP for both Indigenous community members and the general public. Similarly to including Indigenous language, participants saw broad education as an opportunity to embody etuaptmumk. Many groups discussed the knowledge that Elders, Knowledge Keepers and Grandmothers shared around a) traditional and medicinal uses for various species, b) sustainable harvesting practices, c) biodiversity, and d) traditional ecological knowledge on companion planting and growing.

There was additional dialogue about the need for Indigenous-specific education that included Indigenous pedagogy, such as oral teachings, learning through experience, and land-based learning. These suggested opportunities identify a need for HRM to develop ongoing outreach and community engagement pathways.

Malleability and community responsiveness in the plan

The needs of Indigenous People within the HRM are continuously evolving. As organizations advance their individual and collective goals, new opportunities to collaborate with Indigenous People will present themselves. Participants indicated that a malleable plan responsive to community priorities would be preferred. The previous duration of a ten (10) year plan was considered prohibitive to meaningful and ongoing Indigenous engagement.

Dialogue related to evolving priorities included: a) land-back initiatives in park areas; b) species reclamation; c) carbon-tax credit legislation and economic return to communities; d) Indigenous placemaking; e) development of programming for Indigenous community members; f) Youth engagement and education; g) new building initiatives and green infrastructure; h) sustainability and growing technologies; and i) Indirect, yet interconnected, initiatives such as salmon restoration.

Indigenous participants noted that a plan that provided opportunities for ongoing engagement and decision-making would strengthen Indigenous alignment with the UFMP. Having parts of the plan be developed continuously creates space for Indigenous communities to invite new voices to the table as engagement increases. Ideas shared on how this could be successful were: a) a Circle that informed a series of annual priorities outside of more significant priorities within the UFMP; b) a community liaison

role, focused on relationship building and advancing Indigenous ideas and initiatives - for example, natural playground developments; and c) annually funding allowance and resource sharing for Indigenous organizations to contribute to collective goals in their own, culturally sensitive way.

Protection and restoration after natural disaster

Halifax is a hurricane-prone area located on the coast of the Atlantic Ocean. This puts the urban forest within the HRM at risk of significant damage during these events. These storms result in house loss, vegetation loss, and life restructuring. The youth hope for a sustainable plan that helps repair lost vegetation during storms and practice preventative measures to protect and nurture the vegetation during these losses. As the severity of these storms increases due to climate change, youth are invested in the protection and sustainability of the urban forest for future generations. These concerns were particularly high for urban land returned to Nations impacted by wildfire or hurricane natural disasters - for example, the area near Hammonds Plains belonging to wasoqopa'q (Acadia First Nation).

Appendices

Appendix A: Urban Forest Dialogue

Project Overview

- pipikwan pêhtâkwan has been contracted to expand Indigenous representation and voices for the revamped Urban Forest Plan with the HRM. We work for Diamondhead Inc, who is the contract holder for the HRM (show What is Urban Forest Management Plan)
- The major goal of that plan was canopy coverage and there were some great successes that came from that (Show the Region-wide Tree Canopy Cover & the How is the urban forest distributed in the urban core?)
- There have been many changes to the Urban Forest in Kjipuktuk (Halifax) over the years, unrelated to the trees, but they make an impact there. There are many challenges that your specific urban forest is facing (show What challenges does our urban forest face?)
- This time around, we are seeking to adjust, make improvements, and introduce a new set of values to the Plan.
- The timeline of the project - engagement goes until end of March 2024 - a plan is intended to be drafted by May - that plan will get presented back to everyone who has participated if they would like to leave their email with us.
- We are interested in learning more about your specific interactions and hopes for the urban forest, but also we are here to listen and elevate your voice, so at any time, if you have thoughts jump in and share. If they aren't directly related to urban forestry, we will still ensure they are collected and shared with the appropriate team at HRM.

Guide

Activity	Lead	Description
Welcome/ Introductions	pipikwan pêhtâkwan	• Placing and intros from pipikwan team, Diamondhead, HRM, and the participants • Provide all participants with honorarium and protocol. Provide them with an overview of how OCAP is being upheld in the engagement process.
Project Overview		• Share about the importance, scope and background of the project. • Share documents noted as attached

Open Questions		• Just at the start of the dialogue, would you be comfortable sharing a little about your connections, maybe a story, about how you have connected with the urban forest in the past? ○ How do you connect with the urban forest? Or how do you see other Indigenous people connecting to the urban forest? • Go over the previous plan, goals and the current scope of work. What is the first thing to comes to mind when you think about this work and a revised Urban Forest Management Plan?

Specific Questions		• Show the two engagement boards collective to all engagements. How do you *support* the urban forest? & How do you *use* the urban forest?
		  ○ Ask them to share their reflections.
		• What needs do you, your clients, or community have around the urban forest? Where are the current gaps?
		• Have you seen or heard about other ways to connect Indigenous knowledge to the land that you think are important to HRM?
		• If you opened the UFMP, how would you know Indigenous People were involved?
		  ○ What would you have to physically see in a plan?
		  ○ What values would you see reflected?
		• How would you know the HRM Urban Forest plan was successful? What would you need to see?
		• What would you have to see to want to be involved in the UFMP in an ongoing, and meaningful, way?

Next Steps	pipikwan pêhtâkwan	• Identify next steps of the project and how the team will follow-up with notes from the discussion

Appendix B: Project Team

Peyton Meters (she/they)
Engagement Manager

Peyton was born in Newfoundland and Labrador and comes from Mi'kmaq and settler ancestors. She graduated from the Indigenous Bachelor of Social Work program at Yellowhead Tribal College. Previously, they earned a Social Work Diploma from MacEwan University. Today, Peyton resides on Treaty 8 Territory and calls Grande Prairie, AB, home.

As an environmental social worker, Peyton enjoys connecting tradition to practice and finding ways to elevate safety, confidence, and engagement in those who dialogue with her. Her approach is person-centred, meaning Peyton will spend the time needed to get to know someone and find a shared space of relationality in her work.

Professionally, Peyton has over 11 years of experience in facilitation, strategic planning, and teaching within the non-profit sphere. Her strength is in helping to bring groups together where people can dialogue and share their voices. She cares deeply about respect and empathy and uses both in her engagement methodologies.

In her personal time, Peyton loves to travel with her partner and explore the traditions and ceremonies of other Peoples and lands. At home, you will easily find her fishing or creating art.

Cole Buhler (he/him)
Media Relations Coordinator

Cole Buhler, Bachelor of Communications, MacEwan University, is a media relations coordinator at pipikwan pêhtâkwan. He is nehiyaw (Cree) through both of his kokums and mixed European through his grandfathers. Cole is from the Peace Region in Treaty No. 8 Territory, but has lived in amiskwacîwâskahikan (Edmonton) for 15 years. Cole grew up disconnected from his family, which has led him on a path of rediscovery and belonging.

Cole enjoys working in partnership with Indigenous communities, helping Peoples tell their truths through unique, innovative storytelling. He enjoys managing media projects and problem-solving for community-focused organizations such as supportive housing cooperatives, non-profit organizations and harm reduction initiatives.

Cole is passionate about public speaking – he regularly guest lectures at MacEwan University, teaching students how to interview Indigenous Peoples through a trauma-informed lens; he regularly presents at the University of Alberta, teaching employees how to decolonize communication and marketing; and he has spoken at the IABC World Conference on decolonizing communications.

Cole is an avid photographer, essayist, and fiction writer. Some of his other interests include reading, gardening, and cycling.

Cole also has a passion for volunteering. He volunteered as an education abroad resource assistant with the International Office at MacEwan in the winter of 2020 after studying abroad in 2018 and 2019. He taught English poetry and literature at the Nagasaki University of Foreign Studies in Nagasaki, Japan, and took courses in international public relations at Queen Margaret University in Edinburgh, Scotland.

Matt Ward (he/they)
Engagement Director

Matt Ward (he/they) is a queer, mixed nehiyaw person and member of Driftpile Cree Nation in Treaty 8 territory. They grew up on the shores of Lesser Slave Lake but have called amiskwaciwâskahikan (Edmonton) home collectively for over ten years.

Matt completed his undergraduate degree in Critical Indigenous Studies and Political Science at the University of British Columbia in 2015. His career has included strategic planning, research, engagement, workshop delivery and strategy development. He has worked in multiple sectors throughout his career, including human services, community safety, student organizing, health, and environment, and he has spent seven years in Edmonton's housing and homelessness sector. They are a dedicated volunteer in Edmonton's human services, arts, and Indigenous spaces. In 2021, he received Alberta's Top 30 Under 30 Award; in 2022, he received Edmonton's Top 40 Under 40 Award.

Matt enjoys exploring their downtown neighbourhood, playing video games, and collaborating on projects with friends and organizations celebrating Indigenous joy. After long days, he can be found lounging on his condo patio with his fiancé, Eric, and their cat, Mr. Business.

What We Heard Report

Accessibilities Perspectives for HRM Urban Forest Plan

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What We Heard Report

Background

In partnership with Diamond Head Consulting Ltd., pipikwan pêhtâkwan facilitated a series of lived-experience engagements with people living with disabilities in the Halifax Regional Municipality. Session formats were adapted to meet accessibility needs or preferences so that community members could participate meaningfully. Engagement sessions were held between November 2023 and August 2024. These sessions were meant to expand participation in conversations about urban forestry in the HRM and invite diverse perspectives historically overlooked in engagement work.

Summary of Findings

Participants

- 8 community participants
- The Office of Diversity and Inclusion; Halifax Regional Municipality
- Walk and Roll Halifax
- Canadian National Institute for the Blind (CNIB)

Lived-Experiences

Community members were not asked to disclose information related to their unique lived experiences. The information shared below was done so voluntarily; as such, these perspectives should only be used to identify potential perspectives that may not be represented in the current dialogues. Participants shared experiences with:

- Complete blindness
- Partial blindness / Visual impairment
- Wheelchair use
- Service dog
- Hearing impairment/ Deaf
- Autism Spectrum Disorder

Highlights

Key considerations identified by engagement participants were:

- Accessible design principles
- Sidewalk safety
- Lighting
- Environmental sensitivity and multi-sensory connection
- Protection of Nature

Engagement Findings

pipikwan pêhtâkwan used a combination of in-person, virtual, and telephone interviews to complete the lived-experience engagements.

Accessible Design Principles

Participants shared that an inherent need for any Urban Forest Plan would be to have documents and resources that are readable to all community members. These needs extended to print and virtual material, such as websites, photography and videography.

Some key barriers to resource access identified were: a) colour contrast, b) font size, c) alternative text on images/illustrations, d) screen reader compatibility, e) keyboard-accessible navigation, and f) short and simplified writing.

- **Colour contrast:** Strong colour contrast in documents and resources would support people with visual impairments or colour blindness. Documents should refrain from relying on colour cues to convey information. For example, content in a red box to convey myths and content in a green box to convey truths. Information distinguished with colour cues may not convey meaning to those with colour blindness or through screen readers.
- **Font size:** Smaller text may be difficult for people with visual or cognitive disabilities to read, this includes the use of non-standard fonts. Where possible, electronic documents should be enabled for users to select font size preferences.
- **Alternative text:** Images, graphics, charts, infographics or artwork cannot be processed by screen readers. Illustrations should use text alternatives to convey the story or meaning of each specific illustration, which could include a description of the image.
- **Screen reader compatibility:** Screen readers may find it difficult to communicate complex sentences, technical jargon or language, and words in alternative languages. For example, Kwe' in the language of the Mi'kmaq would translate as [Ka-Wee], rather than [Ga-Whey].
- **Keyboard-accessible navigation:** Navigation that requires the use of a computer mouse can be limiting for people with some physical disabilities. Resources should have keyboard navigation options, including specific considerations if interactive elements are included.
- **Short and simplified writing:** For equitable access to information, documents and resources should be summarized into a short and simplified format, removing technical jargon. Tools to measure readability scores would support accessible writing practices. All community members must understand 'urban forestry' to have an ongoing connection to the Urban Forest Management Plan.

Sidewalk Safety

What We Heard Report HRM Urban Forest Plan - Accessibility November 2024

Participants shared that there are current and ongoing concerns with sidewalk safety for people with disabilities in HRM. Safe sidewalk navigation is a concern across a variety of lived experiences. Multiple factors may cause mobility concerns about sidewalks—this dialogue will focus on those that are most applicable to the urban forest scope.

- Large trees and root systems continue to grow into the sidewalk, causing cracks and lifting of the pavement. When infrastructure is neglected, community members encounter unexpected and uneven hazards.
- Urban trees impact sidewalk safety. Participants noted that large hanging branches barricade pathways of travel, particularly during heavy rain and snow when branches bend onto the sidewalk. Maintenance should focus on trimming trees that are more flexible in weather events.
- The spacing of trees is important to consider in sidewalk safety. Sidewalk width is limited in HRM. Denser planting of trees impedes the space requirements for safe travel. In particular, dense spacing of trees reduces access and impacts people with a wheelchair, service dogs, or a visual impairment. In older communities, there are areas where trees are in the middle of the sidewalk, creating obstacles for travel.

Lighting

Participants reported that in some areas, canopies of trees along the sidewalks create significant shadowing, impacting accessibility and travelability. This dense coverage is particularly problematic where sidewalks meet roadways. Safety concerns were shared for these areas as they have a high risk, particularly with partially sighted people. The community felt that existing lighting was designed to serve the roadways and traffic. As a result of the placement and canopy, the sidewalks receive inadequate lighting.

To address this, a review of assessments should be conducted. One proposed solution has been to install lower, ground-level lighting. However, the community felt this may not fully address the needs of individuals with partial sight. To ensure a comprehensive approach, ongoing discussions with the Canadian National Institute for the Blind (CNIB) will be essential in ensuring accessibility needs are met.

Environmental Sensitivity and Multi-Sensory Connection

Participants shared that to connect with the urban forest, we need to explore a more dynamic sensory experience that goes beyond the trees we see. Plans that include smell, sound, touch, and taste could provide opportunities for people to have a full, connected experience with urban areas.

The community felt that some of these opportunities could be manufactured. For example, bird sounds playing in a park space would allow all community members to connect. However, it was noted that individuals may have varying sensory needs. Excessive or overwhelming sensory stimuli should be managed to create an inclusive environment for all visitors to enjoy the space.

Protection of Nature

Participants shared that, as community members, they feel a special connection to Halifax's historic trees. In spaces where development is occurring, they are worried that older trees will be removed without a restoration plan. Suggestions were to explore more opportunities to do a geo analysis of historical trees to determine which ones may be possible to replant. Investment in the replanting of these trees was of value to the community.

What We Heard Report HRM Urban Forest Plan - Accessibility November 2024

What We Heard Report

Newcomer Perspectives for HRM Urban Forest Plan

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What We Heard Report

Background

In partnership with Diamond Head Consulting Ltd., pipikwan pêhtâkwan facilitated a series of engagements with newcomer community members in the Halifax Regional Municipality (HRM). Session formats were adapted to meet accessibility needs or preferences so that community members could participate meaningfully. These sessions were meant to expand participation in conversations about urban forestry in the HRM; particularly when inviting in diverse perspectives have been historically overlooked in engagement work. Engagement sessions were held between November 2023 and August 2024.

It should be noted that when hearing immigrant, newcomer and refugee perspectives, there was broad diversity in this community's lived experiences and future needs. For this specific report, engagements occurred with individuals who identified themselves as newcomers, having lived in Halifax for less than 2 years. Ongoing engagement with diverse cultural groups and individuals with a variety of immigration or refugee backgrounds could support a deeper understanding of these differences. As a step on this journey, we were excited to support the engagement of these perspectives but know that more work needs to occur at a systemic level across municipal planning efforts to address these inequities.

Summary of Findings

Participants

- 7 community participants
- The Office of Diversity and Inclusion; Halifax Regional Municipality

Lived-Experiences

Community members were not asked to disclose information about their immigration or refugee status, cultures, or countries of origin. The information shared below was done so voluntarily; these perspectives should only be used to identify potential perspectives that may not be represented in the current dialogues.

Time in Halifax:

- 1-3 Months
- 4-12 months
- Less than 2 years

Highlights

Key considerations identified by engagement participants were:

- Initial Relationship with the Land
- Food Sovereignty and Community Gardens
- Education to Native Plants; Alignment with Mi'kmaq Knowledge
- Safety in Urban Forests

Engagement Findings

pipikwan pêhtâkwan completed all visits for the newcomer engagements in person, understanding the importance of relationality and connection.

Initial Relationship with the Land

Participants shared a common experience of moving to a new country and finding difficulty building relationships with others due to language barriers. By building a relationship with the land, individuals gained a sense of 'home' and 'community'.

"I couldn't talk to the people, but I could always talk to the trees in the park."

Most participants shared that some of their initial friendships were made from visiting community gardens, parks or open green spaces near their University or place of work. Programs at the YMCA and in post-secondaries were mentioned as successful in building a connection to people, through the land.

Food Sovereignty and Community Gardens

Participants shared a growing need for food sovereignty and access to traditional foods from other countries. Planting and growing traditional herbs or spices, not easily found in HRM, were noted as desired opportunities. Newcomer community members shared a hope for access to spaces for growing uncommon foods and a desire to share those with others.

It was noted that space used for growing grass alone felt wasteful in some cultures. The colonial value of open/green space was challenged the most by the newcomer engagement participants. Many felt that there were plenty of green spaces that showcased grass, which could be transformed into actual useable space for herbs, berries, or other food needs.

"Why do I walk past this patch of grass every day, to go to a grocery store and buy cilantro when it could just grow there?"

Concerns about safety in community gardens were highlighted. To support the transparent dialogue, safety in community gardens is discussed below in Safety in Urban Forests.

Education to Native Plants; Alignment with Mi'kmaq Knowledge

Participants mentioned a desire to learn about native plants. In particular, there was dialogue around a strong pull to learn from Indigenous People and understand the plants from a Mi'kmaq

perspective. Opportunities where dynamic educational programming is created, allowing for cultural sharing between newcomers and Mi'kmaq People, were seen as highly appealing. Ideas around what knowledge would be most helpful were:

- Traditional names and ways of identifying plants
- Best practices for planting and growing
- Best practices for harvesting
- Alternative and holistic uses for plants/medicines
- Origin stories of plants and plant uses

Newcomers desired opportunities to find commonality with Indigenous People on plants used between the two worlds or about different plants used to aid in similar ailments. For example, newcomers sought opportunities to share what plants they would use for a common cold and learn what plants Indigenous People would use for a similar illness. Language may continue to be a barrier in these opportunities, so translated material or recordings would support successful knowledge sharing.

Safety in Urban Forests

Safety was a particular concern amongst female and female-presenting engagement participants. Stories about racism and intimidation were shared. Safety was a specific concern in the following situations:

- **Parks with Large Canopy Coverage:** Some noted park spaces, specifically in Dartmouth, that have significant canopy coverage create a feeling of being unsafe for newcomers. These fears were especially true during lower light times, including seasonally when parks are less populated. Fears stem from situations of being followed after having racist slurs shouted.

- **Community Gardens:** Individuals shared in certain community garden spaces have been bullied or harassed to leave. The motivation for removing newcomer access was seen as issues of ownership over the community garden space and discrimination that painted newcomers as 'not knowledgeable' or as a risk to causing destruction to the garden.

In general, racism and discrimination were seen as issues that could grow in urban forest areas. Racism was an issue not only between dominant society and newcomers but sometimes between other cultural groups. Creating inclusive spaces in the urban area will require more awareness among general community members. Safety planning should align with the Office of Diversity and Inclusion work.

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African Canadian Engagement Summary Report:

Diamond Head Consulting: HRM Urban Forest Management Master Plan

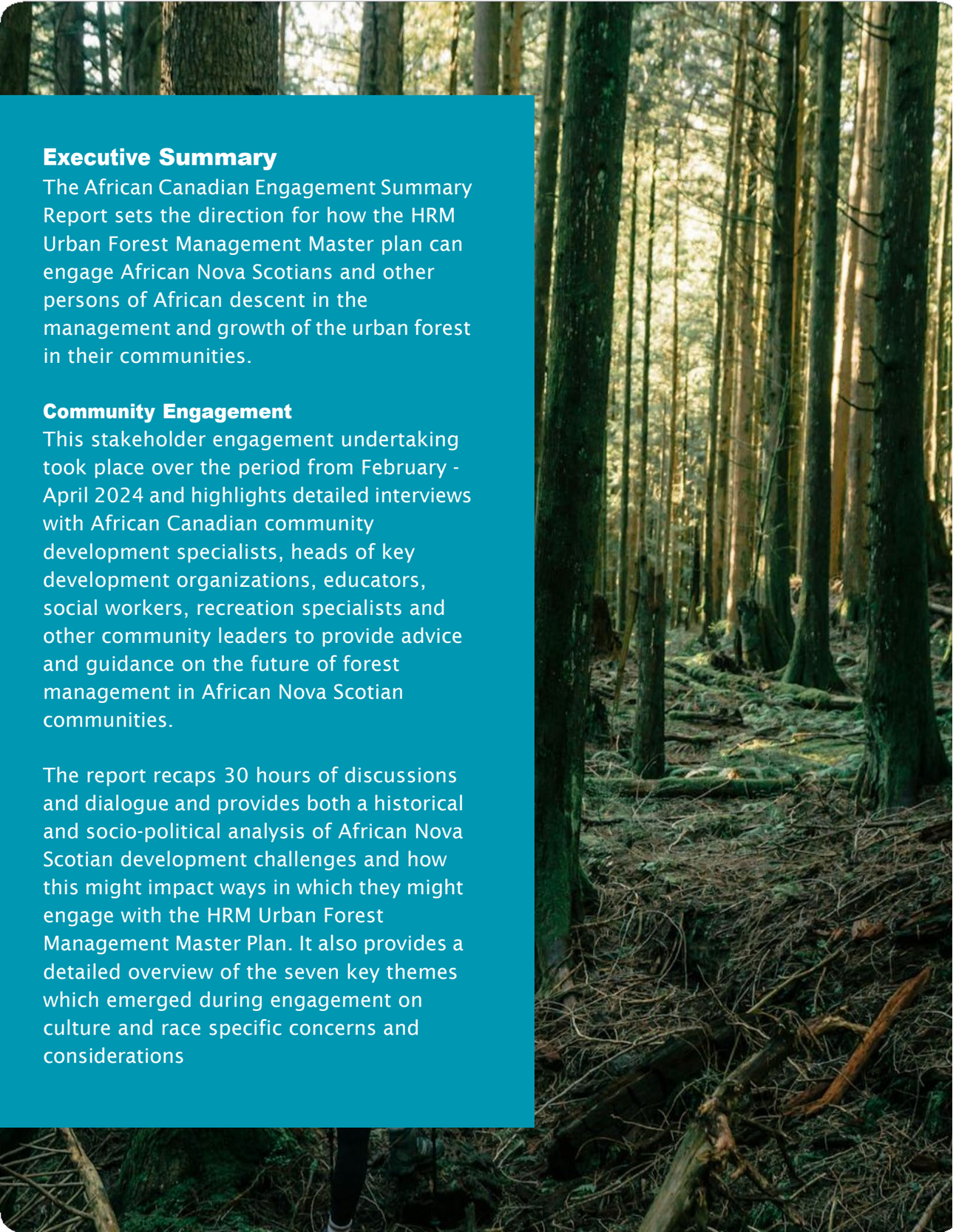
Delvina E. Bernard BCom., M.Ed., Ph.D. (Candidate)

May 2024

Purpose of Engagement: To inform and consult with African Canadian stakeholders on key directions to be taken to update the Halifax Regional Municipality Urban Forest Management Master Plan

Engagement Timeline: February - April 2024

Table of Contents



Executive Summary

The African Canadian Engagement Summary Report sets the direction for how the HRM Urban Forest Management Master plan can engage African Nova Scotians and other persons of African descent in the management and growth of the urban forest in their communities.

Community Engagement

This stakeholder engagement undertaking took place over the period from February - April 2024 and highlights detailed interviews with African Canadian community development specialists, heads of key development organizations, educators, social workers, recreation specialists and other community leaders to provide advice and guidance on the future of forest management in African Nova Scotian communities.

The report recaps 30 hours of discussions and dialogue and provides both a historical and socio-political analysis of African Nova Scotian development challenges and how this might impact ways in which they might engage with the HRM Urban Forest Management Master Plan. It also provides a detailed overview of the seven key themes which emerged during engagement on culture and race specific concerns and considerations

Scope of the Engagement

In spring 2024, as part of the process to update the Halifax Regional Municipality's Urban Forest Management Plan, a stakeholder engagement initiative was undertaken with members of the African Canadian community. Engagement spanned approximately four weeks and included a variety of options for participation. This included opportunities for in-person and online focus groups, as well as in-person and online one-to-one interviews. However, due to the availability of participants, engagement took place primarily as one-to-one online interviews. 2 of the 18 interview sessions were conducted in pairs. Each of the 18 interview sessions were approximately 60 – 90 minutes in length.

Who We Heard From

A total of 20 individuals were interviewed. The participant selection guidelines were designed to emphasize the importance of voices from diverse communities of people of African descent. This included representation from individuals who identify as African Nova Scotians, African-Caribbean, and Continental African. Three of the 20 individuals interviewed and identify as newcomer Canadians and two individuals identify as first generation Canadian. The remaining 15 individuals identify as African Nova Scotian.

Gender and Age Distribution

Below is a pie chart visualization for gender and age distribution data. The left chart represents gender distribution, showing that 65% of the respondents are female and 35% are male. The right chart depicts age distribution, with most respondents (30%) falling in the 61-70 years age range.

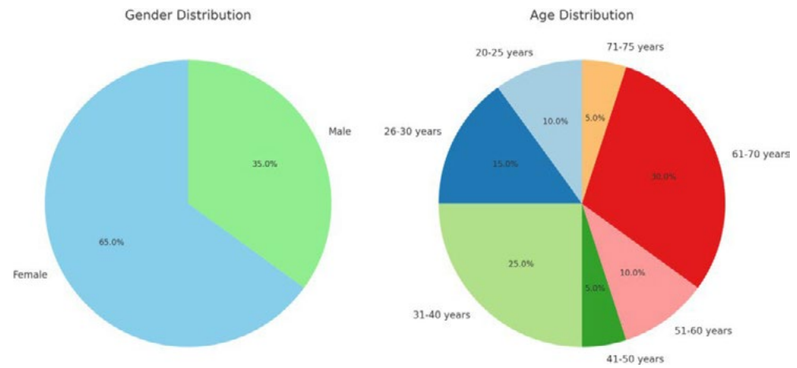


Figure 1. Demography

Gender Identify

13 individuals identify as female
7 individuals identify as male

Age Distribution

2 individuals indicate being between age 20 - 25 years
3 individuals indicate being between age 26 - 30 years
5 individuals indicate being between age 31 - 40 years
1 individual indicates being between age 41 - 50 years
2 individuals indicate being between age 51 - 60 years
6 individuals indicate being between age 61 - 70 years
1 individual indicates being between age 71 - 75 years

Community Representation

The 20 individuals interviewed were drawn from a broad spectrum of African Canadian communities. Including:

- Historic African Nova Scotian communities
- Newcomer African-Caribbean Community
- Newcomer Continental African Community
- Rural, Sub-Urban and Urban communities

Historic African Nova Scotian and Other HRM Communities Represented

- Beechville
- Hammonds Plains
- East Preston
- North Preston
- Cherry Brook
- Lake Loon
- Africville
- North End Halifax
- Old Dartmouth
- Suburban Halifax (Clayton Park)
- West End Halifax

Organizational Representation

A variety or community-based organizations, and individuals from a broad occupational spectrum were consulted and engaged in interview. Including:

- Public School teachers
- Public Library Youth Worker
- Community Economic Development Specialist/Executive Director
- Social Workers
- Physician
- Public School Student Support Worker
- Musicians/Artists/Writers
- Photographer/Film Maker
- Property Manager/Developer
- Master of Architecture Student & Community Planning Graduate
- Graduate Student (Biology)
- Media and Film Studies Graduate
- HRM Recreation Executive Director
- Housing Development Coordinator/Administrator
- Jamaica Canadian/Caribbean Association
- Africville Genealogy Society/Africville Heritage Trust
- Lake Loon and Cherry Brook Community Development Association
- East Preston Day Care
- East Preston Recreation Association
- North Preston Recreation Association
- Hammonds Plains Land Trust
- Akoma Holdings Incorporated

What We Heard

Summary of feedback for the urban forest long-term vision

When considering a vision for the future urban forest all participants emphasized the importance of community input in shaping the urban forest management plan. They highlighted the need for their voices to be heard due to their unique perspectives and concerns. Aspirations for an ideal urban forest management plan vision tailored to needs of the African Nova Scotian community emphasized themes that include the need for of policy, programming, and protection.

The need for robust *policies* characterized by their capacity to impact real transformation and change was consistently raised by engagement participants. Such policies will guarantee access, inclusion, diversity, and equity in the allocation of resources for forestry related programs. Additionally, adapting a suite of relevant policies can ensure enforcement of measures aimed at climate action and protecting the urban forest from excessive commercial development.

Some engagement participants discussed the need to undertake research and review of land clearing policies in HRM to understand what can and cannot be done on one's own land, particularly in African Nova Scotian communities. It was concluded that a policy review can assist with compliance and conservation of natural resources such as trees.

"There is a need for clear, understandable policies and information in urban forest management."

Engagement participants also see formal *programming* as a vital part of the vision for the future urban forest - noting that opportunities to participate in formal learning programs about environmental issues as well as economic, social, health, cultural and other issues and benefits of the urban forest, would be fully welcomed if provided.

"Implement a program for learning about tree care and tree health and incorporating forest knowledge into programs for children. This would be useful along with exploring the possibility of incorporating urban forested lands learning activities with the children in the [recreation] program. Consider leveraging the peaceful and educational aspects of nature for enhanced learning experiences……."

"I'd like to see some sessions where, you know, the old folks come in and tell us about the trees and how they use nature."

A third theme identified as an important ingredient of the vision for the future urban forest is *protection.* The most referenced issue related to the need for protection of urban forest was commercial development. Engagement participants defined commercial development as large-scale residential housing complexes - both single family and multi-unit, as well as business and

industrial parks. Participants talked about many of the detrimental effects on the livelihood of African Nova Scotian people and communities nearby, as well as on the overall environmental quality of land and air in the surrounding areas. Chief among concerns identified was disappearing green spaces. They highlighting challenges faced by historical African Nova Scotian communities in preserving green spaces amidst urbanization, stressing the preservation of historic areas and community engagement in green spaces. They noted commercial development negatively affects the ability to connect with nature. Disappearing trees, wildlife and cultural ways of life connected to the land such as fishing and farming all sound an alarm to protect urban forest and the need for tailored preservation policies for African Canadian and many other at-risk communities.

"I mean, yeah, but development of urban forest could lead to gentrification of the [African Nova Scotian] community."

"They're literally ruining the aesthetic of the neighborhood because they're developing on these green areas that have lots of trees. And I don't think people understand. Trees are very important in terms of our air quality…. So when they come in and do a development, it just ruins everything because first you get rid of the trees and the greenery. So now we got poor air quality, and then you get rid of all the natural things…the deer leave, the bears leave, the foxes leave etc."

Summary of feedback for protecting the urban forest

Fourteen of the 20 participants indicate they are homeowners and as such all 14 indicated they regularly maintain the trees on their property. Approximately half of the 14 homeowners indicated they or someone in their household is knowledgeable about tree care and health. There was a pervasive theme that "charity begins at home" in other words, by first learning to care for trees on your own property it cultivates care and concern for protecting the urban forest on a larger scale. Among the activities participants reported undertaking to protect their trees include regular trimming and pruning, protecting and treating soil at the base of the trees, spreading peat moss at the base of trees prior to winter, watering flowering trees and shrubs during hot and dry spells, and consulting a tree specialist if a tree looks infected.

Conversations with engagement participants about tree protection invariably turned into stories of tree loss due to encroachment and mass purchases of community lands by commercial developers. Many participants feel caring for trees on their own property is a manageable task. However, caring for trees in the wider community requires infrastructure and resources African Nova Scotian communities do not have access to.

"So right now we're involved in the black climate project where, you know, we got to better prepare and protect our communities. Having all these trees around us."

"That forestry there, the acres of forest protected the church. It protected the community in general. We never got the full hit of a storm…… we lost so much forestry in the community, which we took for granted. Those were the hunting grounds for the, you know, older men like my dad and those guys all hunted in those woods."

Summary of feedback for managing the urban forest

Regarding feedback on managing urban forests, a noteworthy point of view expressed by several participants underlined the need to examine the use of the term Management as it pertains to maintenance of forested lands. Several participants feel the term is a misnomer. The use of a term widely associated with efficient business operations and corporate affairs does not accurately communicate or capture the goals and intentions of urban forest conservation and climate action programming.

One participant commented "*I don't know why it sounds like cutting down a forest".* A second participant notes *"It sounds like you're going to be cutting down trees, not saving them"* A third participant commented *"I was like, what the heck is an urban forestry management plan?"* It appears language may be a barrier to communicating goals and intentions which may have implications for community engagement in some instances.

In discussing forest management participants also mentioned the need to have discussion on the intersection between urban forest proposals and residential developments. As well, they emphasized the importance of planners considering green spaces and urban forest integration in community design.

Further considering the issue of management pertaining to city operations to maintain existing trees, including planting, watering, pruning, risk management, pests, and disease management, participants discussed the importance of involving the community in decision-making processes for urban forest management. Although only 2 out of 20 participants indicated they have participated in a formal tree planting event, 100% of participants said they are willing to volunteer at planting and other events in their community, to support urban forest management initiatives, if the opportunity is presented. Participants were quick to note the low participation of African Nova Scotians in mainstream urban forest management activities is not a factor of disinterest, but rather a lack of access to information about such events.

A lack of information about pest and disease control is another example that was brought to light. A representative of a community land trust in Dartmouth pointed out their 320-acre land holding was impacted by an invasive bug species two decades ago. At that time, many trees were cut down to slow down and arrest the problem. However, to their recollection HRM did not provide any education, conservation, or tree health programs to engage the African Nova Scotian community in managing and protecting their forest areas which were at risk and under attack.

The desire for more knowledge and information to empower individuals to take care of the forestry infrastructure around their own property and their own communities was very high among participants. Some participants believe the lack of information transfer and opportunities to be self-determining may be creating the erroneous impression that the African Nova Scotian community does not feel urban forest management is a priority issue. Two of the participants summed up the intersection between historic racial marginalization and current-day prioritization of urban forest management in their comments below.

"In my opinion, I think that we value it, but I just don't know if we know that we can make it better."

"Well, I think the only reason it's not being prioritized is that we are still wrapped up in claiming our land rights. Once you get your land back, then you can start to begin to plan. Like, you can't…. we can't do anything until we get our land back."

Summary of feedback for growing the urban forest

All 20 engagement participants indicate they support programs, and activities aimed at growing the urban forest. However, only 2 participants have ever participated in an organized tree planting event on city owned property. Rural and suburban participants noted they reside in heavily treed areas and have not had the need to plant trees on their own properties.

Several participants discussed the disappearance of fruit trees. They mentioned apple, cherry, plum, and hazelnut trees were once plentiful and are now scarce or barely existent. This seemed to be a distressing issue for some. Participants from different communities have offered similar explanations for the disappearance of fruit trees, which they attribute to poor soil irrigation. In one example the participant speculated that HRM dynamite blasting of bedrock, to install city water pipes, drastically disrupted the water table causing ponds and swamps in the area to dry up within days. It is believed the emptying of the waterbed caused fruit trees to die. In a second example, a participant speculates that industrial development and rerouting of water systems, impacted soil irrigation, which may explain the loss of fruit trees.

A possible solution to the disappearance of fruit tress is currently being examined by an African Canadian working group which is part of the HRM Just Food Plan. A core recommendation of this group is to plant fruit trees in African Nov Scotian communities. Numerous engagement participants support this idea. They feel this proposed program of action is in alignment with community needs and it contributes toward the goal of growing the urban forest.

Summary of feedback for engaging and partnering for inclusive urban forest management

All 20 individuals interviewed strongly support the need for strategies that ensure engagement of African Nova Scotians in forest management of trees in historic African Nova Scotian communities. Forming partnerships with HRM and collaborating with HRM community planning officials was advanced as a potentially positive action. Several participants discussed the need to undertake a mapping project to create an inventory and baseline of forest resources in the historic African Nova Scotian communities located in HRM. It was noted such a project would enhance community stewardship and self-determination. However, it was noted that a large-scale project of this nature requires access to technical and research resources as well as support to undertake data analysis of property records that HRM maintains. Therefore, forming partnerships and collaborating with HRM is essential.

Participants also discussed knowledge transfer and education in the areas of tree planting, watering, invasive species management and other similar technical information, also presents opportunities for collaborations between African Nova Scotian organizations (such as community development associations) and HRM. Some participants were quick to point out that collaboration is not a one-way knowledge transfer of information flowing from HRM to African Nova Scotian communities, but rather, it is a two-way transfer because of the specific inter-general cultural knowledge about the forest held by African Nova Scotians.

More importantly, participants both emphasized and highlighted the need to prioritize inclusive engagement strategies for African Nova Scotian communities in managing urban forests because of their unique and culture-specific needs. Conversations explored the importance of collaborations on sustainable approaches for forest management given the evolving landscapes of those communities and the lack of resources for those communities to self-manage.

One participant provided a salient example of how collaboration between African Nova Scotian community organizations and HRM is transforming the very fabric of community engagement and decision-making to produce inclusive models of resource management for all HRM residents.

> *"So, community benefits agreements are throughout the country. However, we're the only province that doesn't have them. All that means is presently when a developer goes in and buys a property, the only accountability is to HRM… right? So, community benefits agreements mean there's a group in the community that they're [developers] also accountable to. When we [Beechville residents] put that forward, council said, that's a great idea, but why don't we do it for everybody?"*

Summary of Key Takeaways

The following is a summary of key takeaways from What We Heard

1. Community input is essential for the urban forest management plan.
2. There is a need for policies that promote access, inclusion, diversity, and equity.
3. Participants desire clear information and formal programming about urban forest management.
4. Protecting urban forests from commercial development is crucial.
5. Preserving green spaces is important for cultural practices and environmental quality.
6. Participants are concerned about the impact of disappearing trees on air quality and wildlife.
7. There is a need to reconsider the terminology used in urban forest management.
8. Community involvement in decision-making processes is important.
9. Participants are willing to volunteer in urban forest management initiatives if informed about opportunities.
10. Participants support programs aimed at growing the urban forest.
11. Planting fruit trees and addressing soil irrigation issues are important.
12. Initiatives like the HRM Just Food Plan align with community needs.
13. Strategies are needed to engage African Nova Scotians in forest management.
14. Forming partnerships and collaborating with HRM is crucial.
15. Knowledge transfer and education on tree care and invasive species management are important.

Culture Specific Considerations and Concerns

Introduction

This engagement summary report highlights comments and questions heard from participants who identify as persons of African descent. This includes those who identify as: African Canadian, African Nova Scotian, African Caribbean, and Continental African. The importance of incorporating the unique perspectives of residents who identify as persons of African descent, into the Urban Forest Management Plan, is critical because of their unique perspectives and concerns, as well as their more than 250-year history of systemic economic neglect, social exclusion, and racial marginalization.

The 20 engagement participants discussed a variety of topics related to culture-specific considerations in updating the UFMP. Throughout the engagement process common themes began to arise. These themes have been grouped into seven foundational elements and are discussed below.

UFM X Awareness/Education/Knowledge Transfer

Prior to participating in the UFM engagement interviews, none of the 20 engagement participants had any prior knowledge of the HRM Forest Management Plan, and they believe race plays a significant part in that lack of awareness. Participants discussed issues such as: the historic exclusion of African Nova Scotians from civic affairs; Low involvement in many aspects of civic issues due to individual and collective exhaustion caused by racial battle fatigue; The need to prioritize basic human rights such as education, housing, employment, health, legal justice, etc. which has eclipsed other less urgent issues such as UFM. Participants also discussed the lack of culture and race-specific communications methods to disseminate information to African Nova Scotians on matters such as UFM.

Despite these barriers to awareness, education and knowledge, participants expressed high interest and eagerness to learn more about the urban forest. They identified formal opportunities for knowledge transfer through culture-specific public information campaigns as a possible strategy. The absence of people of African descent formally educated, trained, and employed in fields such as: environmental science, sustainability, horticulture, agricultural science, community, and urban planning etc., was also mentioned as a factor contributing to the UFM knowledge desert in the African Nova Scotian community. These issues were addressed as recommendations and areas for improvement.

Related Participant Comments

"Organize education sessions for the community to discuss the urban forest management plan."

"Share information on what healthy the trees should look like and where they should be placed."

"Teach people how individuals derive knowledge and learning from forested area."

"More emphasis and education on understanding how urban forests are currently used."

"Incorporating Forest knowledge into programs for children."

"Develop plans for future initiatives related to community development and education opportunities."

"We need scholarships, bursaries and internships for African Nova Scotian students to get degrees and diplomas in these fields."

"*We need information so individual understanding how they can, you know, take care of the forestry infrastructure around their own property and then I think locally in their own communities."*

UFM X Culture/History/Nature/Spirituality

Participants repeatedly emphasized the need for urban forest management to reflect community desires and values. They note that nature and wildlife perceptions are influenced by historical, cultural, spiritual and community contexts. Many talked about African culture and its inherent respect for all other living species including plant species – especially trees. Participants highlighted the importance of UFM reflecting lived experiences of African Nova Scotians in respect to their engagement with forests.

The history of early Black Refugees and Black Loyalists as former enslaved people who were neglected by the British - left to fend for themselves, unsheltered in the forest - has impacted perceptions of the forest. Some feel those early encounters in the Nova Scotian forests, forged a deeply spiritual reverence for nature and trees. Additionally, early former enslaved Africans depended heavily on the land, forest, and trees for survival. Trees were essential as fuel, as wood to build shelters, as income from the sale of wood, as subsistence income for women who made baskets and wreathes to sell in city markets, and as food, by tapping maple trees for syrup and sweet water.

Much of contemporary economic, cultural, social, and spiritual life of African Nova Scotians - including the building of their 52 historic communities - was shaped by relationships to the land and trees. Consequently, participants believe UFM policies, programs and protection strategies will serve African Nova Scotian communities well only if they honour the culture, history, spiritual beliefs and lived experiences of African Nova Scotian people.

Participant comments below capture relevant sentiments about community, culture, values, history, and spirituality.

"When you think about the significance of the tree, it's very powerful. It's very symbolic. Trees connect us. Many cultures believe trees have spirits."

"So, trees are very much part of the, you know, the history of communities and of property."

"Markers of time. Particularly when they're on your property. They're almost like family members because they've been there."

"And those trees earmark family history, because we can go to a tree and say, remember when you fell from that tree when you were young."

"I enjoy walking throughout the community and looking at the vegetation, the woods [trees]."

"I feel very connected to nature even though I don't spend a lot of time in nature, but just those concepts, like I feel like when I'm on certain lands just that concept of the fact that it's true that these trees have seen it all. Like, they've seen generations of my family pass through this community. I do think it's very powerful, and it's, I think it has an impact when those things are gone or lost".

"I think they need to talk more about how Black people interact with the environment, because the truth is that black people out here especially, we have a history with this place. We hunt, we hunted out here. We did everything out here. So, I think they must talk about how people interact with their environment".

"And part of who we are culturally is the red maple, really, which is, ironic, when you think about it, that's the Canadian symbol. And, like, it's what the baskets were made of. It's what Clara Gough, and Edith Clayton would have used. That's what they used. They used the red maple to make those baskets. And they used the red maple for fuel, too, like, to fuel the fire. And they use the red maple to build their homes. And that's the same tree would feed you as well because you can drink sweet water and maple syrup".

"We knock the wood because we're acknowledging that, we don't want to be too vain and just, assume things. So, we're like, oh, we better knock wood. Like, give thanks. Give thanks to the spirit. The tree spirit".

"Trees mean something different for us now, after the fires and especially in our communities".

"If you're spiritual, you know, there's a natural connection there."

"Like, oh, yeah because it's like, almost in our blood, or to be in the woods and to smell the smell of timber and all of that, there's that type of, like, nostalgic, ancestral thing, connection".

UFM X Recreation/Leisure/Learning/Health

Participants pointed out that connecting with urban forests for leisure, recreation, health, and exercise offers numerous benefits to African Nova Scotians in the Halifax Regional Municipality. Many individuals pointed out that the urban forests provide a natural sanctuary within the urban environment, offering opportunities for physical activity such as walking, mental relaxation, and social interaction. For African Nova Scotians, engaging with these green spaces can help counteract the stresses associated with daily racial battle fatigue and provide a sense of community and belonging. Regular interaction with nature has been shown to improve physical health by encouraging exercise and reducing the risk of chronic diseases such as hypertension, diabetes, and

obesity, which are disease profiles in which African Nova Scotians are overrepresented. Additionally, participants discussed the benefits of trees and the urban forest in enhancing mental well-being by lowering stress levels and promoting overall happiness.

However, participants did not hesitate to point out that to maximize these health benefits, it is crucial for HRM to allocate more resources towards supporting and encouraging the engagement of African Nova Scotians with urban forests. Historically, marginalized communities, including African Nova Scotians, have faced barriers to accessing green spaces due to socioeconomic disparities, lack of awareness, cultural disconnects and exclusion rooted in racial discrimination. By investing in targeted outreach programs, inclusive recreational resources such as walking trails and parks in African Nova Scotian communities, as well as community-led initiatives, HRM can foster a more equitable environment where African Nova Scotian residents can enjoy and benefit from urban forests. Participants feel, that ensuring green spaces are accessible and welcoming to African Nova Scotians not only promotes health and well-being, but also strengthens community ties, and enhances the overall quality of life in the region.

Many participants expressed dissatisfaction around four key areas. These are: lack of access to parks; Lack of access to green spaces; Lack of access to walking trails; And the absence of sidewalks to facilitate walking in rural and suburban African Nova Scotian communities. They discussed challenges faced by communities accessing green spaces, especially during winter. They suggested including more parks in Black communities for better engagement with nature, and the need for better access to water sources and lakes located in forested areas in African Nova Scotian communities.

Participants did not hold back on drawing distinctions between the practices of African Nova Scotians, relative to some other cultural communities, and the fact these differences can negatively impact African Nova Scotian engagement with the urban forests for recreation leisure and health. An example that came up repeatedly was the differing orientation towards off leash pets in public parks and green spaces. One participant summed it up by saying – *"We're not dog people in general, but many people are. Dogs unleashed - we're literally not comfortable with that. I noticed that at Point Pleasant Park. We used to love to go there, but it was always this apprehension about, oh God, it's going to be everyone and their dog."* Participant offered several other comments to promote awareness of the need for culture-specific accommodations and redress.

"If we had access - If our communities had more access to trails - most trails aren't maintained in the wintertime. But that's okay - people can deal with that. It's just the fact that they're all in white communities".

"We don't have any sidewalks. Yes - in the rural areas there is a lack of sidewalks, but there are still people, even with the lack of sidewalks, still walking."

"We want sidewalks in our community".

"The natural beauty of trees is something that's very therapeutic. And it's just like, it connects you to the earth".

"If it's hot in the summertime, we go to the park, try to get under a shady tree".

"Actually, with the Freedom School, we took the kids to this event called reclaiming our roots. It's an indigenous land-based teaching tool. We took the students so they could learn all the medicines in the forest".

"People are going back and looking at what were the herbs. What were the types of plants that my grandmother would have used when she was young?"

"Going to Africville, especially this past year, which was the longer celebration. It made me want to have that [camping park] in upper Hammocks Plains. And, like, part of what we're advocating for is for a space like that. Land so that we can have campers or, you know, trails or whatever and set up, where people can camp because we don't have that kind of space in our own community".

"Recreation in the woods keeps people connected to tree health".

"They knew what kind of bark to take off each tree to make herbal medicines because we didn't deal with doctors because we were put out here to die. So, thank God we had this [trees] it is another thing about our appreciation for nature."

"So, you know, it's kind of my release from work since I'm working from home in a quiet area to go outside".

"I like to bike. I bike a lot around my community and through it. There's almost nothing prettier than coming through Lake Loon in the fall. Like, when those trees turn - It's one of the most beautiful things because there's not many houses so I definitely do appreciate it.

Preston has most of the land and I think that's one of the communities you can do that with - creating these opportunities for parks."

"Like I said, we spent a lot of time outside playing in the trees you know we all did - vitamin D - longevity of life is not the same."

"The beauty and you know, what I mean, it's good for, you know. Even if you look at it this way, a good walk through the community and being with nature relaxes you."

UFM X Community Economic Development

Interview participants explored conversations about how the HRM Urban Forest Management Plan holds significant potential for supporting community economic development in historic African Nova Scotian communities. By supporting communities in managing and utilizing wood lots, these communities can generate income through sustainable timber harvesting, and creating economic opportunities that leverage local natural resources. The desire for HRM support to develop public parks and walking trails has the potential to stimulate job creation in areas such as landscaping, maintenance, and tourism services, fostering a local economy rooted in environmental stewardship. Several participants discussed how such initiatives can also inspire and empower current residents and students to pursue education and careers in forest management and climate action, thereby building a skilled workforce dedicated to sustainable

practices. All participants under age thirty highlighted the need to integrate economic development goals with environmental sustainability. Further, these younger participants feel the HRM Urban Forest Plan can serve as a catalyst for economic development, community empowerment and ecological resilience.

Interview participants raised many questions yet to be answered. For the most part, they feel this conversation is a doorway to a much bigger conversation about long term economic development strategies and how it should intersect with HRM's Urban Forest Management Plan. Some of these comments are captured below to provide background and insights.

Our community was very industrious, and that industry was lumber and timbering. Like I can smell the sawdust from my family sawmill

"If there's going to be any discussion around development, there should be a conversation around forestry management happening at the same time because those types of things, from my understanding, can save you money. So again, if you are landscaping properly so that you have added shade, that'll make the actual building you're developing last longer because it's shaded and the sun isn't impacting it, …. this is now my housing brain turning on."

"If we go four wheeling, like, that's another thing. Like, we go, like, the people go four wheeling. That's one of the ways we get in deeper into the woods. That's how we can, you know, socialize, but also how we monitor all the developments and stuff."

"Home ownership keeps you connected to trees – starting with your own yard".

"And like how can we be using the urban forest, to create, you know, financial capacity, like a circular economy within our own community such that people are playing a part in this forestry plan, like we used to do, what our ancestors did in these communities. You know what I mean? Having a rich understanding of the resource".

"The other thing is that there are ways to profit off forestry. So, when we live in densely wooded communities, it feels like everyone else is profiting off our woods but us. So, I think that should be a conversation".

"I actually think that obviously there's a lot of development happening across the HRM and I'm very curious about what happens to that wood because we know one thing about black communities is that a lot of our homes were built that are still lasting, let's say from the sixties to eighties, most of them maybe into the nineties, and a lot of them are heated using wood and other older forms of heating. So there seems like a very clear opportunity to create some sort of relationship where that wood is, distributed in the community if it's going to be cut anyway. It seems like there's ways for our communities to benefit".

"When a forest management plan is developed for, let's say, Preston area, those communities should be involved, and should benefit from that plan."

"So, I think that a priority would be determining what is the most [viable] economic opportunity? I would say that we do need to consider economics, but not prioritize it as the top reason why we're doing Urban Forest Management".

"Preston has most of the land [of Black communities in the HRM], and that's prime real estate right now. And how do you protect that under the urban forest management plan?"

UFM X Access/Resources/Infrastructure

More than half of participants raised the issue that a robust Urban Forest Management plan for African Nova Scotian communities requires a multifaceted approach that integrates social, cultural, economic, and other vital infrastructural resources. Several participants recommended that this African Nova Scotian Community Engagement Report include a preliminary outline of the resources required to put an infrastructure in place and the need to connect Urban Forest Management to other merging critical issues such as discussion on the correlation between food security and urban forests. Key components of an infrastructure might include:

Community Engagement and Education

Outreach Programs: Culturally relevant outreach initiatives to raise awareness about the benefits of urban forests and encourage community participation.

Educational Workshops

Training sessions on forest management, environmental stewardship, and climate action tailored to community members.

Economic Opportunities

Job Creation: Employment opportunities in tree planting, maintenance, and urban forestry projects.

Local Businesses

Support for small businesses and entrepreneurs engaged in forestry-related activities such as sustainable timber harvesting and ecotourism.

Infrastructure Development

Parks and Recreational Spaces: Development of accessible parks, green spaces, and walking trails that cater to the community's recreational needs.

Facilities

Community centers and hubs that serve as gathering places for educational programs and cultural events related to urban forestry.

Social and Cultural Resources

Culturally Sensitive and Afrocentric tenets and practices: Integration of the community's cultural heritage and values into the design and management of urban forests.

Afrocentric Community Leadership: Empowerment of community-based leaders and African-centered organizations to take active roles in planning and decision-making processes.

Supportive Policies and Funding

Inclusive Policies: Policies that ensure equitable access to urban forest benefits and address systemic barriers faced by marginalized communities.

Funding and Grants

Financial support for community-led forestry projects and initiatives through government grants and partnerships with non-profits.

Health and Wellness Programs

Health Initiatives: Programs that promote the physical and mental health benefits of urban forests, such as guided nature walks and fitness activities in green spaces.

Research and Data Collection

Community-Specific Research: Studies that focus on the unique needs and preferences of the African Nova Scotian community in relation to urban forestry.

Monitoring and Evaluation Regular assessment of the impact of urban forest initiatives to ensure they meet community goals and adapt as needed.

By incorporating these elements, the HRM Urban Forest Management Plan can effectively address the needs and aspirations of the African Nova Scotian community, fostering a healthier, more sustainable, and economically vibrant engagement in forest management. Additional comments offered by participants are presented below.

"So, I think if African Nova Scotian communities are responsible for [UFMP] it'd be different. I think there would probably be a more significant focus on reconnecting with the land."

"So, like understanding the use of the land, but also around risk mitigation because we do live in densely wooded neighborhoods, and I think that we all are aware that a lot of people in our communities don't have insurance. So, if there were to be an incident in our communities, it would be a lot. It would be very devastating for some people."

"We need to have the designated green space because that's not there. We don't have any."

UFM X Community Engagement & Racial Tax

In discussing how to ensure long-term engagement of African Nova Scotians with the issue of Urban Forest Management, participants called attention to the many community development issues already demanding time and effort from community leaders. Participants also discussed how day-to-day preoccupation with racial issues such as battle fatigue, systemic racism, and the equity tax poses significant barriers for African Nova Scotians, diverting their attention and energy away from critical environmental concerns like urban forest management. Racial battle fatigue describes the cumulative psychological and emotional strain experienced by individuals

constantly exposed to discrimination and microaggressions. Systemic racism further compounds these challenges by embedding inequities in various aspects of daily life in Nova Scotia, from employment to education, requiring African Nova Scotians to expend additional effort to achieve the same outcomes as their counterparts, a burden known as the equity tax.

These pervasive racial issues demand considerable mental and emotional resources, leaving little room for engagement in long-term community projects such as urban forest management. The focus on immediate survival and overcoming daily injustices can overshadow the importance of community stewardship of urban forest management and the benefits it brings. As a result, the African Nova Scotian community may find it difficult to prioritize and participate in urban forestry initiatives, which require sustained attention and collective action. Addressing these racial barriers is crucial to ensure that African Nova Scotians can fully engage in and benefit from efforts to enhance urban green spaces, ecological sustainability and protecting communities from encroachment, expropriation, and gentrification. A sample of participant comments on this matter is provided below.

"There is the challenge of focusing on forest potential when basic needs are not met."

"There's so many other fleeting matters that unfortunately forest management hasn't been prioritized."

"Never mind trails. Trails are a luxury. We want basic things like sidewalks in our communities".

"I think the only reason it's not being prioritized is that we are still wrapped up in claiming our land. We've got to settle that and then we can begin to look at everything else."

"I don't really see us as a Black community focusing on it. but it is important".

"The first thing that comes to mind is our disconnect and not being able to make this a priority. I should make it a priority but because there's so many other matters this can't be a priority. Unfortunately, it hasn't been for that reason among others".
Well, do I think urban forest management should be prioritized? I would say no because there are more imminent threats to the community.

"I say it's a top priority and that at a meeting people would want to discuss this, but probably not, because they're living under constant threat".

UFM X Loss/Trust/Reparatory Justice

The historic relationship between African Nova Scotians and the Halifax Regional Municipality (HRM) has been marred by social and economic neglect, as well as egregious acts of land dispossession. African Nova Scotian communities have endured systemic racism manifesting in various forms, such as forced relocations, denial of property rights, and economic

marginalization. Notably, the destruction of Africville, a vibrant Black community razed in the 1960s, exemplifies the deep-seated injustices faced by African Nova Scotians. The trauma of such dispossession, coupled with ongoing experiences of neglect and marginalization, has fostered a profound and enduring sense of loss and distrust toward HRM and other levels of government.

This historical context has left African Nova Scotians with a strong conviction that HRM and other levels of government owe them reparations and a commitment to non-repetition of past discriminatory practices. The community demands redress for historical injustices, such as land expropriation, gentrification, willful encroachment, and environmental racism. These issues are not merely historical; they have contemporary relevance as they continue to shape the socio-economic realities of African Nova Scotians. The community's call for reparations seeks to , ensure fair treatment and genuine inclusion in future urban planning and development efforts including long term urban forest management.

HRM has a unique opportunity to use the exercise of urban forest management as a platform to follow-up with participants and community leaders to open a wider dialogue aimed at rebuilding trust and forging a new relationship with the African Nova Scotian community. Engaging African Nova Scotians in the planning and management of urban forests can serve as a catalyst for open, honest, and frank dialogue about past wrongs and future aspirations. By prioritizing community engagement, transparency, and equitable practices, HRM can demonstrate its commitment to rectifying past injustices and fostering an inclusive environment. This process can help to heal historical wounds, promote environmental justice, and create a shared vision for sustainable urban development that honors the rights and contributions of African Nova Scotians. The discussions and recommendations of the 20 engagement participants served to foreground the overview of historic relations between HRM and the African Nova Scotian community while the following participant quotes below highlight the deeply political sentiments they expressed.

"For us, the dispossession, like, we're talking about land and forestry, another piece of it all. The dispossession of our land."

"There is a lot of harassment by white developers towards Black individuals for their land."

"Our absence and erasure from historical narrative of settlements keeps us from connecting to the land and the trees on it."

"And you know they think they know best. You know, it's never going to work for us the way it needs to be."

"But with them [trees] gone, it created a sense of community erosion almost like a mental attack on community."

"It's been so much oppression that we have lost our ability to dream."

"And you know think they know best. You know, it's never going to work for us the way it needs to"

"You can't have a development plan where developers are buying up all the land and cutting down trees you can't expect to have an urban forestry strategy. Those two do not make sense. I agree. And you can't hold on to land and then sell it to developers at the same time - like come on".

"We need to conduct archaeological studies before construction activities on lands formerly owned by African Nova Scotians."

"We should be talking with the younger generations for insights into community sustainability, advocating for land rights, and proper stewardship of ancestral lands".

"Until government, including HRM, admits they owe African Nova Scotians reparations for past inequities - just take Africville for example - it's hard to think about long-term collaborations with HRM aimed and being joint stewards of urban forests. First, we need restitution, repair, and compensation for those historic inequities."

Ideas for Improvement and key Takeaways

The following are key takeaways and ideas for improvement.

1. Inclusion of African Nova Scotians in the HRM Forest Management Plan is crucial due to historical experiences of marginalization.
2. Urban forest management should reflect community values, history, and spirituality.
3. Trees hold significant cultural and historical value for African Nova Scotians.
4. Preserving heritage of communities -especially African Nova Scotian communities is important in urban forest management.
5. There is a lack of awareness about the HRM Forest Management Plan in African Nova Scotian communities.
6. Participants are interested in learning about urban forests.
7. Public information campaigns and scholarships could improve awareness and involvement.
8. It is recommended that HRM open discussions and dialogue with African Nova Scotian community development leaders and educators on the topic of supporting opportunities for education, training, and employment in the environmental, community planning and urban forestry sectors.
9. There is an urgent need to undertake a mapping project to produce an accurate record of lands, and its title holders, located in historic African Nova Scotian communities.

10. It is recommended that HRM open discussions and dialogue with African Nova Scotian community development leaders on a strategy to develop a comprehensive infrastructure which will allow more effective development and delivery of programs and services related to urban forest management, community economic development and recreation and leisure.
11. It is recommended that HRM open discussions and dialogue with African Nova Scotian community development leaders on a strategy to develop Parks, Trails, Outdoor Interpretive Panels and other Placemaking installations.
12. It is recommended that HRM open discussions and dialogue with African Nova Scotian community development leaders on the topic of funds and resources to support communities to develop Land Trust Agreements
13. It is recommended that HRM open discussions and dialogue with African Nova Scotian community development leaders on the topic of undertaking a policy review - using an equity and race-sensitive lens - review, to revise, retire and create policies aimed at protecting the rights and interests of African Nova Scotians as it pertains to the preservation, development and management of their lands and urban forest areas.
14. It is recommended that the final report of the HRM Urban Forest Management Plan contain a designated section that acknowledges the history of lands in African Nova Scotian communities and highlights of significant land and urban forest issues unique to the African Nova Scotian community.
15. It is recommended that the final report of the HRM Urban Forest Management Plan contain an African Nova Scotian Recognition

Appendix

Definition of Terms

African Nova Scotian
African Nova Scotians are a distinct people who descend from free and enslaved Black Planters, Black Loyalists, Black Refugees, Maroons, and other Black people who inhabited the original 52 land-based Black communities in that part of Mi'kma'ki known as Nova Scotia,

African Canadian
African Canadians, or Black Canadians, are people of African ancestry who live in Canada. These individuals may have been born anywhere in the African Diaspora (including Canada), and are permanent residents or citizens of Canada.

African Caribbean
African Caribbeans, or Black Caribbeans, are people of African ancestry who descend from the Caribbean/West Indian islands who live in Canada. These individuals may identify as both African/Black Canadian and African/Black Caribbean.

African (Continental)
Africans or Continental Africans are people of African descent who were born on the continent of Africa.

UFMP Survey: Culture Specific Questions

1. What is your first thought when you hear the term “Urban Forest Management “- especially as it relates to the African Nova Scotian/Canadian community?
2. In your opinion is this a topic the ANS Community should prioritize? If not, why not?
3. In your view how does the UFMP overlap with developments in the African Nova Scotian/Canadian community?
4. Are there any culture-specific and race-based matters this UFMP needs to consider?
5. If the African Nova Scotian/Canadian community was responsible for the entire Urban Forest Management Plan - What should they prioritize? Or what is one or two things that must be included?
6. If you were to open the UFMP in 3-6 months, look at it, and know that the African Nova Scotian/Canadian community was involved, what would you expect to see in the plan that reflects this involvement?
7. Is there someone in the African Nova Scotian/Canadian community you are aware of, who knows a lot about this topic, that I should talk to?
8. Is there someone you think might be disappointed or upset if they are not engaged in this consultation?

How do you support the urban forest?

	I currently do this	I don't do this, but I would like to	I am unable to do this	I'm not interested
Learning about tree care & health				
Regularly maintaining trees on my property				
Planting trees on my property				
Planting pollinator-friendly & native plants				
Volunteering at planting events				
Volunteering with a community group				
Other				

URBAN FOREST HALIFAX

How do you use the urban forest?

	Place a sticker below
For recreation and leisure	
For exercising and relieving stress	
For knowledge and learning	
For shade and cooling in the summer	
For harvesting food and natural medicines	
For observing wildlife and experiencing nature	

OTHERS
Write it on a post-it and stick it here

URBAN FOREST HALIFAX

Halifax Regional Municipality
Urban Forest Management Plan

Phase two Engagement
Public Engagement Summary

November 2024

Submitted to:
Halifax Regional Municipality
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Contents

Scope of the engagement

The HRM's current Urban Forest Master Plan was adopted in 2013 and has guided urban forest management within the municipality for the past decade. The 2013 Master Plan has now surpassed its initial 10-year lifespan and is being updated to reflect community values and the current state of the urban forest. The new Urban Forest Management Plan (UFMP; the Plan) will guide the management of the urban forest until 2050 through a period of continued community growth and changing climate. The plan will guide the continued management of the Halifax Regional Municipality's (HRM) urban forest to maximize the benefits that it provides and address both current and emerging challenges. Two phases of engagement have now informed the development of the UFMP. The first phase helped the project team identify priorities for urban forest management in the HRM and develop a community vision for the urban forest. The second phase allowed the public to provide feedback on the draft UFMP.

Past Engagement: Phase One

The first phase of engagement for the UFMP began in February 2024 and finished in May 2024. This phase of engagement focused on creating an initial vision for the future of HRM's urban forest and identifying initial management priorities. Public engagement included opportunities to provide input online and in-person, and included workshops, community open houses, and an online survey and mapping tool. Open houses were hosted on February 21st and 22nd, 2024, to provide information about the project and gather input on the ways people connect with the urban forest and their priorities for the plan.

Tailored engagement programs were undertaken to gather input from historically underrepresented communities including Mi'kmaq and Urban Indigenous communities, African Canadians, newcomers, people with disabilities, and Acadian and francophone organizations. Results from targeted engagement are detailed in separate reports.

Current Engagement: Phase Two

The second phase of engagement took place in the summer of 2024 and collected feedback from the community on the draft UFMP. This included garnering insight into the Plan's proposed vision, big ideas, objectives, and actions. Feedback gained through phase two has been used to inform the final UFMP that will be brought to Council in early 2025. Engagement offerings included an online project page and survey, four urban forest walkabouts hosted by Dalhousie's Dr. Peter Duinker, two open houses (one in person and one online), a targeted technical workshop, and a staff workshop.

Several opportunities were hosted through the second phase of UFMP engagement. HRM's Shape Your City UFMP project page provided regular updates over the engagement period to keep community members informed of planned offerings.

Table 1. Phase two summary of engagement activities

Date	Engagement Activity	Participants
July 26th – September 13th, 2024	Online Survey	88
July 10th, 2024	Steering Committee Workshop	13
August 14th, 2024	In-Person Open House	20 (approx.)
August 14th, 2024	In-Person Technical Workshop	24
August 17th, 2024	Dartmouth North Guided Tree Tour	1
August 21st, 2024	Bedford Guided Tree Tour	2
August 25th, 2024	Spryfield Guided Tree Tour	4
August 28th, 2024	Online Open House	14
August 29th, 2024	North End Guided Tree Tour	1

Figure 1. Example of a poster board presented at the public open houses on August 14th, 2024

Who we heard from

Phase two engagement is estimated to have reached more than 120 community members through varied offerings. On the Shape Your City project page:

- **88 "engaged" participants** contributed to one or more feedback tools,
- **607 "informed" participants** visited multiple pages or downloaded a file from the page, and
- **2,149 "aware" participants** visited at least one page.

Demographics

Among the 88 survey respondents:

- 33% were above the age of 65, 52% were between 35-64, and 16% were below 35 years of age (Figure 2).
- 61% of respondents identified as women, 30% as men, and 5% as non-binary.
- 22% of respondents had a disability, 6% identified as Francophone or Acadian, 2% as Aboriginal, and 1% as a visible minority.

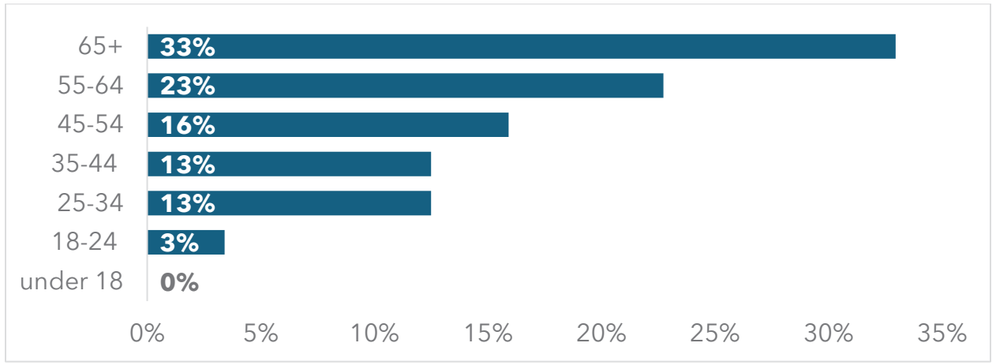

Figure 2. Age distribution of online phase two survey respondents (total respondents: 88)

Halifax Regional Municipality Urban Forest Management Plan – Phase Two Public Engagement Summary

What we heard

This section includes observations from the second phase of UFMP engagement.

Shape Your City Survey

The online Shape Your City survey was open to the public from July 26th to September 13th and focused on obtaining input on the following topics:

- Understanding of the urban forest in the HRM
- Alignment of UFMP with personal or community values
- Support for the UFMP's Big Ideas
- Prioritization of the UFMP's Objectives and Quick Actions
- Additional UFMP feedback

Understanding of the urban forest in the HRM

Approximately half (52%) of survey respondents (88) had reviewed the draft UFMP and related engagement boards and/or attended the phase two open houses, and 58% had been involved in phase one engagement activities (Figure 3).

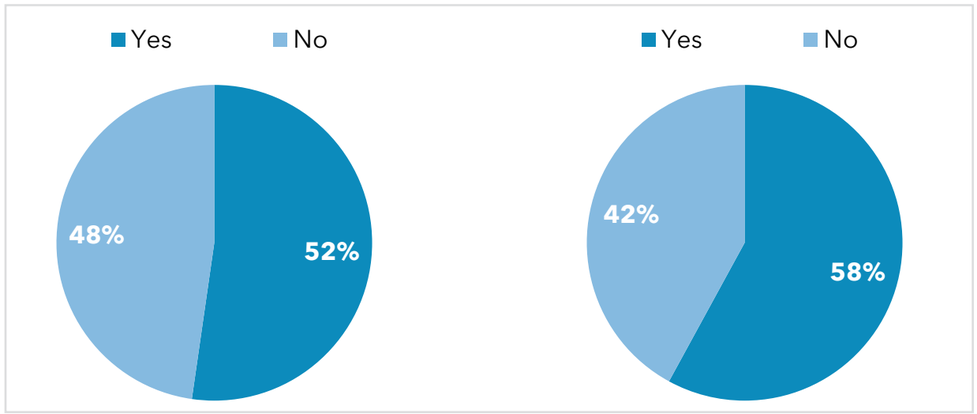

Figure 3. The proportion of respondents that have reviewed the draft UFMP or related engagement materials (left) and that were involved in phase one engagement activities (right) (total respondents = 88)

All respondents (46) agreed they learned something new about HRM's urban forest (100%), and most felt that data and metrics were clearly communicated (somewhat agree 70%, strongly agree 26%), that they understood the content in the UFMP (somewhat agree 54%, strongly agree 39%), and the strategic framework reflected their values (83%) (Figure 4, below).

100% of respondents agree that they learned something new about the HRM's urban forest.

When disagreeing with the statements provided in Figure 4, survey respondents were given an opportunity to provide open-ended comments to further describe their position. One participant suggested that the irregular format inhibited clear communication, and another suggested that using technical language had the same effect.

Respondents who felt the strategic framework did not reflect their values had several positions: some felt there should be greater emphasis on native species and biodiversity, others felt greater consultation should occur when planting trees near private property, some felt that prioritizing the retention of large mature trees, some that increasing species diversity for climate adaptation should receive greater priority in the framework, as well as preventing the loss of urban forests in addition to wetlands, and more ambitious planting targets.

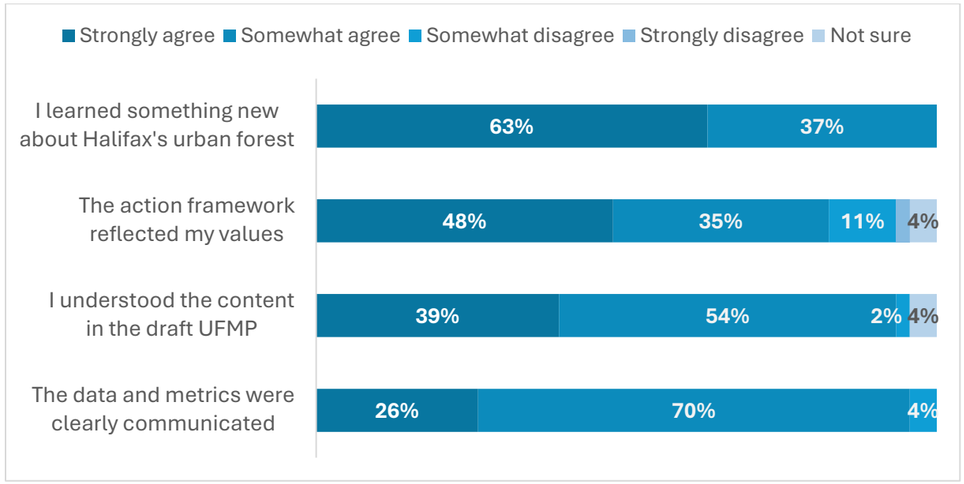

Figure 4. Participant's level of agreement with four statements (Total respondents: 46)

Alignment of UFMP with respondent's personal or community values

> *Halifax is a municipality of trees. Through a shared legacy of sustainable management, our urban forest has been carefully woven into the fabric of our communities and neighbourhoods, which are characterized by biodiverse native ecosystems and large, mature trees lining our streets and parks. Our Green Network, consisting of its trees, forests, and other native ecosystems, benefits all members of our community and supports our identity as a diverse coastal municipality. Our trees also support critical community benefits such as building urban resilience to the challenges faced under climate change.*
>
> - *Draft vision*

> *The HRM has cultivated a thriving urban forest community of healthy, long-lived trees. Through our shared legacy of sustainable management, our growing urban forest has been carefully woven into the fabric of our neighbourhoods over the past 25 years. Characterized by a network of native inland, coastal ecosystems and large, mature trees, the benefits of our urban forest meaningfully contribute to our community's health, well-being, and resilience to climate change. The protection of our urban forest and local biodiversity, as well as a renewed emphasis on native and wildlife-friendly species, have been central to our management approach and vision for sustainability.*
>
> *- Final vision*

The community vision included in the draft UFMP was revised based on feedback received during this phase of engagement to better represent community values and interests.

Survey respondents were asked how successfully the UFMP reflected their vision and values for the HRM's urban forest; 61% felt that it did this successfully, and an additional 33% believed it was partially successful in achieving that outcome (Figure 5, below).

Participants were offered the opportunity to make suggestions to further improve HRM's urban forest vision. Dominant narratives from responses (40) included the desire for the vision to include greater emphasis on improving the health, longevity and protection of existing trees (6) as well as to prioritize native flora and fauna (6). Other suggestions included greater consideration of non-tree species and soil health, as well as edible species and mast trees (4), developing risk management approaches to support public safety (4), and improved site selection (3).

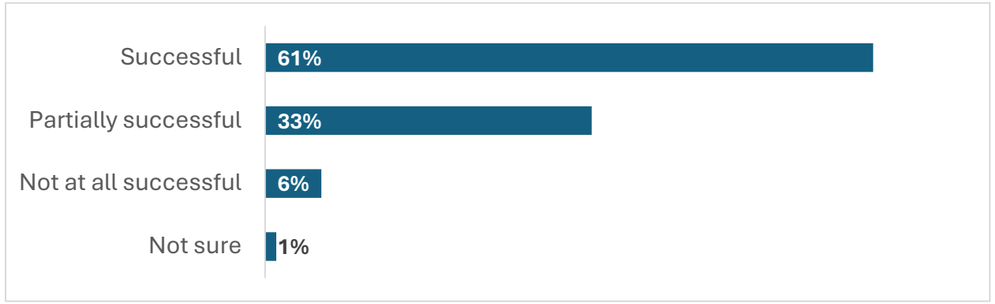

Figure 5. How successfully the draft UFMP vision aligns with respondent values around the HRM's urban forest (total respondents: 89)

The following improvements to the vision were also mentioned by at least one respondent:

- Greater specificity of the planning horizon
- Stronger commitment to maximizing canopy cover
- Emphasis on invasive species management
- Recognition of the health and wellbeing benefits provided by the urban forest

Respondents were also asked if the draft Plan itself represented their role as stewards of the urban forest (Figure 6, below). Just over half (51%) believed that it did. A large proportion of respondents were unsure (41%). The project team has incorporated several of the following recommendations to further improve the Plan in its role as a community-driven document.

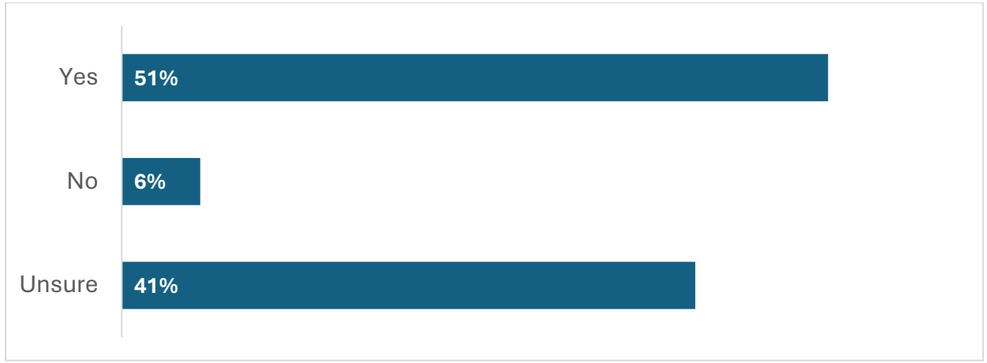

Figure 6. Agreement with the draft plan representing respondents' individual or their community's role as stewards of the urban forest (total respondents: 89)

When asked what additional changes respondents would like to make to the plan so that it better reflects these values, respondents (33) requested pro-active tree and park maintenance (5) and tree replacement (2), improved funding for the urban forest program (2), as well as consideration for tree replacement and maintenance, and greater protection of woodlands, notably bear habitat (2). Two respondents identified a need to improve the UFMP engagement process (2), including modelling engagement after the Central Library participatory process and ultimately involving a larger and more representative portion of the public.

I believe those involved in the planning have truly come up with a great plan to help both our urban forests as well as clearly this will improve the environment. As an Indigenous person making sure we continue to give back to Mother Earth.

- Survey respondent

Some respondents would like to see more specific plans developed (2), including specific goals related to each side of the harbour. A desire for tree planting in low-income and high-density areas (2) and for the HRM to take greater responsibility for cooling low-income neighbourhoods and active transit corridors instead of subsidizing private tree planting was identified. Some respondents called for additional protection of trees on development sites (2) as well as a reduction in the number of parking lots within the municipality.

Support for the UFMP's Big Ideas

Respondents (87) were asked whether they supported the draft UFMP's three Big Ideas. Most respondents supported all the Big Ideas, with the greatest level of agreement for prioritizing the community's values, education, and stewardship (83%). Those who disagreed or were unsure of this Big Idea (11) suggested individual communities should have a greater say over what happens in their neighbourhoods (2). One respondent suggested the big idea's framing seemed to delegate municipal responsibility to the public. Others suggested greater consultation should occur prior to planting adjacent to private property, and that greater public education was necessary.

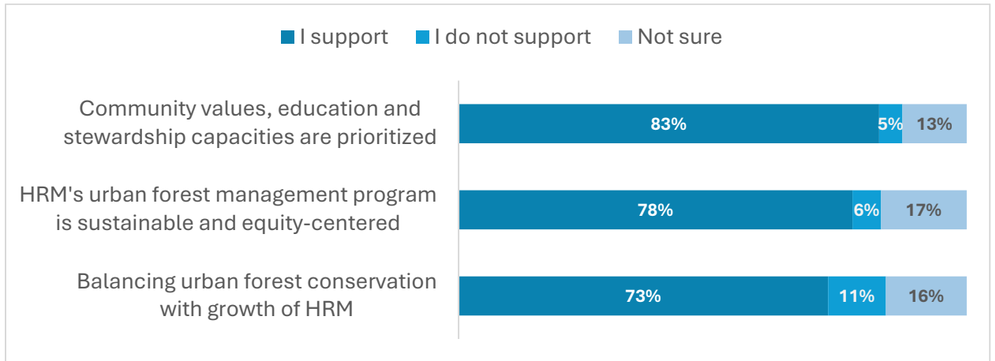

Figure 7. Priority level of three proposed big ideas for survey respondents (total respondents: 87)

Seventy-eight (78%) percent of respondents (87) agreed that the HRM's urban forest management program should be sustainable and equity-centered. To improve this Big Idea, respondents (17) suggested that sustainability and equity-centered should be more clearly defined (4). They also recommended greater financial support for the urban forestry program, weekly newsletters to improve accountability, or that sustainability implied greater protection of the urban forest.

As a renter and a young person, I don't feel particularly represented. I think the different views of those who have limited control over their landscape should be reflected.

- Survey Respondent

All respondents who did not support or were unsure about the need to balance urban forest conservation with the growth of the HRM (23, 27%) believed tree protection and urban forest conservation should be prioritized over growth and development.

Prioritization of the UFMP's Objectives and Quick-Start Actions

Respondents were asked to prioritize the draft UFMP's proposed objectives. The majority of respondents (>71%) believed that all of the proposed objectives in the draft UFMP were high priority. The highest priorities are increased tree planting to help offset canopy cover loss (79%), facilitating tree growth and avoiding or offsetting canopy cover loss (78%), and community partnerships with the municipality to help protect, plant and maintain the HRM's urban forest (75%) (Figure 8). Respondents also believed that the HRM's use of best management practices to achieve planned service levels (73%), and commitment to sustainably resourcing its urban forest program (71%) were high priorities. This suggests that the UFMP's objectives are generally reflective of respondent's urban forest management priorities.

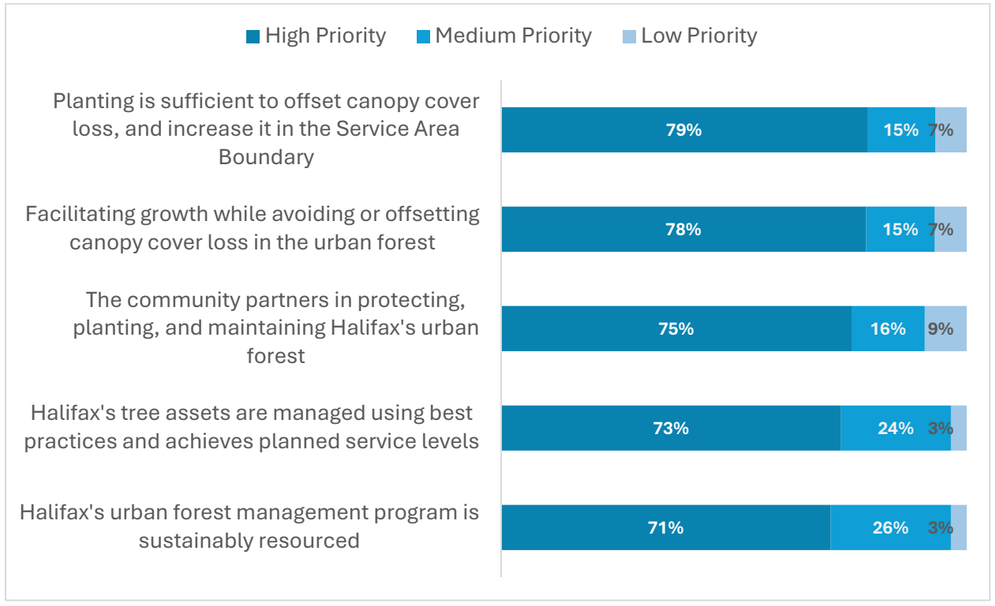

Figure 8. Respondent's prioritization of five (5) UFMP objectives (total respondents: 89)

The proposed quick-start actions were also prioritized by respondents (Figure 9, below). Over half of respondents believed that increased tree planting in rights-of-way (75%), achieving a seven-year pruning cycle for inventoried trees (66%), establishing an inter-departmental working group (58%), and defining service levels for all asset classes (58%) should be high priority (Figure 9). Some respondents felt that

inter-departmental collaboration (16%) and creating urban forestry positions to support UFMP implementation (20%) were low priorities.

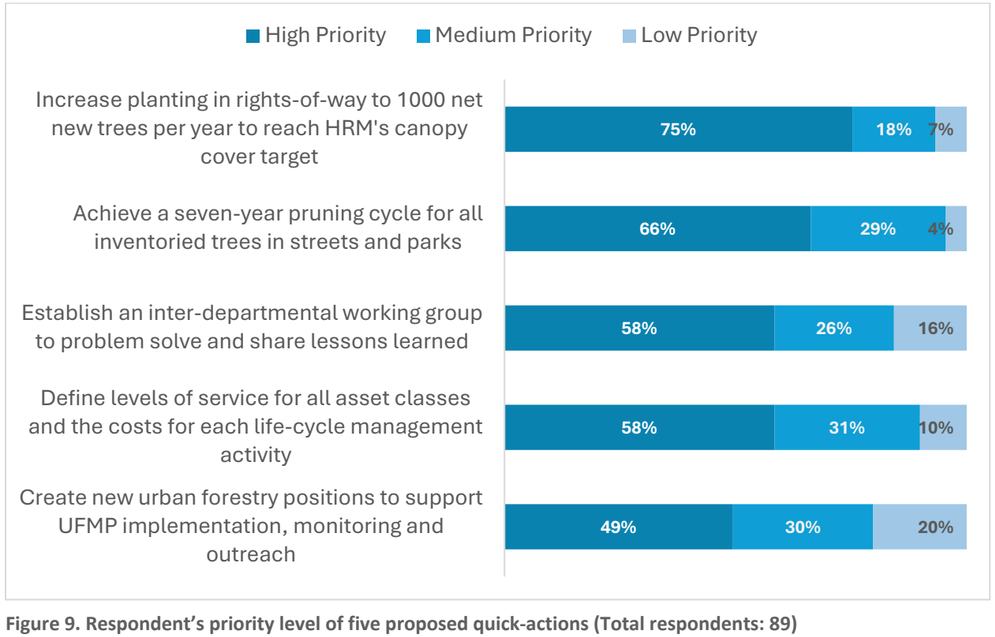

Figure 9. Respondent's priority level of five proposed quick-actions (Total respondents: 89)

When asked about additional quick start actions that respondents (41) felt were missing, the most common response was improved public education and stewardship opportunities (12), including through partnerships with NGOs (e.g. Hope for Wildlife), partnerships with educators of all age groups, use of social media to increase awareness of the UFMP and the HRM's urban forest program, supporting the development of district-level community outreach leaders, and creation of public demonstration sites.

Additional suggestions for quick-start actions included quickly limiting tree removal by implementing a private tree protection bylaw (4). Requiring developing properties to protect a portion of treed or forested lot area could also reduce rates of canopy cover loss (1).

Several respondents would also like to see priority areas for planting identified (4), such as by mapping urban heat, active transit corridors, and low-equity areas to identify where additional tree cover would

> ***Develop a district-by-district community outreach leader.***
>
> - Survey Respondent

provide the most benefits (1). Focusing on shade provision in public lands and parks where people gather was also encouraged (1). Several parties would like tree maintenance and clearance prioritized, including along bike lanes (3). However, others felt that the approach for clearance pruning should be balanced against tree health (3). Additional recommendations by a least one respondent include:

- Completing an inventory of the HRM's trees,
- Removing hazardous trees (2),
- Improving the use of native plants (2),
- Better enforcement of environmental regulations,
- Preserving urban forest parks near designated camping areas,
- Ensuring accountability and transparency,
- Increasing consultation of homeowners, notably prior to planting on or near their property, and
- Better use of public funds.

Additional UFMP feedback

Respondents were asked if they had any additional feedback that they would like to share about the UFMP. Of the 49 that provided additional feedback, the most common theme was a desire for increased prioritization of tree and green space protection through development (17). This included improving controls on development (e.g. permitting or fines) (4), prioritizing the protection of existing trees over new tree planting (2), increasing retention of natural habitat (e.g. wetlands) on or near development sites (2), and limiting sprawl. Respondents cited the City of Vancouver and Ann Arbor Michigan (2) as examples of how this has been achieved.

Several respondents (5) also expressed a desire to see more tree planting and increased canopy cover and green space, including canopy cover along roads, sidewalks, and near schoolyards. Other respondents expressed a desire to see greater emphasis on the ecological value of tree species and greenspaces through native and pollinator-friendly species selection (5), as well as invasive species management (3). One respondent requested that an invasive species strategy be developed, and another suggested that invasive species management should be better funded and should support resident involvement.

Respondents also expressed support for the UFMP (5). These comments were accompanied by concerns about the HRM's accountability to UFMP commitments, for example, by adequately funding its implementation or by providing regular UFMP updates as the HRM responds to changing conditions (e.g., climate change). One respondent supported the thoughtful consideration of equity in the UFMP. That said, a few respondents noted the length of the plan and shared documents made it challenging to

Forests first, development second.

- Survey Respondent

participate in the UFMP engagement process (2), and promotion of the engagement processes, at times, could have been improved.

Addressing the potential hazards posed by the urban forest was also identified as a concern (4). This included reducing the risk of wildfire in existing greenspaces, notably after the recent Upper Tantallon wildfire (2). Actions to support avoiding tree planting under power lines to reduce risk, and addressing flooding issues caused by leaves clogging sewers were also suggested.

Additional feedback supported by at least one respondent include:

- Support for the development of urban orchards (2),
- A 5-year LiDAR monitoring cycle,
- Development of creative incentives that encourage tree planting on private property,
- Increasing the involvement of children and students in urban forest stewardship, as well as collaboration between interest groups (e.g. developers and the Parks Department) (2), and
- Improved transit access to parks and trails.

Open Houses

The public was invited to share their thoughts on the Draft Urban Forest Management Plan (UFMP) through two community open houses (August 14th in-person at the Halifax Public Library and August 28th online through Zoom). At both events, the project team provided participants with a brief overview of the UFMP, and the significant moves entailed through the proposed strategic framework. At the August 14th Open House, information boards provided a summary of what the draft UFMP is, existing and projected challenges to the urban forest, urban forest baseline data, and results from phase one engagement. The August 28th online open house was prefaced with a presentation covering much the same content as was captured through the open house boards on the 14th. Participants had the opportunity to identify aspects of the plan that they supported or thought needed improvement.

Tree Tours

Four tree tours led by Peter Duinker were offered to the public throughout August 2024, providing opportunities to learn more about the HRM's urban forest. The first was in Highfield Park (August 17th), the second in DeWolf Park and along Waterfront Dr. (August 21st), the third around Isley High School (August 25th), and the final near the HRM North End Public Library (August 29th). Overall, eight participants attended the tours.

Make it the highest priority that new plantings be native species, species native to Atlantic Canada.

- Survey Respondent

Technical Workshop

24 participants attended an August 14th, 2024 in-person workshop. Organizations in attendance included representatives from the Government of Nova Scotia, the HRM Regional Municipality, Nova Scotia Power, Nova Scotia Health, Spring Garden Area Business Association, Eastlink, North End Business Association, the HRM North West Trails, Canadian Food Inspection Agency (CFIA), Bell Aliant, and Fathom Studio.

A brief presentation including project updates, key findings from the draft UFMP, its strategic framework, and next steps was followed by an opportunity to comment on the UFMP's proposed actions through a world café style workshop discussion. Key feedback included:

Action 1.1.H, **acquire and steward forested environmental lands** received several comments (11). Participants identified limited staff capacity and policy directives to effectively support the acquisition and stewardship of forested environmental lands as a barrier to achievement of this action.

Action 1.1.A, **explore a private tree bylaw along watercourses**, was strongly supported (6). Participants suggested that expanding the scope of the private tree bylaw (4) would improve tree retention on private property, while public education could help landowners understand its importance (3).

Action 1.1.G., **consider expanding the land use by-law and more tree planting in suburban rural areas such as surface parking planting,** was also an area of participant focus (7). Respondents suggested that additional guidance and implementation requirements in the municipality's Red and White Books for the early phases of development would support more systematic tree planting efforts (3). Improved training for bylaw enforcement officers and bylaw enforcement, could also help ensure these requirements are realized in practice.

Participants see **Action 1.2.A., incentivize protection of mature tree stands/forests for proposed development,** as significant (5). Most participants agreed that mature trees and forests have gaps in their protection (4). One suggested that this was because Development Officers currently had too much discretion over tree protection on development sites.

There was also support for **Action 1.1.L.,** which involves **acquiring new and improving existing parkland as part of urban infill and redevelopment** (3). Developing a parkland acquisition strategy to facilitate this process was recommended, ideally with a 50-year outlook for apartment dwellers, to improve access to green space, a social determinant of health.

Expand red book guidance and implement requirements BEFORE permit is issued (i.e. apply requirements to site prep stage).

- Workshop Participant

Halifax Regional Municipality Urban Forest Management Plan – Phase Two Public Engagement Summary

Participants discussed **mapping the wildland-urban interface and high-risk fire areas** (**Action 1.3.A.**), **formalizing wildfire risk mapping** (**Action 1.3.B.**), **considering wildfire risk mapping in settlement patterns, and developing policies to support risk mitigation** (**Action 1.3.C**) (5). Respondents would like to see access to emergency water in suburban and rural communities factored into fire risk mapping (3). Trade-offs between FireSmart practices and canopy cover should be identified and mitigated, and other threats to community and urban forest resilience could be addressed in new or existing actions.

The most strongly supported action was **Action 2.2.B**, which **prioritizes tree retention and planting in urban forest enhancement district**s (6). It could be enhanced by integrating a recommended species list into a private tree bylaw (2) or supported by tree giveaways and other incentives (5). Incorporating stormwater management into these areas could enhance their multifunctionality (2).

Committing to **planting 1000 net new trees per year** (**Action 2.1.C**) was also encouraged (2) and discussed at length (7). This action could be enhanced through the required use of recommended species, locally sourced planting stock, and public tree giveaways and planting events. However, creating suitable sites and planting opportunities for these trees is critical (2), with one participant suggesting that soil cells should be mandatory for street tree planting.

Comments on **Action 3.3.F.**, **undertake varied woodland management activities as justified**, suggested that greater staff resourcing was needed to plan and improve the integration of business units and achieve positive urban forest outcomes, such as around Clayton Park.

Several priorities and objectives were identified for **Action 3.3.A.**, **formalize priorities and objectives in woodland management**, including the management of underserved areas, adoption of a private tree protection bylaw, and the protection of old growth stands. One respondent suggested that these priorities and objectives should be developed with all levels of government to improve the outcomes of woodland management.

Participants would like stronger language for **Action 3.3.D.**, **identify an assessment framework for woodland health and function**, notably a commitment to completing woodland health and function assessments (2).

Priorities for **Action 4.2.E**, **leverage the marketing and communications team to broadcast news and updates**, included marketing tree planting or retention incentive programs that encourage excitement around the urban forest (3), communicating the risks of not managing the urban forest including the potential loss of ash trees (2), and reaching newcomers and other underrepresented groups.

Action 4.1.D, **leverage existing community capacities towards woodland management**, could be enabled by supporting NGOs (2), starting a HRM nursery, supporting free tree giveaways, and sharing the cost of ash tree management with homeowners.

Action 4.3.C., **remaining open to partnerships with academia**, was met with a suggestion to strengthen the language used (i.e. support partnerships with academia), including with Saint Mary's University and Dalhousie University (2). This action could also be expanded to include opportunities for hands-on-learning, and be enabled by the HRM's financial support of relevant research.

For **Action 4.2.D.**, **ensuring outreach supports culturally sensitive communication methods**, respondents wanted underrepresented groups to receive information in the way they are accustomed to, and encouraged planting culturally relevant species to improve the effectiveness of outreach efforts to these groups.

Two respondents supported **Action 4.1.B**, **making urban forestry data public.** One suggested that insights gathered be exchanged with other North American Cities to strengthen partnerships, and another that plain language and simple maps, graphics, and definitions be used to ensure accessibility.

Action 4.1.C., **establish a citizen monitoring network (e.g., invasives)**, was supported by 2 participants, with one participant suggesting that HRM buildings and lands could be used for demonstration projects with a focus on education.

One participant wanted **Action 4.4.A**, **identifying opportunities for First Nations partnerships and knowledge exchange**, to have stronger language (i.e. making First Nation partnerships a requirement).

All actions in the monitoring objective were supported or commented on by at least one respondent. One respondent suggested the language used for **Action 5.1.D.**, **define levels of service for all asset classes and resource requirements**, should be strengthened (e.g. achieving these levels of service). Another respondent proposed the re-organization of trees to small and medium enterprises (S.M.E.) for **Action 5.2.E**, **establish an inter-departmental working group**.

Concern about the **development of a FireSmart coordinator role for programming on private land** (**Action 5.1.E.**) was met with concern about the loss of canopy cover. Transitioning from softwood to hardwood forests could help reduce the impact of fire risk reduction.

Barriers to **Action 5.1.G.**, **establish formal forest management capacity in treed and woodlands,** include a lack of expertise in the Parks & Recreation Department to assess tree health. Suggestions for the work to be undertaken by public works, and to preferentially develop internal capacity instead of using external services were also made.

Focus on culturally significant species (restoring sites to enhance cultural landscapes).

- Workshop Participant

Expanded Results

Online survey

Understanding of the urban forest (88 respondents)

- About half of all respondents had previously reviewed the draft UFMP or related engagement materials (48%) or were involved in phase one engagement activities (42%).

Four statements (46 respondents)

- 100% of respondents somewhat or strongly agreed that they learned something new about The HRM's urban forest.
- Less than half of all respondents (46) strongly agreed with the statement that they understood the UFMP (39%) and that its data and metrics were clearly communicated (26%), suggesting that it could be simplified and rendered more accessible.

UFMP Vision (89 respondents)

- Most respondents believed the vision was successful or partially successful in meeting respondent's values (94%).
- Participants were offered the opportunity to make suggestions to further improve HRM's urban forest vision. Dominant narratives from respondents (40) included the desire for the vision to include greater emphasis on improving the health, longevity and protection of existing trees (6) as well as native flora and fauna (6).

UFMP Representation of personal and community Values (89 respondents)

- Only 51% of survey respondents felt that the UFMP reflected their personal or affiliated community interests, with 41% of respondents being unsure if it did.
- When asked what would make it better reflect personal or community values, respondents (33) requested pro-active tree and park maintenance (5), tree replacement (2), improved funding for the urban forest program (2), and an improved UFMP engagement process that was more representative of the broader public (2), among other potential improvements.

Most supported big ideas (87 respondents)

- Prioritizing community values, education and stewardship capacity was the most supported by respondents (83%).
- There was greater uncertainty around balancing growth with urban forest conservation since respondents felt that urban forest conservation should be prioritized (27%, 23).

Highest priority objectives (89 respondents)

- The UFMP's proposed objectives were generally prioritized by respondents. Planting sufficiently to offset canopy cover loss was the highest priority (79%), followed by facilitating growth while avoiding or offsetting canopy cover loss (78%), and community partnerships to support tree protection, planting, and maintenance (75%).

Highest priority quick-actions (89 respondents)

- Tree planting in rights-of-way increased to 1000 net new trees per year was a high priority for 75% of respondents. This was followed by achieving a seven-year pruning cycle for inventoried street and park trees (66%).
- Additional quick-start actions were recommended by 41 respondents, including improved public education and stewardship opportunities (12) and quickly limiting tree removal and deforestation (4).

Additional feedback (49 respondents)

- Most responses would like to see the UFMP make stronger commitments to the protection and retention of trees and greenspaces over development (17).

Targeted Workshop with Partner Organizations

Planning and Protection

- **Action 1.1.H**, **acquire and steward forested environmental lands** received several comments (11). Together, participant comments identify the existing lack of staff capacity and policy directives to effectively support the acquisition and stewardship of forested environmental lands.
- **Action 1.1.A**, **explore a private tree bylaw along watercourses**, was strongly supported (6). Participants suggested that expanding the scope of the private tree bylaw (4) would improve tree retention on private property, while public education could help landowners understand its importance (3).
- **Action 1.1.G.**, **consider expanding the land use by-law and more tree planting in suburban rural areas such as surface parking planting,** was highly commented on (7). Respondents suggested that additional guidance and implementation requirements in the City's Red and White Books in the early phases of development would support more systematic tree planting efforts (3).
- Participants see **Action 1.2.A., incentivize protection of mature tree stands/forests for proposed development,** as significant (5). Most participants agreed that there was currently inadequate protection of mature trees and forests (4).
- There was also support for **Action 1.1.L.,** which involves **acquiring new and improving existing parkland as part of urban infill and redevelopment** (3).
- Participants discussed **mapping the wildland-urban interface and high-risk fire areas** (**Action 1.3.A.**), **formalizing wildfire risk mapping** (**Action 1.3.B.**), **considering wildfire risk mapping in settlement patterns, and developing policies to support risk mitigation** (**Action 1.3.C**) (5). Limited access to emergency water in suburban and rural communities should be factored into fire risk mapping (3).

Planting

- The most strongly supported action is **Action 2.2.B**, which **prioritizes tree retention and planting in urban forest enhancement districts** (6). It could be enhanced by integrating a recommended species list into a private tree bylaw (2) or supported by tree giveaways and other incentives (5).
- Committing to **planting 1000 net new trees per year** (**Action 2.1.C**) was also encouraged (2) and highly discussed (7).

Maintenance

- A comment about **Action 3.3.F.**, **undertake varied woodland management activities as justified**, suggested that greater staff resourcing was needed to plan and improve the integration of business units and positive urban forest outcomes, such as around Clayton Park School.
- Several priorities and objectives were identified for **Action 3.3.A.**, **formalize priorities and objectives in woodland management**, including the management of underserved areas, adoption of a private tree protection bylaw, and the protection of old growth stands.
- Participants would like stronger language for **Action 3.3.D.**, **identify an assessment framework for woodland health and function**, notably a commitment to completing woodland health and function assessments (2).

Stewardship

- Priorities for **Action 4.2.E**, **leverage the marketing and communications team to broadcast news and updates**, notably marketing tree planting or retention incentive programs that encourage excitement around the urban forest (3).
- **Action 4.1.D**, **leverage existing community capacities towards woodland management**, could be enabled by supporting NGOs (2), starting an HRM nursery, supporting free tree giveaways, and sharing the cost of ash tree management with homeowners.
- **Action 4.3.C.**, **remaining open to partnerships with academia**, was met with a suggestion to strengthen the language used (i.e. support partnerships with academia), including with Saint Mary's University and Dalhousie University (2).
- For **Action 4.2.D.**, **ensuring outreach supports culturally sensitive communication methods**, respondents wanted underrepresented groups to receive information in the way they are accustomed to and encouraged planting species that are culturally relevant to improve the effectiveness of outreach efforts to these groups.
- Two respondents supported **Action 4.1.B**, **making urban forestry data public.** One suggested that insights gathered be exchanged with other North American Cities to strengthen partnerships, and another that plain language and simple maps, graphics, and definitions be used to ensure accessibility.
- **Action 4.1.C.**, **establish a citizen monitoring network (e.g., invasives)**, was supported (2), with one participant suggesting that HRM buildings and lands could be used for demonstration projects with a focus on education.

- One participant wanted **Action 4.4.A**, **identifying opportunities for First Nations partnerships and knowledge exchange**, to have stronger language (i.e. making First Nation partnerships a requirement).

Monitoring

- All actions in the monitoring objective were supported or commented on by at least one respondent.
- One respondent suggested the language used for **Action 5.1.D.**, **define levels of service for all asset classes and resource requirements**, should be strengthened (e.g. achieving these levels of service).
- Concern about the **development of a FireSmart coordinator role for programming on private land** (**Action 5.1.E.**) was met with concern about the loss of canopy cover.
- Barriers to **Action 5.1.G.**, **establish formal forest management capacity in treed and woodlands**, include a lack of expertise in the Parks & Recreation Department to assess tree health. Suggestions for the work to be undertaken by public works, and to preferentially develop internal capacity instead of using external services were made.

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