Subject: Tree Equity Analysis

File Number: ACS2024-SI-CCR-0002

Report to Environment and Climate Change Committee on 18 June 2024

and Council 26 June 2024

Submitted on June 7, 2024 by Will McDonald, Interim Director, Climate Change and Resiliency, Strategic Initiatives Department

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Ward: Citywide

Objet :   Analyse de l'équité de la répartition des arbres

Dossier : ACS2024-SI-CCR-0002

Rapport au Comité de l'environnement et du changement climatique

le 18 juin 2024

et au Conseil le 26 juin 2024

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REPORT RECOMMENDATIONS

That the Environment and Climate Change Committee recommend that Council:

1. **Direct staff to undertake a tree equity analysis for the City of Ottawa's urban area using the American Forests methodology; and**

2. **Direct staff to use the results of the tree equity analysis in the prioritization of tree planting under the Tree Planting Strategy.**

RECOMMANDATIONS DU RAPPORT

Que le Comité de l'environnement et du changement climatique recommande au Conseil municipal :

1. **de demander au personnel de mener une analyse de l'équité de la répartition des arbres dans le secteur urbain d'Ottawa en utilisant la méthodologie d'American Forests;**

2. **de demander au personnel de s'appuyer sur les résultats de l'analyse de l'équité de la répartition des arbres pour établir les priorités en matière de plantation d'arbres dans le cadre de la Stratégie de plantation d'arbres.**

EXECUTIVE SUMMARY

This report outlines how staff propose to evaluate the distribution of tree canopy in Ottawa through an equity lens. The results of the analysis will facilitate more equitable access to the urban forest canopy by identifying and targeting priority areas for tree planting across the city.

Council recognizes the importance of equity in relation to the urban forest through the Term of Council Strategic Plan, the Urban Forest Management Plan (UFMP) and the Official Plan. The City's 2023-2026 Strategic Plan prioritizes a green and resilient city, and includes the objective to plant, grow and preserve the tree canopy in neighbourhoods with low tree cover.

In June 2023, Council approved the Urban Forest Management Plan work plan (ACS2023-PRE-EDP-0025) for this Term of Council with the development of a Tree Planting Strategy as the feature project. The objective of the Tree Planting Strategy is to provide the residents of Ottawa with equitable access to urban forest canopy cover through proactive tree planting, contributing to a healthy, resilient, and vibrant city.

A tree equity analysis is an early action under the Tree Planting Strategy, as it is vital to successfully incorporate equity into all aspects of the Strategy and its programs. The

distribution of urban tree canopy is frequently associated with socio-economic factors, with lower canopy cover neighbourhoods often having a strong representation of equity-deserving communities. The City requires a methodology to identify areas of tree inequity and to prioritize tree planting in areas of the city that need it the most.

Staff recommend using American Forests' [Tree Equity Score](#) methodology to determine tree equity for Ottawa. The Tree Equity Score method uses tree canopy cover data in conjunction with socio-economic and health measures of inequity. This approach produces a score that will identify neighbourhood-level gaps in the urban forest. Areas with lower Tree Equity Scores will be priority areas for tree planting.

The usefulness of the Tree Equity Score has been tested and widely demonstrated. A [Tree Equity Score](#) has been calculated for nearly every urban neighbourhood in the United States. Additionally, American Forests has also worked with organizations in the United Kingdom to apply the method nationwide, and with the City of Toronto which has also committed to using a tree equity approach to guide canopy cover growth. By selecting the Tree Equity Score, Ottawa will be working with a proven methodology.

Next Steps

Subject to Council's approval, staff will undertake the tree equity analysis and integrate the results into the roll out of actions under the Tree Planting Strategy. The results of the tree equity analysis will be used in determining priority areas for tree planting and guide implementation of the Tree Planting Strategy. Staff will report back in Q4 of this year on the results of the Tree Equity Score analysis, the new canopy cover data, and an action plan to address the new data.

RÉSUMÉ

Le présent rapport décrit comment le personnel propose d'évaluer la répartition du couvert forestier à Ottawa dans une optique d'équité. Les résultats de l'analyse favoriseront un accès équitable au couvert forestier urbain en identifiant et en ciblant les secteurs prioritaires pour la plantation d'arbres dans les divers quartiers de la ville.

Le Conseil reconnaît l'importance de l'équité en ce qui a trait à la forêt urbaine par l'entremise du Plan stratégique du mandat du Conseil, du Plan de gestion de la forêt urbaine (PGFU) et du Plan officiel. Le Plan stratégique de la Ville 2023-2026 accorde la priorité à une ville verte et résiliente et comprend l'objectif de planter des arbres et de cultiver et maintenir le couvert forestier dans les quartiers où il est faible.

En juin 2023, le Conseil a approuvé le plan de travail du PGFU ([ACS2023-PRE-EDP-0025](#)) pour ce mandat du Conseil incluant l'élaboration d'une stratégie de plantation

d'arbres comme projet principal. L'objectif de la stratégie de plantation d'arbres consiste à donner aux résidentes et résidents d'Ottawa un accès équitable au couvert forestier urbain grâce à la plantation proactive d'arbres, contribuant ainsi à une ville saine, résiliente et dynamique.

L'analyse de l'équité de la présence d'arbres est une mesure initiale de la stratégie de plantation d'arbres, car elle est essentielle pour intégrer avec succès l'équité dans tous les aspects de la stratégie et de ses programmes. La répartition du couvert forestier urbain est souvent associée à des facteurs socio-économiques, les quartiers à faible couvert étant souvent fortement représentés par des communautés en quête d'équité. La Ville doit se doter d'une méthodologie permettant d'identifier les secteurs où les arbres sont inégalement répartis et de donner la priorité à la plantation d'arbres dans les secteurs de la ville qui en ont le plus besoin.

Le personnel recommande d'utiliser la méthode Tree Equity Score d'American Forests pour déterminer l'équité en matière d'arbres à Ottawa. La méthode Tree Equity Score utilise des données sur le couvert forestier parallèlement à des mesures socio-économiques et sanitaires de l'iniquité. Cette approche permet d'obtenir une cote visant à identifier la disparité de la forêt urbaine entre les quartiers. Les secteurs où la cote d'équité en matière d'arbres est faible seront des secteurs définis comme prioritaires pour la plantation d'arbres.

L'utilité du Tree Equity Score a été mise à l'essai et largement éprouvée. Un Tree Equity Score a été calculé pour la quasi-totalité des quartiers urbains des États-Unis. De plus, American Forests a collaboré avec des organismes du Royaume-Uni afin d'utiliser la méthode à l'échelle mondiale, ainsi qu'avec la Ville de Toronto qui s'est également engagée à utiliser une approche axée sur l'équité de la présence d'arbres pour encadrer la croissance du couvert forestier. En optant pour le Tree Equity Score, la ville d'Ottawa utilisera une méthodologie éprouvée.

Prochaines étapes

Sous réserve de l'approbation du Conseil, le personnel procédera à l'analyse de l'équité de la présence d'arbres et intégrera les résultats dans la mise en œuvre des mesures prévues dans le cadre de la Stratégie de plantation d'arbres. Les résultats de cette analyse serviront à déterminer les secteurs définis comme prioritaires pour la plantation d'arbres et à orienter la mise en œuvre de la Stratégie de plantation d'arbres. Les membres du personnel feront un rapport au Conseil au quatrième trimestre de 2024 sur les résultats de l'analyse Tree Equity Score, les nouvelles données sur le couvert forestier et un plan d'action tenant compte de ces nouvelles données.

BACKGROUND

To achieve its long-term goals, Council has outlined four areas of focus that will direct the City of Ottawa's efforts over the next four years, including making Ottawa a city that is green and resilient. As outlined in the 2023-2026 Strategic Plan, a focus of this Term of Council is to plant, grow and preserve the tree canopy in neighbourhoods with low tree cover.

Council recognized the importance of equity in relation to the urban forest through the approval of the Urban Forest Management Plan (UFMP) and the Official Plan. In addition, the benefits of the urban forest are well established, including associated health, economic, and environmental benefits. The distribution of urban tree canopy is frequently associated with socio-economic factors, with lower canopy cover neighbourhoods often having a strong representation of equity-deserving communities.

This report outlines the methodology that staff propose to evaluate the distribution of tree canopy in Ottawa through an equity lens. The results of the analysis will facilitate more equitable access to the urban forest canopy by identifying and targeting priority areas for tree planting across the city.

In addition to helping identify and prioritize areas for tree planting, a tree equity analysis will help:

- Provide community context needed to tailor planting programs to meet the needs and interests of the communities in the neighbourhood.

- Assist in understanding the challenges and pressures unique to the neighbourhoods where programs will be implemented.

- Kickstart partnerships in low canopy cover neighbourhoods by demonstrating a deeper understanding of the communities.

DISCUSSION

Section 4.8.2 of the Official Plan sets an urban tree canopy cover target of 40 per cent with equity as guiding principle. Additionally, it states that the City shall prioritize tree planting and stewardship programs that support social equity and health.

Putting Down Roots for the Future is the City's 20-year strategic Urban Forest Management Plan (UFMP). The plan provides a comprehensive long-term vision and strategic direction to protect and grow Ottawa's urban forest. The plan is being jointly implemented by Climate Change and Resiliency Services of the Strategic Initiatives

Department (SI) and Parks Maintenance and Forestry Services of the Public Works Department (PW).

In June 2023, Council approved the Urban Forest Management Plan work plan (ACS2023-PRE-EDP-0025) for this Term of Council with the development of a Tree Planting Strategy as the feature project.

The Urban Forest Management Plan (UFMP) supports equity-based prioritization of tree planting. UFMP Recommendation number four provides direction to develop tree planting prioritization tools that consider equitable canopy cover and urban forest benefits, vulnerable populations, urban heat island mitigation, and public health.

Tree Planting Strategy

The Tree Equity Analysis is an early action under the first year of the Tree Planting Strategy. The objective of the Tree Planting Strategy is to provide the residents of Ottawa with equitable access to urban forest canopy cover through proactive tree planting, contributing to a healthy, resilient, and vibrant city.

The Strategy is a set of principles to guide the development of programs, actions, changes, and policies. The Strategy will be developed and implemented incrementally. This will enable quicker action to improve existing planting programs, to create new programs, and to carry out supporting tasks.

The key principles of the Tree Planting Strategy are to:

- Achieve the City's target of 40 per cent canopy cover over time.

- Shift from a reactive to a proactive approach to tree planting.

- Increase the diversity of tree species in Ottawa's urban forest

- Use a neighbourhood lens and canopy cover data to plant trees where they are needed the most.

- Take an equity approach by using socio-economic factors and public health data, along with canopy cover data to prioritize tree planting efforts.

Elements of the Strategy include:

- Evaluating existing planting programs.

- Prioritize tree planting in the areas of the city that need it the most.

- Developing new planting programs to deliver tree planting in priority areas and

beyond.

- Assessing funding opportunities.

- Creating tree planting guidelines.

- Review of tree species and development of tree species lists

- Better integration for tree planting considerations into City initiatives across the corporation.

The equitable distribution of tree canopy is a guiding principle to be applied to all work under the Tree Planting Strategy. The City requires a methodology to identify areas of tree inequity and to prioritize tree planting in areas of the city that need it the most. This approach will address neighbourhood-level gaps in the urban forest by considering canopy cover, socio-economic factors, and health data when selecting locations for new plantings.

The 2017 Tree Canopy Assessment: Canada's Capital Region identified a statistically significant, negative relationship between median income and urban tree cover across the region. On average, every $10,000 decline in neighbourhood median income was associated with a 4 per cent decline in tree cover by area.

In general, neighbourhoods scoring lower on measures of socio-economic equity have reduced access to the benefits of trees, such as provision of shade, reduction in urban heat island effects and impacts, air quality protection, and other physical and emotional health improvements.

Conducting a tree equity analysis for Ottawa is vital to successfully incorporate equity into all aspects of the Tree Planting Strategy and its programs.

American Forests Tree Equity Score Methodology

Staff recommend using American Forests' Tree Equity Score methodology to determine tree equity for Ottawa. American Forests Tree Equity Score "measures how well the benefits of trees are reaching communities living on low-incomes, communities of color and others disproportionately impacted by extreme heat and other environmental hazards"[1].

American Forests is a non-profit originally founded in 1875. The organization focuses on creating healthy and resilient forests, both in urban and natural contexts. In 2021, American Forests launched its first iteration of the Tree Equity Score and analysis

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[1] American Forests, (2024). *Methods & Data.* https://www.treeequityscore.org/methodology

method. The free online tool includes Tree Equity Scores for all urbanized areas, including 150,000 neighbourhoods and 486 cities across the United States. The tool not only highlighted the relationship between socio-economic factors and tree canopy distribution, but also mobilized citizens and local municipalities to lessen the inequities through tree planting.

The Tree Equity Score method uses a neighbourhood lens when considering the relationship between tree canopy and demographic information. The method identifies a realistic neighbourhood cover target based on building density and the space available for tree planting. It then identifies the gap between the potential and existing canopy cover. This information is used in conjunction with socio-economic and health measures of inequity, to score neighbourhoods in terms of their need for tree planting. Socio-economic and health measures include income, employment, health, race, language, age, and heat severity.

Neighbourhoods with lower Tree Equity Scores will be priority areas for tree planting. The lower Tree Equity Score for these areas indicates a need for increased tree planting to provide urban forest services and benefits. The Tree Equity Score will not be the only consideration in the planting of trees. All neighbourhoods will still have access to tree planting programs. However, the results of the analysis will guide the prioritization of tree planting and the development of neighbourhood-specific planting plans and programs, helping to ensure trees are planted where they are needed the most. For more information on the specific methodology, please refer to DOCUMENT 1.

Rationale for the American Forests Method

One of the distinguishing factors of the American Forest Tree Equity Score is that it uses a combined index of seven equally weighted socioeconomic and health variables to identify communities most vulnerable to the absence or loss of urban forest benefits. The combined index is used with data on the tree canopy to produce the Tree Equity Score. This method differs from other approaches which typically look at a smaller set of factors. Furthermore, the use of building density to identify realistic, neighbourhood-level canopy targets makes the methodology more robust and useful.

In addition to its considerations of equity, the American Forests method is also unique because of its ability to scale the analysis to an entire city. This is done by combining scores from all neighbourhoods. The Tree Equity Score for an entire city can be improved faster by targeting planting in low scoring neighbourhoods first. This allows for a holistic perspective on the tree canopy and improves strategic decisions on tree planting.

The usefulness of the Tree Equity Score has been tested and widely demonstrated. It has been implemented across the United States. A Tree Equity Score has been calculated for nearly every urban neighbourhood in that country, providing information on the equitable distribution of the urban forest to more than 260 million people. American Forests has also worked with conservation organizations in the United Kingdom to apply the method and launch a similar tool to measure neighbourhood-level Tree Equity nationwide. Most recently, in February 2024, the City of Toronto partnered with American Forests to release the Toronto Tree Equity Score Analyzer, a customized tool to support local decision making co-developed with city staff, non-profits, and residents. The City of Toronto has committed to using a tree equity approach to prioritize canopy growth at a neighbourhood-scale and work towards the City's 40 per cent canopy cover goal. By selecting the Tree Equity Score, Ottawa will be working with a proven methodology.

Other Options Considered

Staff investigated other potential methods to evaluate and integrate tree equity into the Tree Planting Strategy. Three other options are summarized below and in DOCUMENT 2.

Nature Canada

A 2022 report by Nature Canada[2] provides details on the methodology used to evaluate tree equity in five Canadian cities. Their approach mapped the relationship between tree cover and income, as well as tree cover and proportion racialized populations. In addition to the spatial analysis, Nature Canada conducted semi-structured interviews with municipal staff, urban foresters, academics, and practitioners to understand the relationship between tree cover, race, and socioeconomic variables.

NatureScore

NatureScore is a paid service that allows cities to visualize and quantify exposure to nature with the goal to improve public health. This method looks at the quantity and quality of nature, including green space and blue space, within a city to determine predictive health impacts. They consider seventeen poverty, education, housing, and employment indicators to produce a score that identifies nature deprived and socioeconomic disadvantaged areas.

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[2] Nature Canada, (2022). *Canada's Urban Forests: Bringing the Canopy to All*. https://naturecanada.ca/wp-content/uploads/2022/09/Nature-Canada-Report-Tree-Equity.pdf.

<u>Statistical Evaluations</u>

Researchers have demonstrated the link between tree canopy cover and various socio-economic factors in multiple cities. Most research on tree equity uses statistical methods (e.g. ANOVAs, regression analyses, correlations, etc.) to determine the relationship between tree canopy cover and social, economic, and health variables. Demographic variables considered often include race, ethnicity, education, income, age, proportion of renters, and employment. The variables considered by different researchers are not consistent throughout the body of literature.

The above options were not recommended for multiple reasons, including that they require a high administrative burden to execute the analysis, lack objectivity, lack a specific urban forest context, and do not produce a singular, comprehensive equity score to guide specific action. For more information on pros and cons specific to each method, please refer to DOCUMENT 2.

Next Steps

Subject to Council's approval of this report, staff will take the required next steps to perform the tree equity analysis and integrate the results into the roll out of actions under the Tree Planting Strategy. The equity analysis will incorporate the data from the City's second canopy cover analysis, which is currently underway.

The results of the tree equity analysis will then be used in determining priority areas for tree planting and guide implementation of the Tree Planting Strategy. Once priority areas are selected, there will be ongoing consultation with neighbourhood residents, in partnership with Community and Social Services staff and their partners. Action in priority areas will include an increased focus on delivering new and existing tree planting programs with the aim to increase canopy cover.

Staff will report back in Q4 of this year on the results of the Tree Equity Score analysis, the new canopy cover data, and an action plan to address the new data.

FINANCIAL IMPLICATIONS

There are no direct financial implications. The work associated with the recommendations of the report will be done from within existing resources.

LEGAL IMPLICATIONS

There are no legal impediments to approving the recommendations in this report.

COMMENTS BY THE WARD COUNCILLOR(S)

This is a city-wide report.

CONSULTATION

The proposed tree equity analysis is informed by many other policies, plans, and projects. The feedback from the consultation and public notification of these fundamental guiding documents has been integrated into and shaped the direction of the tree equity analysis. Such documents include:

- The broad consultation on Official Plan policies related to urban forest and its equitable distribution.
- Council support for the Term of Council Priorities detailed in the City of Ottawa Strategic Plan 2023-2026.
- The public and stakeholder consultation completed when developing the Urban Forest Management Plan and its recommendations.
- The opportunity for public delegation through the Urban Forest Management Plan Update report in June 2023. This report provided a plan for how the Tree Planting Strategy would use equity as a guiding principle.
- The ongoing public consultation through the Tree Planting Strategy's Engage Ottawa website and survey. Feedback received through the website will help implement planting in priority areas identified by the tree equity analysis.

In addition to the consultation used to inform this project, targeted resident consultation work will be done in the priority areas identified by the completed tree equity analysis. Staff will work interdepartmentally to develop consultation plans, engage with residents, and integrate feedback into future Tree Planting Strategy work.

ACCESSIBILITY IMPACTS

There are no accessibility implications associated with this report. However, accessibility will be considered as planting programs are developed and launched.

ASSET MANAGEMENT IMPLICATIONS

The tree equity analysis will strive to improve the management of the urban forest resource by enhancing its equitable distribution throughout the City. The tree equity analysis takes a holistic and systematic approach to integrating equity into urban forest management and tree planting by considering socioeconomic data in relation to the benefits provided by the tree canopy.

Additionally, when new trees are planted in priority areas, they will be appropriately

brought into the City-wide tree inventory and the City's asset management scheme.

The recommendations documented in this report are consistent with the City's Comprehensive Asset Management (CAM) Program objectives. The implementation of the Comprehensive Asset Management Program enables the City to effectively manage existing and new infrastructure to maximize benefits, reduce risk, and provide safe and reliable levels of service to community users. This is done in a socially, culturally, environmentally, and economically conscious manner.

As written above, when the City commits to the addition of new assets, including living assets such as trees, consideration must also be given to the City's commitment to fund future operations, maintenance, and replacement costs. If approved, the outcome of the proposed tree planting strategies would be reflected in the inventory of assets and financial forecasts included under the Greenspace & Forest Services Asset Management Plan.

CLIMATE IMPLICATIONS

Tree planting initiatives under the Urban Forest Management Plan are key instruments to implement the ecosystem services goals of the Climate Change Master Plan.

The Climate Change and Vulnerability Risk Assessment (2022) identified several risks requiring attention in the next 1-3 years related to the urban tree canopy. These include risks to community health and well-being from increased heat, including less outdoor recreation and active transportation, and increased demand for shaded areas to offset heat. They also include risks to tree health from extreme heat and drought, wildfire, invasive species and pests, additional road salts, and extreme weather such as freezing rain and extreme winds. These negative effects of climate change on the existing and future tree canopy are likely to have a greater impact on equity deserving groups.

Several key actions of the draft Climate Resiliency Strategy (2024) link directly to tree planting efforts under the Tree Planting Strategy. In particular, under the pillar of Resilient Natural Environment and Parklands, a key action is to enhance tree canopy, increase shade in parklands, and to raise awareness about trees through public education and stewardship.

The tree equity analysis will focus on increasing tree planting in identified priority areas, enhancing climate change resiliency for low canopy and equity deserving neighbourhoods. One way this project will enhance climate change resiliency is through increased shade, reducing of public health risks related to urban heat island effects. Another way is through improved stormwater infiltration and reduction of flood risk.

DELEGATION OF AUTHORITY IMPLICATIONS

N/A

ECONOMIC IMPLICATIONS

N/A

ENVIRONMENTAL IMPLICATIONS

The urban forest is a vital part of the City of Ottawa's green infrastructure, and it provides numerous benefits and services to residents. Such benefits and services include shade, mitigation of urban heat island effects, reduced urban run-off, and many physical and mental health benefits. The benefits and services provided by the urban canopy are often inequitably distributed throughout the city. This project will work to address the inequitable distribution of these benefits and services by increasing tree planting for residents in identified priority areas.

INDIGENOUS GENDER AND EQUITY IMPLICATIONS

<u>Indigenous Policy Considerations</u>

At this point, the City of Ottawa has not contacted the host nation or local indigenous communities to discuss reviewing the process for assigning a tree equity score across the city. An initial discussion was recently held regarding the Greenspace and Urban Forest Master Plan and the newly established Climate Mitigation Service Area will be reaching out as part of the Tree Planting Strategy this fall.

<u>Gender and Equity Implications</u>

Equity is a guiding principle for the Official Plan's tree canopy cover target and the Tree Planting Strategy.

To ensure equity is key component of the Tree Planting Strategy, staff are proposing to undertake a tree equity analysis using American Forests' Tree Equity Score. The proposed method is rooted in equity considerations; the theory, rationale, and methodology all support the goal of equitable access and distribution of tree canopy cover. In practical applications, the use of this method aims to lessen disparities by incorporating demographic information into tree planting prioritization.

The Tree Equity Score uses a combined index to of socioeconomic factors to identify communities at the greatest risk of not receiving urban forest benefits. These factors include race, age, income, employment, and health. By using the index in this method,

staff are ensuring that socioeconomic dimensions of equity will be considered when implementing the Tree Planting Strategy.

RISK MANAGEMENT IMPLICATIONS

There is a risk implication associated with the recommendations of this report.

The risk of not undertaking and implementing the Tree Equity Score to prioritize tree planting is the continuation of having an inequitable distribution of tree canopy across the City. The impacts of this risk are:

- Inability to fulfill the Official Plan target of 40 per cent canopy cover target with equity as a guiding principle.
- Inability to incorporate an equity-based approach into the Tree Planting Strategy.
- Low canopy and equity deserving communities continuing not to receive the environmental, economic, and health benefits associated with the urban forest.

RURAL IMPLICATIONS

There are no rural implications associated with the recommendations of this report. Although the tree equity analysis only focuses on urban areas, programs and planting initiatives under the Tree Planting Strategy will be applied the rural areas.

TECHNOLOGY IMPLICATIONS

N/A

TERM OF COUNCIL PRIORITIES

This project addresses the following Term of Council Priorities:

- A city that is green and resilient.

This project will impact Strategic Objective 18 of the City of Ottawa Strategic Plan 2023-2026: "Plant, grow and preserve the urban tree canopy in parks and along roadways, with a focus on neighbourhoods with low tree canopy cover".

The results of the tree equity analysis will be used by staff to identify priority areas for tree planting under the Tree Planting Strategy. These areas will be targeted for increased tree planting and expedited tree planting program launches, improving the program service for areas that are often underserved.

SUPPORTING DOCUMENTATION

DOCUMENT 1 – An overview of the methodology used by American Forests to produce

Tree Equity Scores.

DOCUMENT 2 – A table of the pros and cons for the other tree equity analysis methods considered by staff.

DISPOSITION

Once this report is received by Environment and Climate Change Committee and Council, Strategic Initiatives (SI) and Public Works (PW), in conjunction with any other relevant Departments, will undertake a tree equity analysis using the American Forests Tree Equity Score methodology outlined in this report. The results of this work will be used to integrate equity as a guiding principle of the Tree Planting Strategy and inform any future tree planting actions.

SI and PW will work with Public Information and Media Relations to develop and carry out a communication plan and provide the necessary information to internal staff and the public.

DOCUMENT 1 - American Forests Tree Equity Score Methodology

Staff propose using American Forests' Tree Equity Score methodology to determine tree equity for Ottawa. American Forests states that the Tree Equity Score "measures how well the benefits of trees are reaching communities living on low-incomes, communities of color and others disproportionately impacted by extreme heat and other environmental hazards"[1]. This method determines an area's need for trees at a neighbourhood-level by considering the relationship between the goal tree canopy cover, existing tree canopy cover, and socio-economic and health factors.

The method starts with a tree canopy goal that is adjusted for building density, specific to each neighbourhood. The existing tree canopy for the neighbourhood is then subtracted from the tree canopy goal to produce plantable space, a measure of the area that could be planted to reach the goal.

To incorporate the human component of the analysis, American Forests created the Priority Index: a combination of seven, equally weighted indicators related to socio-economic and health factors. The indicators included in the analysis are income, employment, physical and mental health, race, language, age, and extreme heat exposure. These indicators were selected to identify communities at the greatest risk of not receiving urban forest benefits.

The final Tree Equity Score is determined by combing the canopy-focused plantable space and the human-focused Priority Index to produce a metric that can be used to prioritize planting efforts in neighbourhoods where trees are needed the most. A lower Tree Equity Score indicates a greater need for increased tree planting to provide services and benefits associated with the urban forest. Priority areas are those with lower Tree Equity Scores; they are neighbourhoods with low canopy cover and a higher proportion of equity-deserving groups.

DOCUMENT 2 - Table 1. Pros and cons of different tree equity methods considered

	Pros	Cons	Reason the Method Wasn't Selected
Nature Canada	• Simple analysis - few data requirements • Input from industry professionals	• Only two inputs considered to determine equity • Doesn't combine inputs to determine equity • High administrative burden to conduct interviews with industry professionals • Lacks a single, objective score	• Too time intensive to conduct interviews • Does not consider extensive dimensions of equity • Difficult to combine results to guide specific action
NatureScore	• Comprehensive analysis for all dimensions of equity • Work can be done by contracted services	• Costly • Currently only available in the U.S. • Not urban forest specific - considers parks, greenspace, and blue space	• Paid service • Not yet available outside of the U.S. • Looks at greenspace as a whole - not urban forest specific
Statistical Evaluation	• Possibility of a comprehensive analysis • Analysis can be adapted to be specific to Ottawa • Analysis can be adapted based on data availability	• Doesn't produce a final output/score to guide implementation • Doesn't combine inputs to determine equity • Possibility to introduce bias when selecting equity indicators	• Lacks objectivity to produce robust results and guide action • Will need to provide rationale and justification for methodology and selected equity indicators