

From the Ground Up: Addressing Equity in Winnipeg's Urban Forest

A Master of City Planning (MCP)
Capstone Project By
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Introduction

Winnipeg's iconic urban forest provides an abundance of social, environmental, and economic benefits. However, the urban forest is facing a crisis due to Dutch elm disease (DED), the threat of Emerald Ash Borer (EAB), climate change, and development. As this study of "tree equity" shows, neither the benefits of the urban forest nor the crisis it faces are distributed equally. Winnipeg's wealthiest residents tend to benefit from higher canopy cover while lower-income, racialized neighbourhoods enjoy less benefits from canopy cover and are at higher risk of tree loss.

Key Resources



Interview Findings

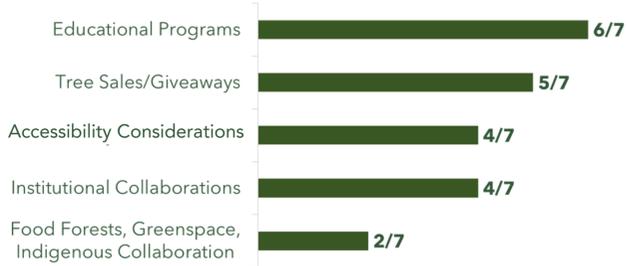
Reasons for Tree Inequity



"Trees are not as big of a priority as just basic survival is for them."

– Trees Winnipeg interviewee on low-income neighbourhoods

Strategies to Achieve Tree Equity



"In the affluent neighbourhoods we have these large tracts of parkland . . . But in an area like the West End, they have school grounds and community centers. That's it. There's no other greenspace for them."

– Trees Winnipeg interviewee on working with inner-city schools

Dutch Elm Disease

DED is a deadly fungus that blocks an elm tree from taking up water and nutrients. Elm bark beetles are unwitting carriers of DED as they carry the fungal spores from tree to tree. DED has decimated elm tree canopies across North America. Since 2016, the city has lost more than 33,000 elm trees to the disease (Source: Trees Winnipeg).

"That's one of our rallying calls here: we don't want to end up like Winnipeg"

– Saskatoon Forestry Interviewee on DED

Research Questions

1. What is the State of Tree Equity in Winnipeg?
2. What is the Winnipeg Community Doing to Address Tree Inequity?
3. What are Peer Cities Doing to Address Tree Inequity?
4. What is the Best Course of Action for Winnipeg to Achieve Tree Equity?

Methods

Spatial Analysis

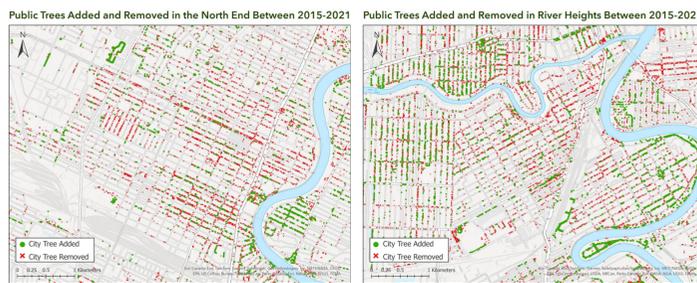
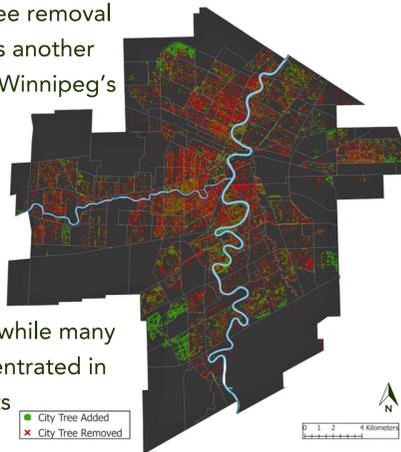
To overlay urban forest data with socioeconomic data I used Google Environmental Insights Explorer (EIE) canopy cover, the City of Winnipeg's Open Data Tree Inventory, and the City of Winnipeg's 2016 Neighbourhood Census Profiles.

Interviews

To understand the scope of urban forest issues in Canada and to develop strategies to achieve tree equity I interviewed 7 urban forest leaders in Winnipeg and 5 peer cities: Calgary, Edmonton, Mississauga, Regina & Saskatoon.

Trees Planted vs Removed

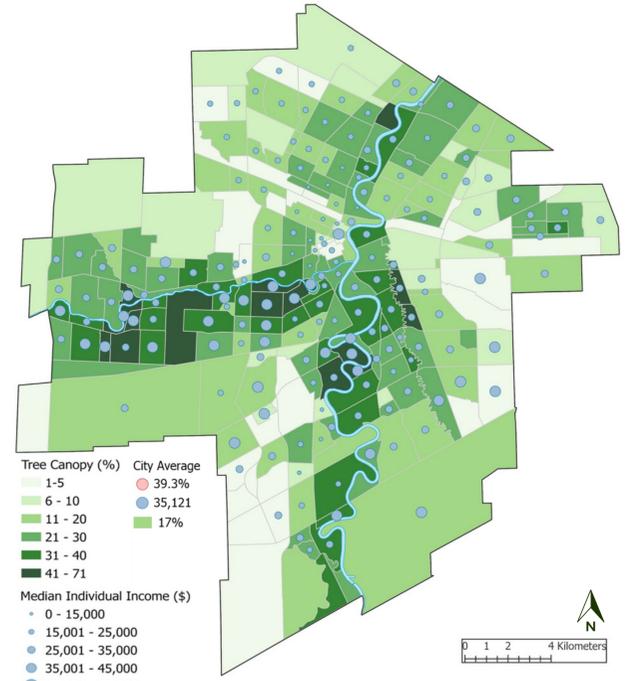
The pattern of public tree removal and (re)plantings reveals another layer of inequity. While Winnipeg's oldest neighbourhoods (such as River Heights or the North End) are prone to high losses, higher-income areas are more successfully replanting trees. Meanwhile many tree plantings are concentrated in the newer developments on the city's edge.



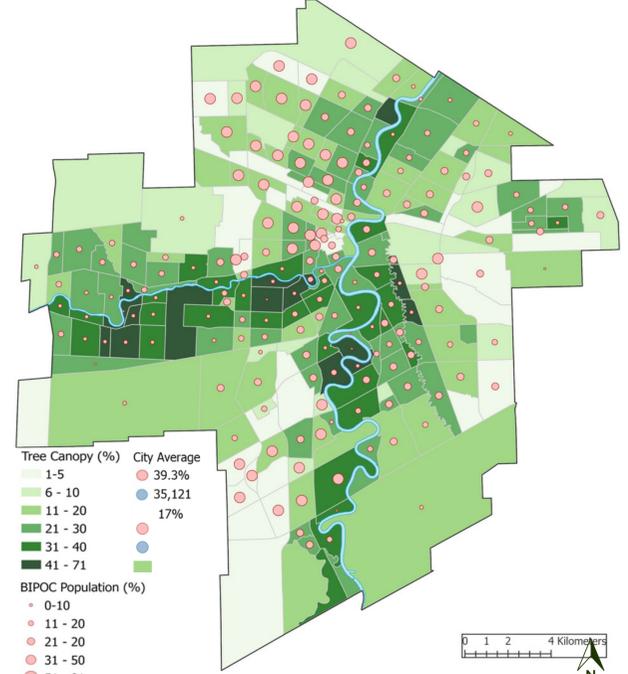
Sources: Winnipeg Open Data Portal, Trees Please Winnipeg Coalition

Map Findings

Canopy Cover and Income Distribution



Canopy Cover and BIPOC Population Distribution



Sources: Google EIE, Winnipeg Neighbourhood Census Profiles

Winnipeg's tree equity analysis reveals an all-too-common story: wealthier, white residents are afforded greater canopy coverage than racialized, lower-income residents.

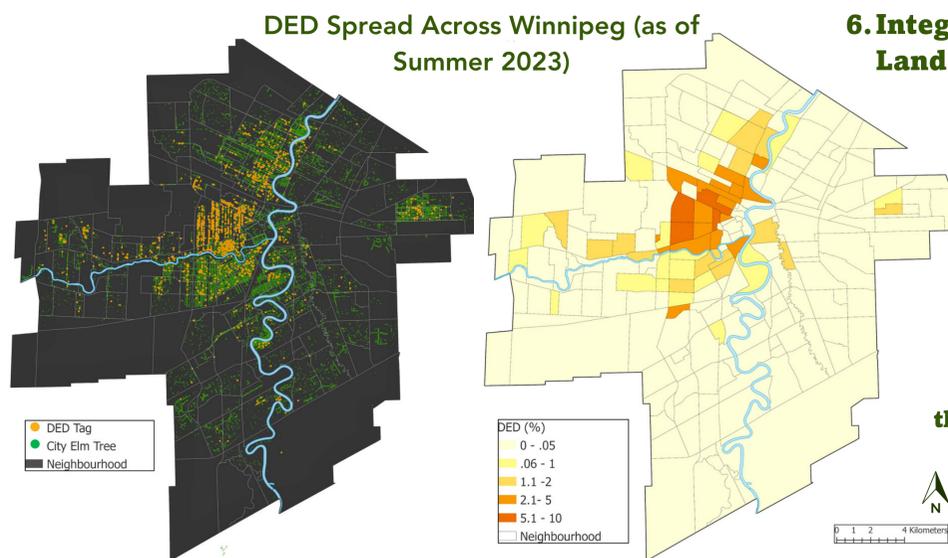
Recommendations

1. Develop a Tree Equity Tool
2. Focus Engagement with the Urban Forest in High Needs Areas
3. Establish a Boulevard Tree Replacement Program
4. Aggressive DED Removal in Priority Neighbourhoods
5. (Seek Opportunities to) Indigenize the Urban Forest
6. Integrate the Urban Forest Strategy into Land Use Policies

While DED threatens the entire elm canopy, it is concentrated in neighbourhoods of low-income and high BIPOC populations, making it a major challenge for achieving tree equity.

"There's segments of the West End where the fight against DED has already been lost"

– Trees Winnipeg interviewee



Sources: Winnipeg Open Data Portal, Tree Inventory Summer 2023