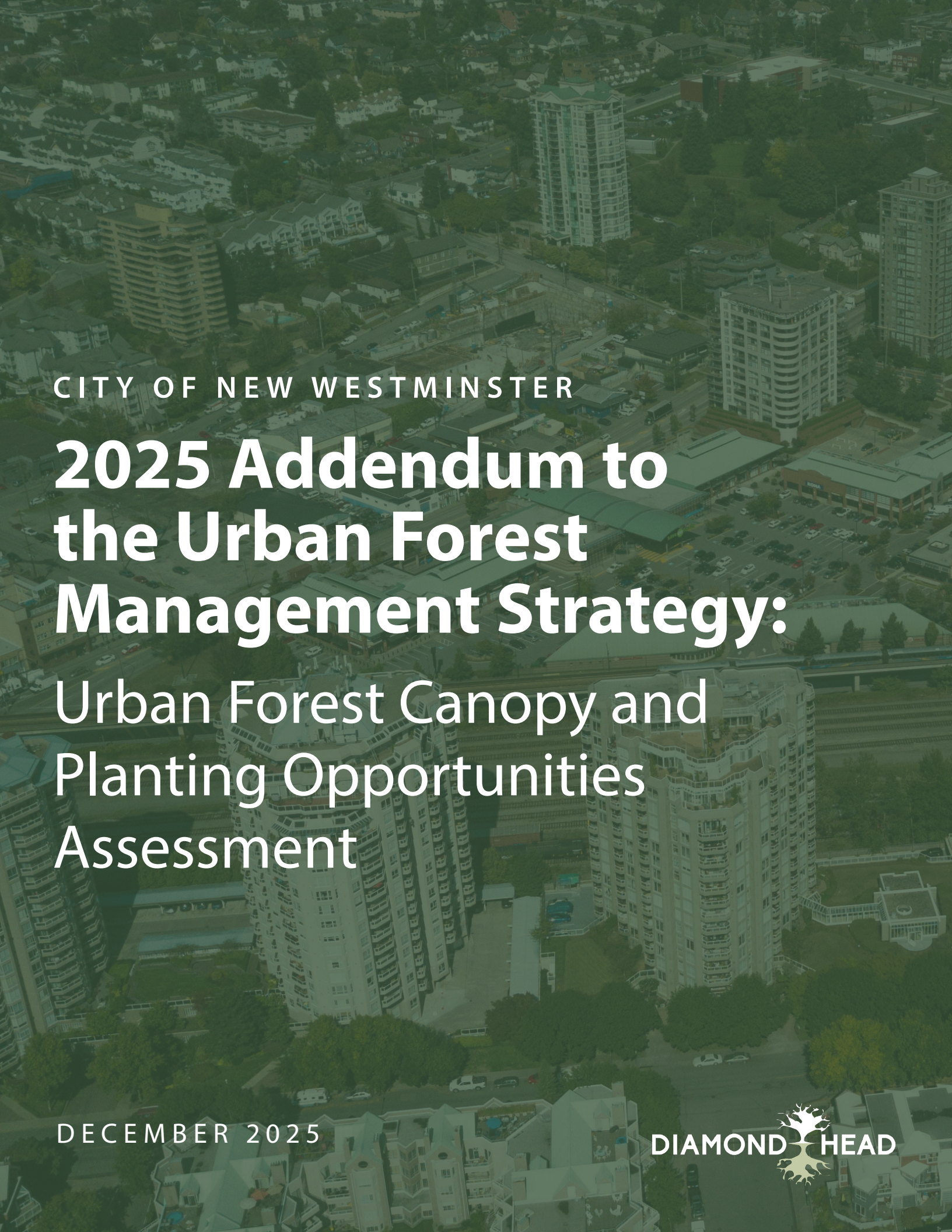


CITY OF NEW WESTMINSTER

2025 Addendum to the Urban Forest Management Strategy:

Urban Forest Canopy and Planting Opportunities Assessment

DECEMBER 2025

DIAMOND HEAD

Executive Summary

The 2025 Urban Forest Canopy and Planting Opportunities Assessment marks the most detailed and spatially accurate look at New Westminster's urban forest since the adoption of the Urban Forest Management Strategy (UFMS) in 2016. Using 2022 LiDAR data and high-resolution analysis, the report provides essential insight into the city's canopy cover, planting potential, and future growth scenarios. It confirms that canopy cover has remained stable since 2013 and outlines what it will take to reach the City's 27% canopy target.

WHAT HAS CHANGED SINCE 2016

Canopy loss has been halted. The City has halted its historical canopy decline. This stability is a direct result of the 2016 Urban Forest Management Strategy and adoption of the Tree Protection and Regulation Bylaw (2016).

Large-scale tree planting is underway. A significant planting initiative referred to as URBEI (Urban Forest Biodiversity Enhancement Initiative) has been underway with an estimated 3,750 new trees planted since 2022. While the young trees are not yet captured in the 2022 canopy measurements, they are expected to increase the overall canopy cover in the coming years.

New data tools provide better information. This report uses high-resolution LiDAR data from 2022, providing a view of where canopy exists, where it is missing and where trees can be realistically planted.

Forecasts are updated. The updated analysis shows that achieving the 27% canopy goal will require planting approximately 25,000 new trees, more than double the original estimate in 2016. This is largely due to a more accurate understanding of tree loss and the available planting sites which support smaller trees.

The 27% canopy target will take longer to achieve. Based on more accurate data, a revised timeline of 2050-2055 for achieving the 27% canopy cover is recommended. This timeline accounts for tree maturation, development pressures (per the 2023 Provincial Housing Mandate) and the complexities of planting in a dense urban environment.

WHAT WE HAVE LEARNED

Canopy cover is unevenly distributed. Neighbourhoods such as Queen's Park have canopy cover exceeding 30%, while Queensborough and Downtown remain below 10%. These variations are linked to differences in land use, density, and available planting space, creating unequal access to the cooling and livability benefits provided by trees.

Trees are critical for climate resilience. Areas with higher tree canopy are cooler than exposed, paved neighbourhoods. Areas with larger populations of seniors, lower-income households, and residents living alone are more vulnerable to heat exposure. These locations have been prioritized for tree planting as a means to improve both canopy equity and long-term climate adaptation.



Majority of new trees must be planted on non-City managed land. More than 80 percent of all feasible planting sites are located on private lands, institutional properties, or rights-of-way. Parks are largely planted to capacity, meaning that canopy expansion will depend on private partnerships, development incentives, and innovative design solutions to create growing space in built-up areas.

WHAT COMES NEXT

To meet the 27% canopy target, adding approximately 149 hectares of new canopy, New Westminster will:

Prioritize planting where it is needed most. The City will focus on low-canopy, heat-vulnerable areas, especially in Planting Areas A and B, which include Queensborough, Downtown, and Brow of the Hill. These efforts will begin in 2025 and will be supported by both Provincial and Federal government grant funding, including the UBCM Community Emergency Preparedness Fund.

Scale up tree planting across public and private lands. Achieving the canopy goal will require planting approximately 25,000 trees, including sidewalk and streetscape retrofits, tree-friendly design in new developments, and the use of structural soils and soil cells to enable planting in dense areas.

Engage landowners and community partners. Since most remaining planting potential lies beyond City-owned land, collaboration with residents, developers, and institutions will be essential. Programs that provide incentives, education, and clear standards will help unlock these opportunities.

Protect existing trees and ensure succession. Large, mature trees will be preserved wherever possible. In parks, ongoing successional planting will ensure continuity as older trees age. The City will also monitor pest and disease threats such as the Emerald Ash Borer and adapt its strategy to maintain forest health.

Urban Canopy Snapshot

Canopy cover has been **stable** since 2016, though it remains unevenly distributed across neighbourhoods.



17%

canopy cover was measured in 2022 using high-accuracy LiDAR methods

Across New Westminster...

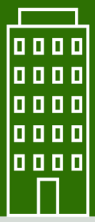
...**Private lands** and **street rights-of-way** hold most of the city's existing and future canopy potential



...**Existing parks** are now fully planted.



Increasing canopy equitably across the city will require targeted investment in creating new planting spaces in the most **built-up areas.**



In **parks**, where large, mature trees are concentrated, ongoing successional and layered planting will be needed to maintain canopy as these trees age.



27%

canopy cover can be achieved by **retaining mature trees** wherever possible, **replacing trees** when they are removed, and adding approximately...

+149

ha of canopy...

estimated to require planting

25,000

new trees.

Fewer than

20%

of planting opportunities are located on City lands.

Acknowledgements

This report was prepared by Diamond Head Consulting Ltd. for the City of New Westminster. The consulting team extends its appreciation to City staff for their guidance and technical input.

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1. Introduction

The City of New Westminster recognizes that a healthy, resilient, and equitably distributed urban forest is a vital part of the city's green infrastructure and its response to climate change, community health, and environmental sustainability. Urban forests provide critical ecosystem services: they help mitigate extreme heat, reduce stormwater runoff, clean the air, improve mental and physical health, and support biodiversity. They also play an important role in defining the character and livability of New Westminster's neighbourhoods.

These benefits are becoming increasingly important as the region faces intensifying climate impacts including longer, hotter summers, drought conditions, which exacerbate the vulnerability of urban trees to native and invasive pests and diseases.

In response to these challenges, the City developed its Urban Forest Management Strategy (UFMS) in 2016, establishing a long-term goal to increase tree canopy cover to 27% citywide by 2035. At the time, the city's canopy cover had declined from approximately 22% in 1994 to around 18% by 2013, with many areas falling well below this average, particularly in densely developed neighbourhoods.

To accelerate progress toward this goal, the City launched the Urban Reforestation and Biodiversity Enhancement Initiative (URBEI)—a major, multi-year capital investment that supports tree planting and habitat restoration in parks and open spaces.

The UFMS provides the financial framework for increasing canopy cover quantitatively and qualitatively through multi-year capital investments for planting trees on public and private properties. Although large-scale planting under URBEI Phase 1 began in 2022, its effects are not yet visible in the canopy data included in this report. The 2,300 trees planted in parks since 2022 are estimated to have added only about 1 hectare of new canopy so far. As these trees mature to the average size of park trees today, they are expected to eventually provide approximately 26 hectares of canopy cover, representing a 1.8% increase in citywide canopy cover.

Since the adoption of the UFMS, the policy landscape has shifted. The Province of British Columbia's housing targets will spur significant residential development and densification, particularly in urban cores. This presents a dual challenge: while redevelopment can reduce the amount of space available for large tree planting, it also creates opportunities to integrate more greenery into compact urban forms, especially in areas that have historically lacked canopy cover.

This report provides the first comprehensive update on citywide canopy cover since the Strategy was adopted. Drawing on 2022 LiDAR data and high-resolution imagery, it assesses:

- Current canopy coverage
- Planting potential across the city
- Forecasts of future canopy growth

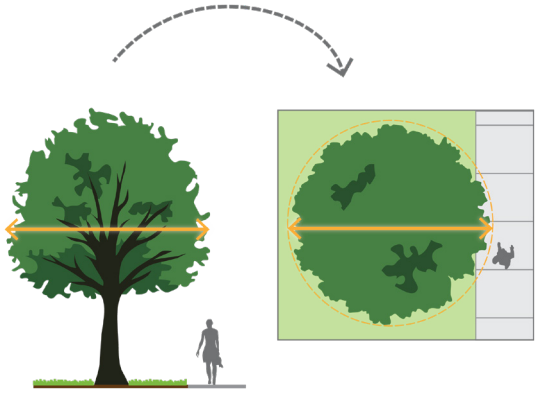
These insights help the City understand where trees are now, and where they could be. By explicitly identifying plantable space and modeling canopy growth over time, New Westminster can make informed decisions and plan strategically to achieve its 27% canopy goal.

The City's canopy has stabilized since 2013, reversing decades of decline through strong policy and replanting efforts.

2. Mapping New Westminster's Canopy and Land Cover

A land cover assessment is a method of mapping the buildings, impervious surfaces, grass and shrubs, tree canopy and bare ground using aerial imagery and light detection and ranging (LiDAR) technology. Measuring the land cover (including canopy cover) periodically using remote sensing technology provides cities with important information about changes in land use, such as tree canopy growth and loss or the expansion of impervious surfaces.

Four-band high-resolution orthoimagery and 3D LiDAR data from 2022 leaf-on conditions created a comprehensive land cover classification for New Westminster. For canopy cover, LiDAR was used to identify trees on the landscape measuring 2 metre or greater in height. These preliminary results were then compared with orthoimagery to perform the necessary manual corrections. The analysis also included the assessment of other land cover types, such as buildings, impervious surfaces , grass, shrubs, water and bare ground.



Canopy cover is the area covered by tree canopy when viewed from above.

High-resolution land cover mapping provides an accurate picture of where canopy exists, where it is missing, and where trees can be planted.



3. Canopy and Land Cover Metrics

3.1 CITYWIDE

New Westminster's overall tree canopy coverage has remained relatively stable over time. In 2022, tree canopy covered 17% of the city's land area (excluding water) – consistent with the 18% estimated in 2013 using the i-Tree Canopy method. With a margin of error of ±2 percentage points, the 2013 estimate indicates the true canopy cover was likely between 16% and 20%, confirming that overall canopy has not changed significantly in recent years. However, canopy cover is not evenly distributed across the city. As shown in Figure 1, which maps canopy cover by a hexagonal grid, the highest concentrations of tree canopy occur in older neighbourhoods and parks, such as Queen's Park and Glenbrook Ravine. Future LiDAR remeasurements will allow for direct detection of canopy gain and loss across the city, providing a more detailed understanding of how canopy cover changes over time.

Of New Westminster's 265 hectares of tree canopy, approximately 48% is on privately managed land, 20% is in parkland, 25% is in road rights-of-way, and the remaining 7% is on other publicly managed lands (city, regional, provincial or federal).

To understand New Westminster's canopy cover in context, it is useful to consider how the city's land is currently used. Nearly two-thirds of the city's 1,530-hectare land base (about 64%) is built up, with 39% covered by impervious surfaces such as roads, sidewalks, and paved areas, and another 25% occupied by buildings. The remaining 35% of the city is vegetated, including approximately 18% in grass and shrubs and 17% in tree canopy.

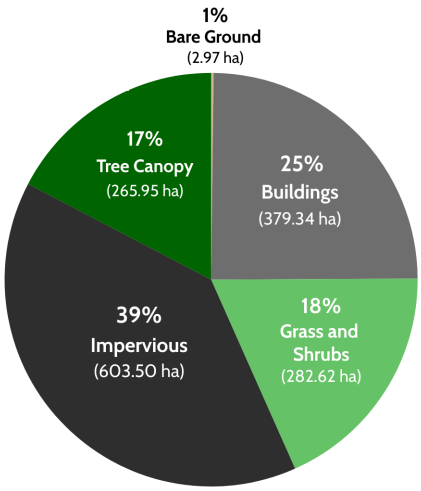


Figure 2. Proportion of city land area that is covered by each land cover class.



Figure 1. Percent canopy cover in 2022, summarized by 1-hectare hexagons.

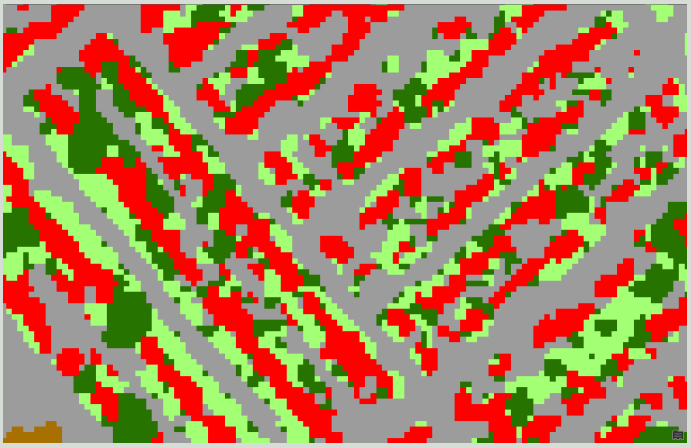
Why Metro Vancouver's and New Westminster's Canopy Cover Estimates Differ: The Importance of Data Resolution

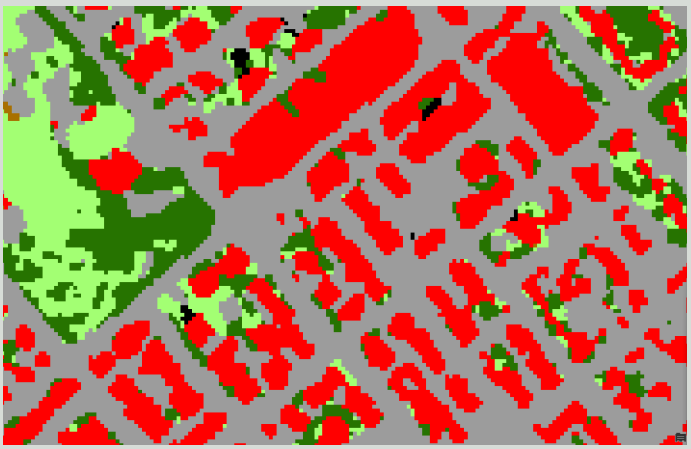
Metro Vancouver's 2020 Land Cover Classification[6] reported 14% tree canopy cover for New Westminster. In contrast, the City's 2022 urban forest update found 17% canopy cover. This difference is largely due to resolution and classification approach:

- Metro Vancouver's dataset used 5-metre satellite imagery and pixel-based classification, where each 25 m^2 pixel is assigned one land cover type.
- New Westminster's update used 25 cm aerial imagery, LiDAR, and object-based image analysis, which identifies individual tree crowns and separates land uses more precisely.

The 5 m resolution often misses fragmented tree canopy and pervious areas in streets or overhanging driveways, and tends to overestimate impervious surfaces in dense urban areas. Side-by-side image comparisons show that much of New Westminster's canopy is undetected in the regional dataset. While Metro Vancouver's data provides a regional overview, it is not designed for local-scale planning. New Westminster's high-resolution dataset offers a more precise foundation for urban forest management, particularly as the city works to identify planting locations to meet its 27% canopy cover target.

Metro Vancouver 5 m resolution 2020 land cover (same location left and right)





Diamond Head Consulting 0.25 m resolution land cover





3.2 NEIGHBOURHOOD

Tree canopy cover varies widely across New Westminster's neighbourhoods, reflecting differences in land use, development history, and available planting space (Figure 3; Figure 4). Queen's Park has the highest canopy cover at 34%, supported by mature trees, large lots, and historic parkland. McBride–Sapperton follows at 22%, with established residential streets and nearby natural areas like Glenbrook Ravine. At the other end of the spectrum, Queensborough has only 9% canopy cover, limited by its industrial land base, narrow lots, younger trees, and floodplain setting dominated by dikes and transportation corridors.

For consistency over time, the 2022 analysis used updated neighbourhood boundaries but also recalculated results using 2016 boundaries. Canopy cover remained largely stable between 2013 and 2022, except in North Arm North, where the apparent increase from 6% to 17% reflects the inclusion of Poplar Island.

Land cover patterns vary widely across New Westminster's neighbourhoods, reflecting differences in development intensity, land use, and available green space. Brunette, Queensborough, Downtown, and Brow of the Hill have the highest levels of impervious pavement and building cover, each with more than 70%.

In contrast, Queen's Park, Connaught Heights, and McBride–Sapperton have less than 60% impervious cover. These areas tend to feature larger lots, mature tree canopy, and established green spaces.

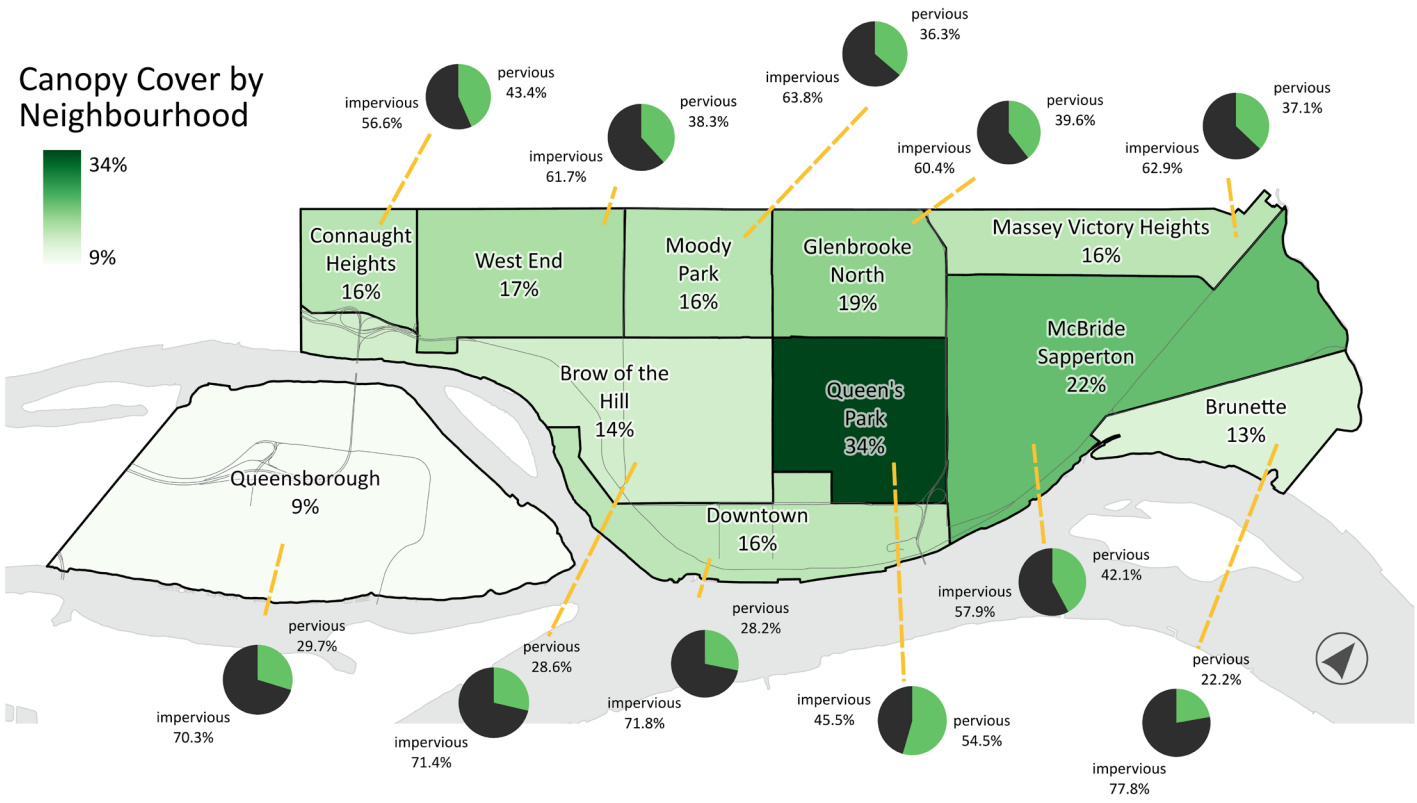


Figure 3. Percent canopy cover by neighbourhood in 2022, with corresponding pervious (tree canopy, grass, and shrubs) and impervious (buildings and other impervious) area breakdowns.

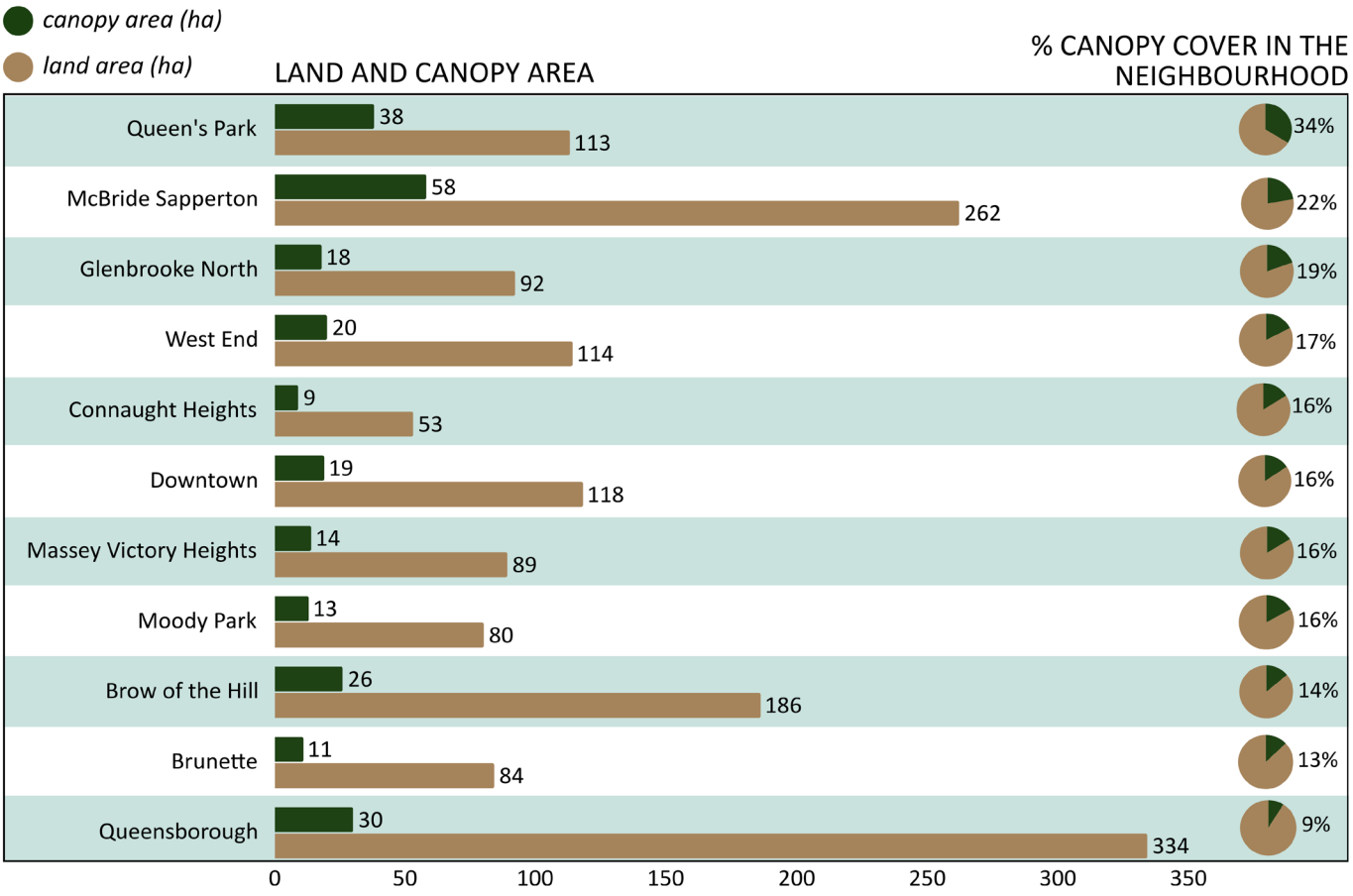
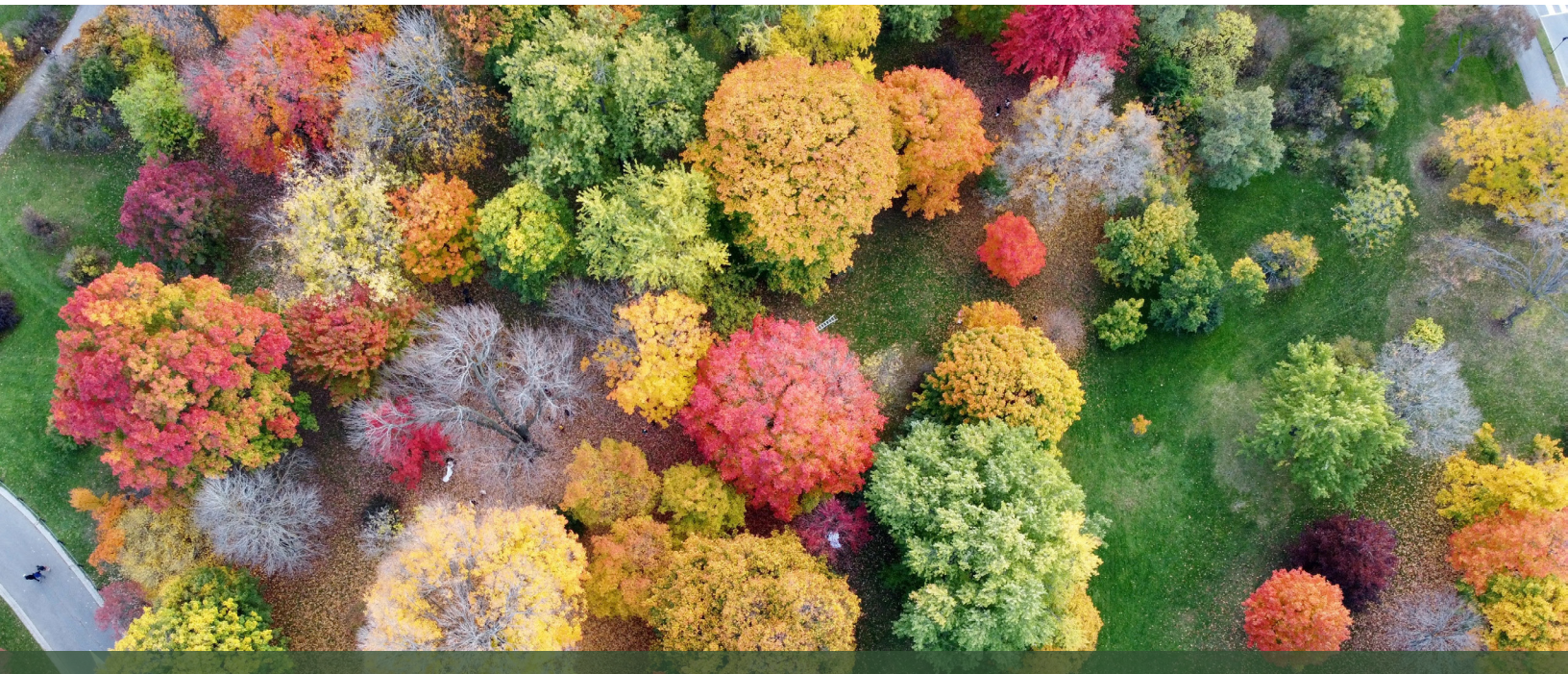


Figure 4. Canopy cover and total land area by neighbourhood, ordered from highest to lowest percent cover.



3.3 LAND USE

Land cover varied widely across New Westminster's land uses (Figure 5), reflecting the different functions, development patterns, and greening opportunities within each category. The largest land use areas in the city are residential lands (577 hectares), the right-of-way (406 hectares), employment and industrial lands (185 hectares), and parks and natural areas (147 hectares). Of the city's 265 ha of canopy, 98 ha is on residential lands, 66 ha is in the right-of-way, and 63 ha is in parks. Together, these three land uses accounted for 86% of the city's canopy cover. As a result, policies or programs targeting these land uses are expected to have a meaningful impact on the city's future canopy cover.

Nearly half of all canopy, and most planting opportunities, are on private land, underscoring the importance of partnerships with residents, institutions, and developers.

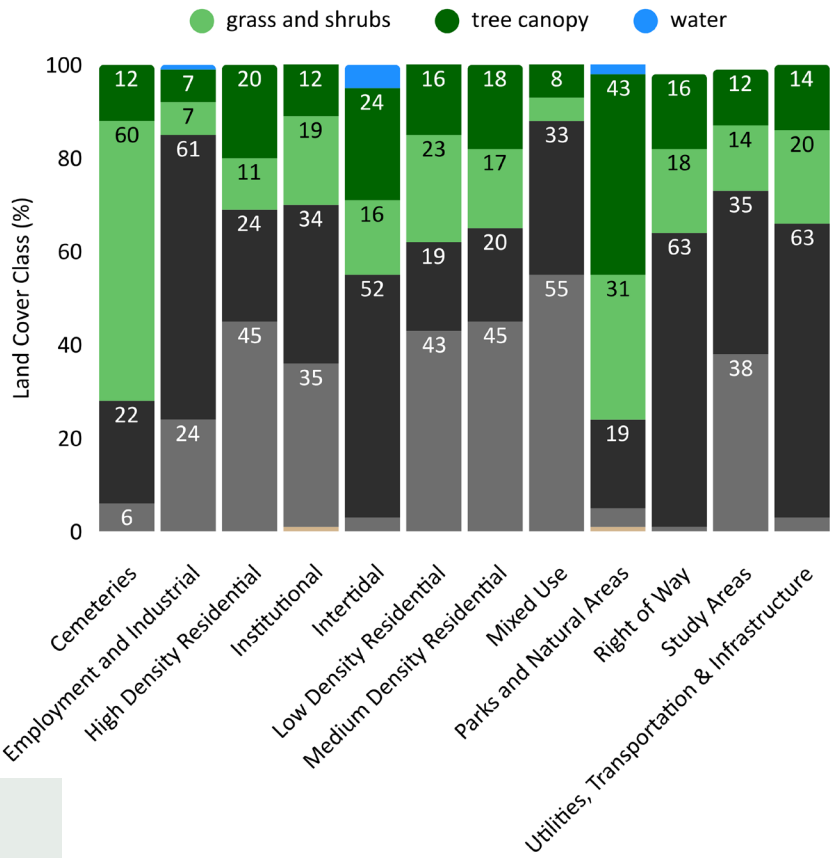


Figure 5. Land cover breakdown by land use.

3.4 PLANTING AREA

New Westminster's four Planting Areas (A–D) were first established in the Street Tree Master Plan[1]:

- Planting Area A: Queensborough
- Planting Area B: Brow of the Hill, Downtown
- Planting Area C: Massey Victory Heights, McBride Sapperton, Brunette
- Planting Area D: Connaught Heights, West End, Moody Park, Glenbrooke North, Queen's Park

These areas divide New Westminster into roughly equal-sized units, grouping neighbourhoods with similar character. They serve as management zones that help guide the implementation of street tree planting across the city. Within this framework, priority is directed to areas with lower canopy cover, ensuring that new planting not only expands canopy overall but also improves equity by targeting the neighbourhoods with the greatest need.

The 2022 LiDAR analysis shows that Planting Areas A and B have the lowest canopy cover (9% and 15% respectively), while Areas C and D are higher (19% and 22%) (Figure 7). These results are consistent with earlier 2014 estimates (~6–10% vs. ~19–21%), but differences likely reflect improved methods and resolution rather than actual canopy change (Table 1). The new LiDAR-based dataset provides a more accurate baseline for future monitoring.

Areas A and B remain the most canopy-deficient and therefore the highest priority for new planting. They also have the highest impervious surface and building cover (70% and 71%), compared with 62% in Area C and 57% in Area D (Figure 6).

However, planting in these built-up areas is more challenging due to limited space and harsh growing conditions. Expanding canopy here will require targeted design interventions, such as sidewalk modifications, tree pits, or soil cells, and enhanced tree establishment measures, including irrigation and soil amendments, to improve survival and long-term canopy growth.

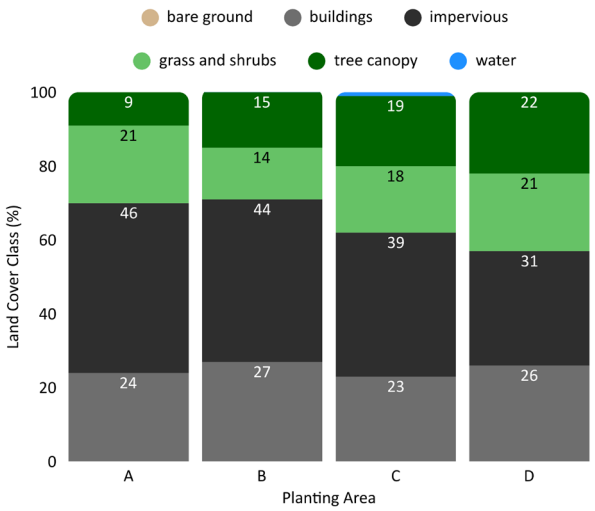


Figure 6. Land cover breakdown by planting area.

Table 1. Planting area canopy cover 2014 and 2022.

Planting Area	2014 Metro Vancouver Land Cover (5 m resolution)	2022 LiDAR
A	~6%	9%
B	~10%	15%
C	~19%	19%
D	~21%	22%

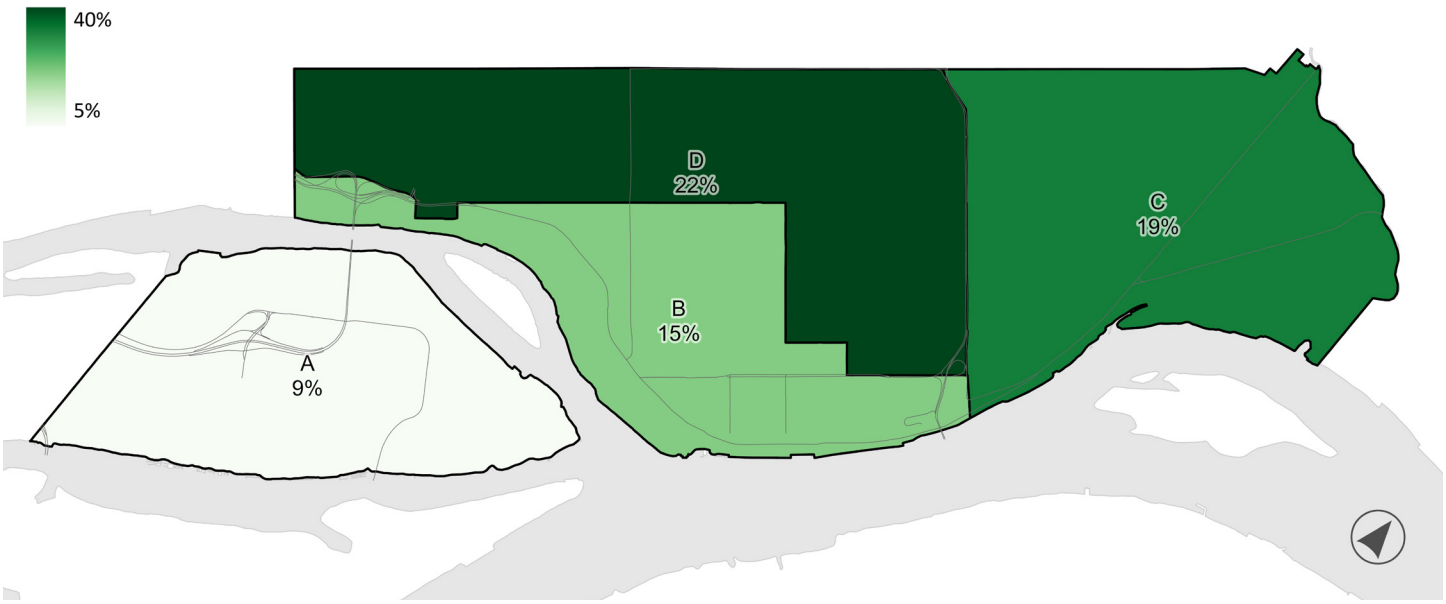


Figure 7. Percent canopy cover by planting area in 2022

4. Planting Prioritization

New Westminster's urban forest provides tangible cooling benefits affecting human thermal experiences. Research from Colorado, USA, for instance, found a 1 °C decrease in temperature for every 10% increase in canopy cover at the parcel scale[2]. This relationship is also evident in New Westminster. During the 2021 Heat Dome, neighbourhoods with more canopy, such as Queen's Park, experienced the lowest land surface temperatures (Figure 8).

Figure 9 highlights exposed areas with higher proportions of seniors, single-person households, or low-income residents and locations with high temperatures and canopy cover below the City's 27% target. About 26,000 residents live in these exposed areas, according to the 2021 Census.

To address this overlap between heat exposure and social vulnerability, the City successfully secured tree planting funding from the Union of BC Municipalities (UBCM) through the Community Emergency Preparedness Fund in 2024. Planting efforts will focus on reducing surface temperatures, increasing canopy equity, and strengthening neighbourhood resilience during extreme heat events.

The City's implementation now follows a priority stacking approach that directs resources where low canopy, high imperviousness, and social vulnerability occur together, and specifically in:

1. Exposed areas (Figure 9), and;
2. Low canopy areas (including Planting Areas A and B in the Tree Planting Master Plan, Figure 10).

By focusing on these overlapping zones first, the City ensures that funding and effort reach neighbourhoods most at risk from heat and limited canopy, advancing both equity and climate resilience. Priority planting in Areas A, B, and Exposed Areas (UBCM-funded zones) are scheduled for October 2025 through March 2027, followed by Area C in 2027 to 2028 and Area D in 2028 to 2029, weather permitting.

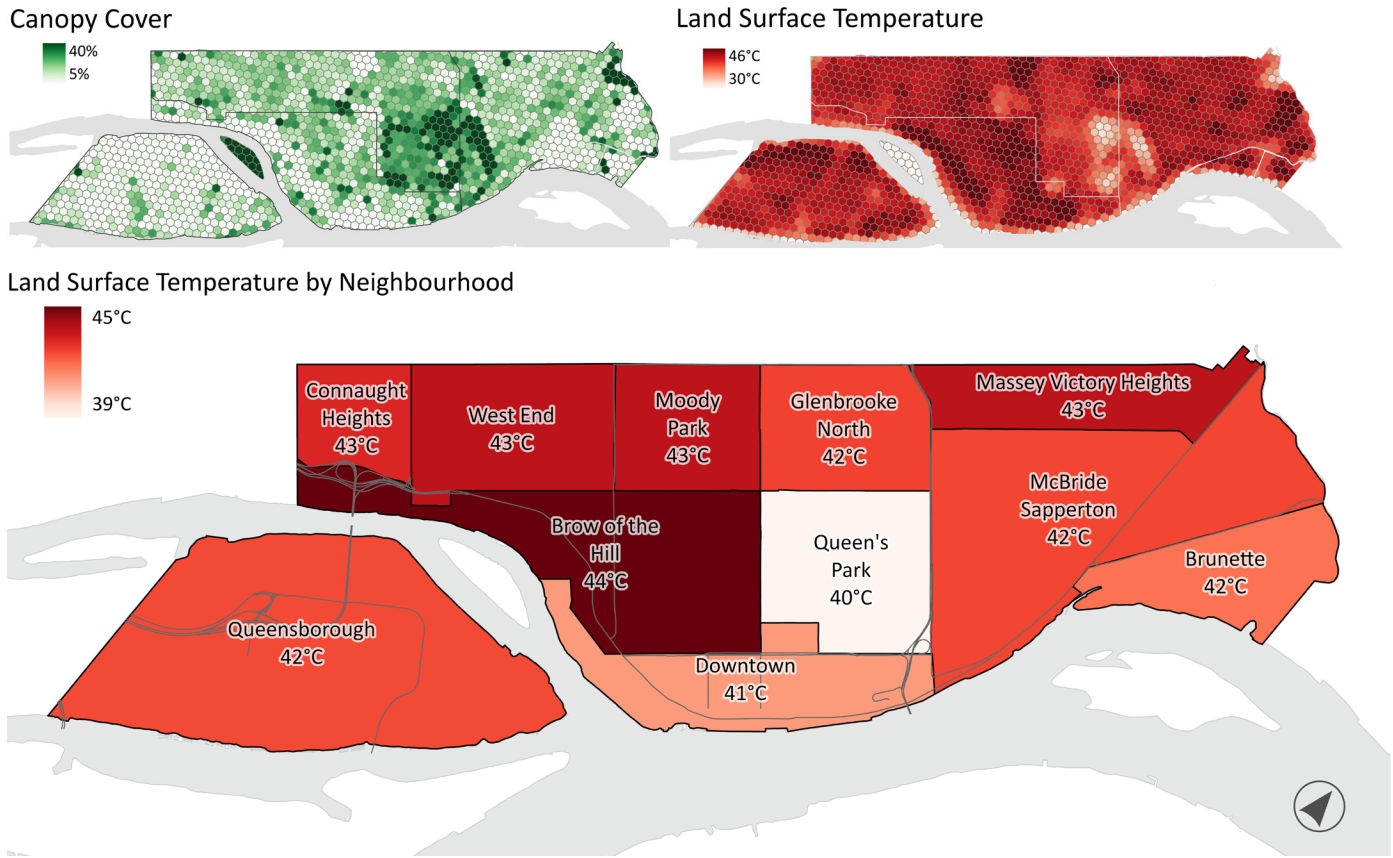


Figure 8. Average land surface temperature by neighbourhood on June 30, 2021 during the regional heat dome event.

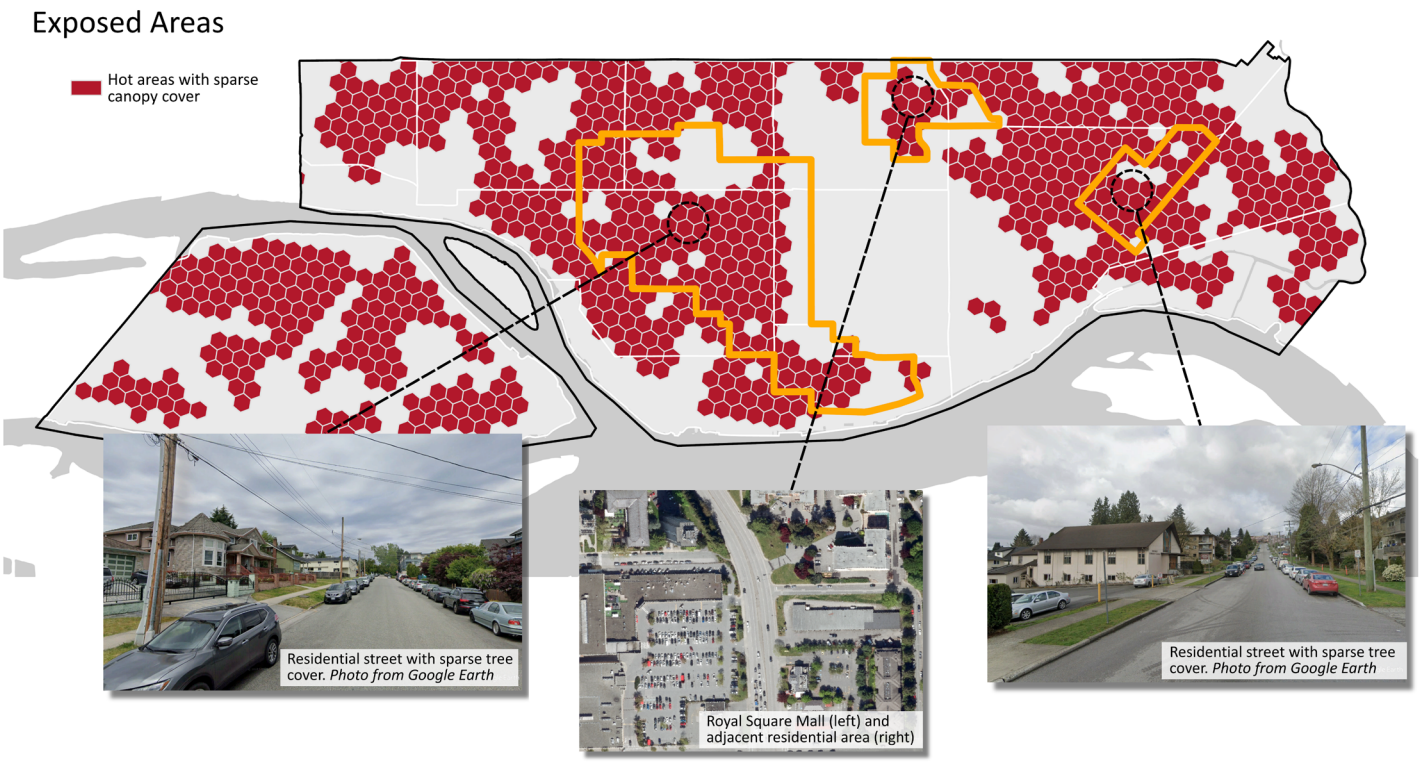


Figure 9. Exposed areas (orange outlines) indicate zones of high temperature and community-based heat vulnerability. Also shown as hot spots are 1-ha hexes with LST above the citywide median and canopy below 27%.

Planting Areas A and B remain the city's lowest-canopy planting areas and, combined with Exposed Areas, are the highest priorities for future planting.

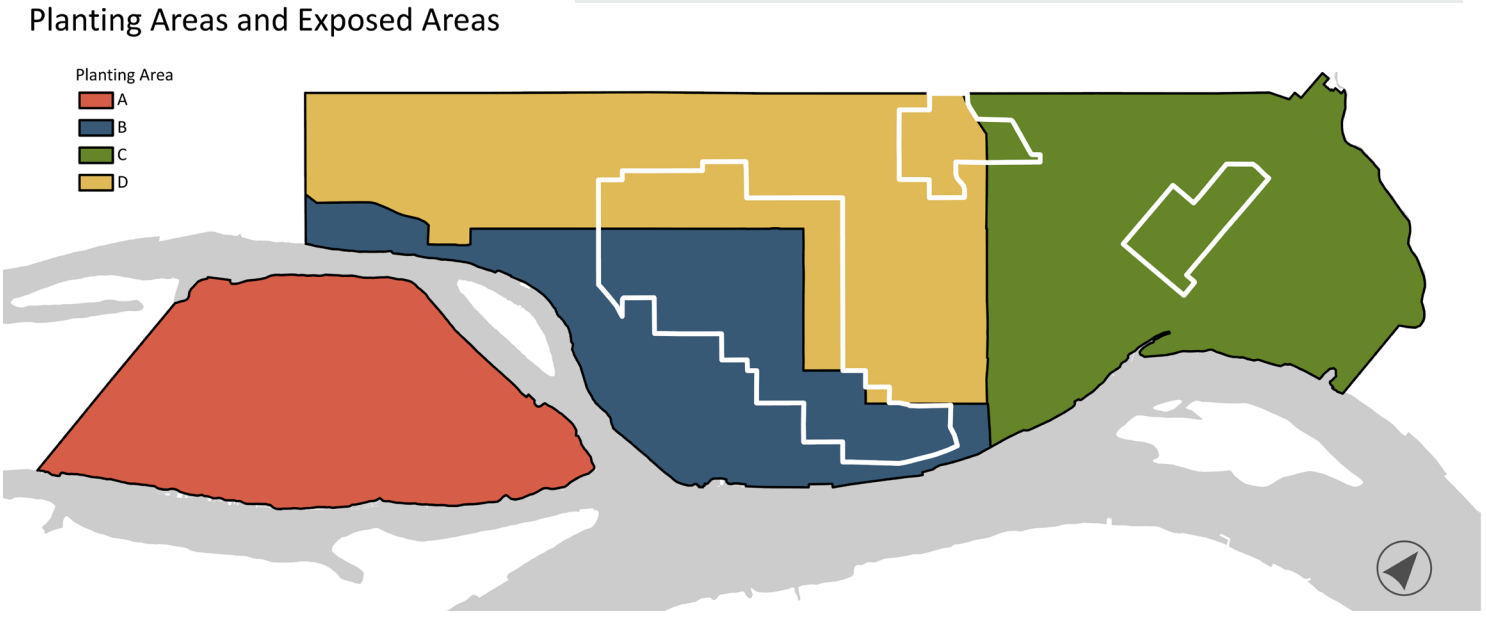


Figure 10. Exposed areas (white outlines) and planting areas.

5. Tree Metrics

5.1 AVERAGE SIZE AND COUNT OF TREES BY MANAGEMENT RESPONSIBILITY

The 2022 LiDAR canopy analysis included individual tree detection, a method that identifies and measures individual trees across the city (Figure 11). This approach makes it possible to explore patterns in tree size and structure—including the average height and canopy spread of trees in different parts of New Westminster such as parks, residential areas, and streets (Table 2). While this method provides detailed information, it can sometimes split very large trees into multiple parts, which may slightly overestimate the number of trees and their average canopy size.

The analysis reveals clear differences across the city's landscapes. Larger, mature trees are concentrated in parks, ravines, and historic neighbourhoods, where they have had space and time to grow. Smaller and younger trees are more common in newer residential areas and highly built-up parts of the city. These differences matter because larger trees provide greater cooling, shading, carbon storage, and wildlife habitat than smaller ones.

Table 2. Average canopy area and height per tree.

Category	Average Canopy Area (m2)	Average Tree Height (m)
Citywide	65	11
Park	114	23
Private	57	9
Road Rights-of-Way	54	9

When comparing tree sizes across land uses, the data show that trees in parks are the largest on average, both in height and canopy spread. Street and residential trees tend to be smaller, which reflects younger plantings, limited soil space, and the challenges of growing in paved environments. Despite their smaller size, these trees are vital for adding greenery where larger green spaces are limited and represent the greatest potential for future canopy growth as they mature.

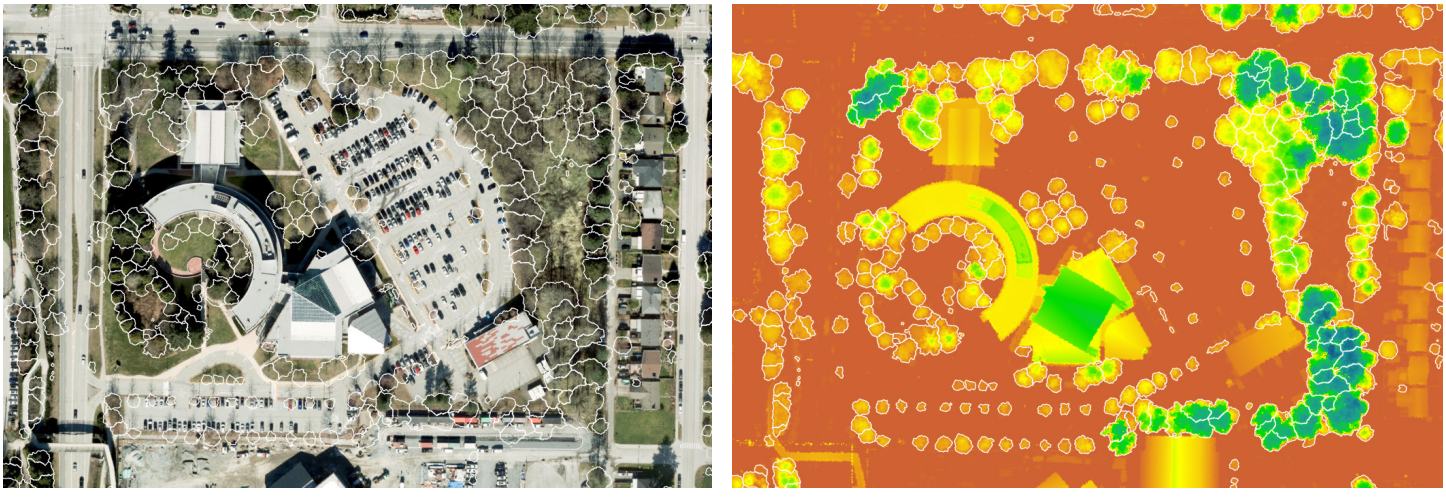


Figure 11. Canopy segments approximating individual trees shown over an orthophoto (left) and a digital surface model of elevations (right) (location: Justice Institute of British Columbia).

The LiDAR analysis also shows how tree height varies across the city (Figure 12). Most trees fall within the 0–10 m range, reflecting a population dominated by younger and smaller trees, many of which have been planted more recently in residential areas and along streets. In contrast, trees in parks show a very different pattern. While parks also contain many small trees, they have a much greater share of tall trees in the 30–50 m range. This reflects the presence of older, well-established stands, particularly in places like Queen's Park, Moody Park, and the city's ravines, where trees have been able to grow larger over a long time. The canopy area line further illustrates that these tall trees contribute disproportionately to overall canopy cover, despite being fewer in number.

This contrast highlights two key points. First, parks and ravines hold much of the city's mature tree canopy, which plays an outsized role in providing cooling, shade, and habitat. Second, the skew towards younger trees citywide underscores the importance of ongoing planting and maintenance, ensuring that today's smaller trees are nurtured to become the next generation of large, long-lived trees.

Parks contain the City's largest and tallest trees, while street and residential trees, though smaller, have good potential for future canopy growth.

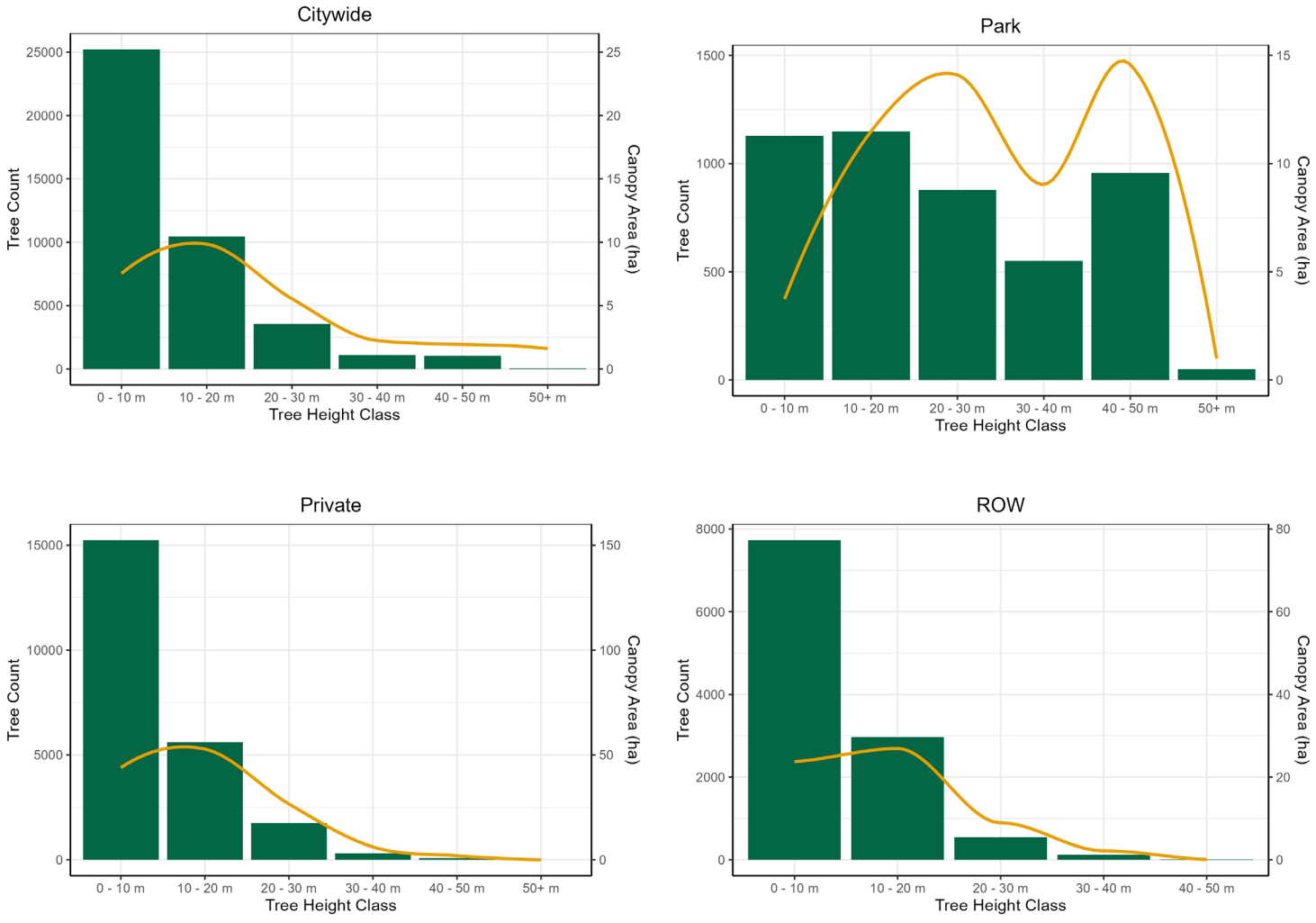


Figure 12. Tree height class and canopy area, citywide and by major land management class (park, private, and rights-of-way (ROW))

5.2 TALL TREES

Tall trees (20 metres or taller) across New Westminster are concentrated primarily on Poplar Island, the city's mature parklands, and ravine systems (Figure 13). Two trees exceeding 40 m in height were identified within Queen's Park, while the tallest trees overall are found on Poplar Island—the uninhabited island in the Fraser River. Excluding Poplar Island, the bulk of New Westminster's tall trees occur in Queen's Park (in the Queen's Park neighbourhood) and the Glenbrook Ravine (in the McBride-Sapperton neighbourhood). These areas support tall, structurally complex trees, providing important habitat and cooling benefits within an otherwise highly urbanized landscape.

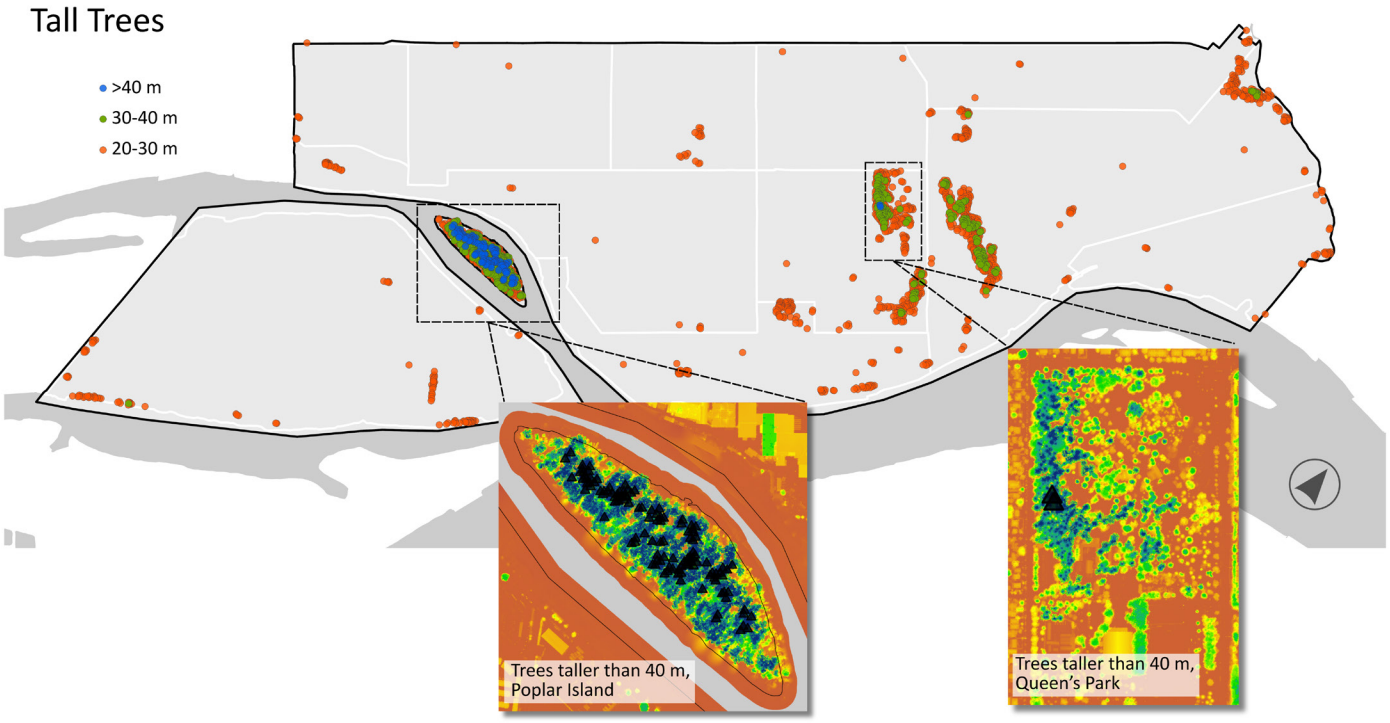
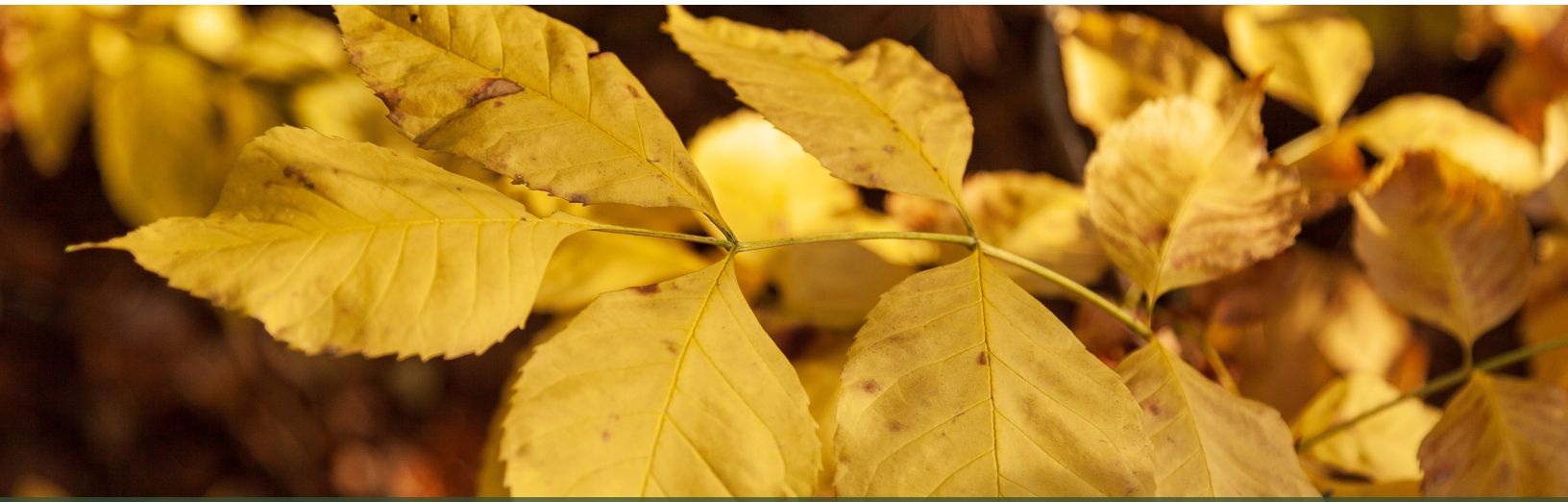


Figure 13. Tall trees (20 metres and higher) across New Westminster. Insets highlight the locations of trees exceeding 40 metres in height, shown by black triangles.



5.3 CITY ASH TREES

The City's tree inventory, including street and park trees across New Westminster, has 551 records of ash (Fraxinus) trees. Downtown has the highest percentage of ash canopy area (0.7%), followed by Queen's Park (0.4%), and the West End (0.3%; Table 3; Figure 14). Ash trees are susceptible to the emerald ash borer (EAB), an invasive beetle native to East Asia that feeds on ash species. EAB larvae tunnel beneath the bark, disrupting the tree's vascular system and often leading to tree mortality within two to five years of infestation.

Although no confirmed detections of EAB have been reported in New Westminster, its location between Burnaby and Surrey, where infestations are confirmed, makes it highly likely that the beetle is already present but undetected. As a result, ash trees in New Westminster are at risk, particularly those growing in clusters, a concern further supported by the Canadian Food Inspection Agency's EAB regulated areas mapping, which includes New Westminster.

Table 3. Presence of ash (Fraxinus) trees in New Westminster

Neighbourhood	Canopy Area (ha)	Land Area (ha)	Canopy Area (%)	Tree Count
Downtown	0.80	118	0.7	101
Queen's Park	0.44	113	0.4	34
West End	0.35	114	0.3	96
Glenbrooke North	0.18	92	0.2	21
McBride Sapperton	0.43	262	0.2	63
Queensborough	0.51	334	0.2	158
Brow of the Hill	0.14	186	0.1	34
Brunette	<0.01	84	<0.1	2
Connaught Heights	0.05	53	0.1	16
Massey Victory Heights	0.04	89	<0.1	7
Moody Park	0.09	80	0.1	19
Total	3.01	1525	0.2	551

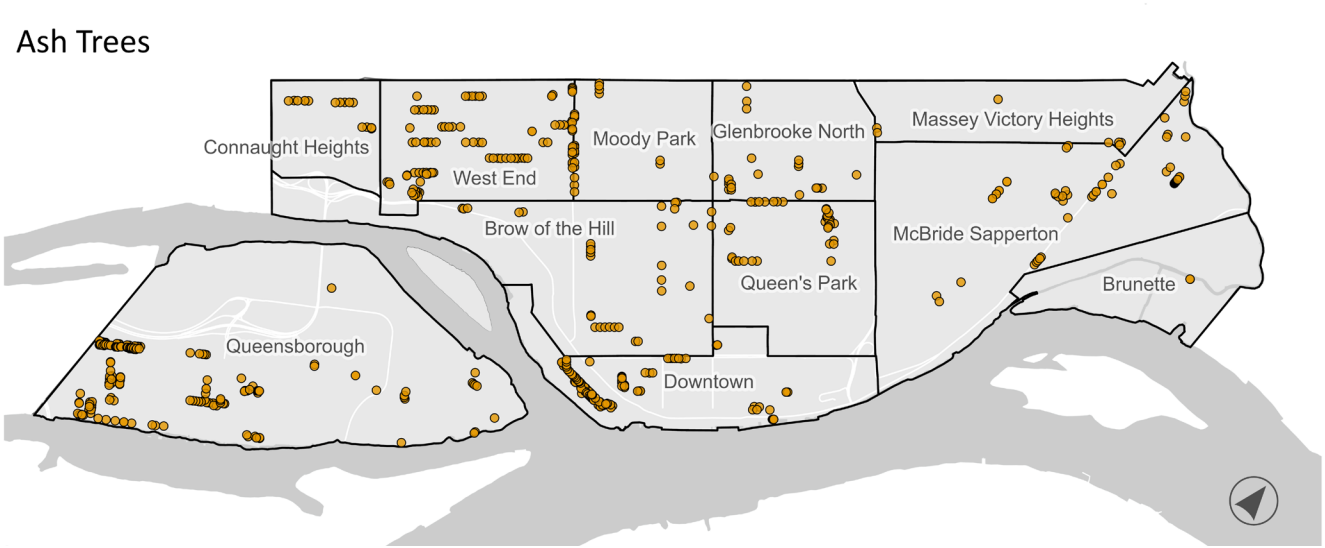


Figure 14. Street and park ash (Fraxinus) trees across neighbourhoods in New Westminster.

6. Plantable Areas and Opportunities

To assess available planting opportunities, the CanopyFit model, developed by the Urban Ecology & Sustainability Lab at UBC[3], was applied across the City of New Westminster. The model identifies potential planting locations based on available pervious surfaces, setbacks from buildings and utilities, and the minimum soil volumes required for small, medium, and large trees. This provides a citywide picture of where trees may realistically be added and at what scale. Building on available plantable area, the final output is a spatial layer representing planting opportunities for small, medium, and large trees (Figure 15).

In total, the model identified approximately 25,400 feasible planting locations (marked as "keep"), with another 23,300 sites flagged as available but potentially constrained (marked as "need further assessment") due to conflicts with utilities, parks management zones, or other restrictions. Fewer than 20% of feasible planting opportunities are located on City lands. It is noteworthy that the CanopyFit model only considers plantable areas that are already pervious. As a result, there may be additional opportunities to add trees by retrofitting streets, such as creating cutouts in paved or hardscape surfaces, that are not captured in this analysis.

Approximately 25,400 feasible planting opportunities were identified across the city, but fewer than 20 percent are on City-managed land, highlighting the need for partnerships to expand canopy.

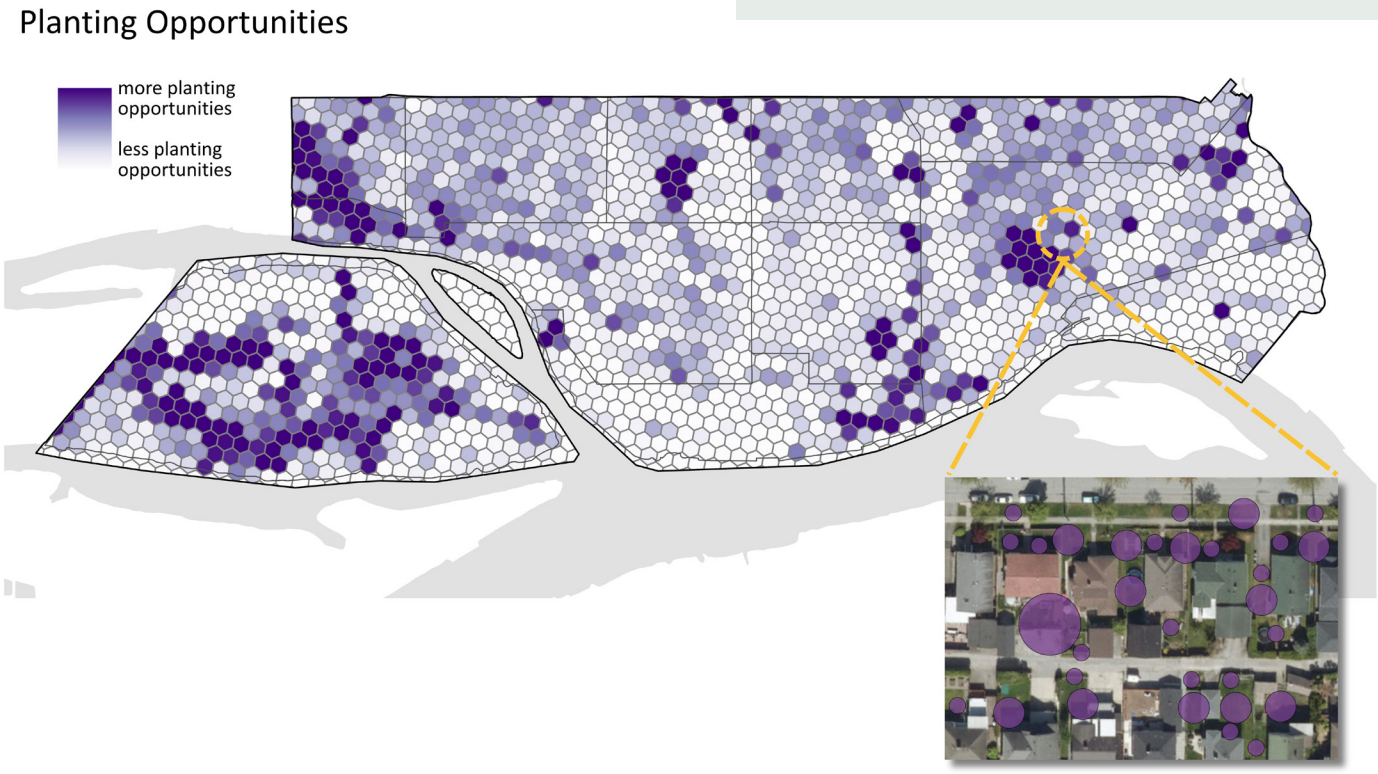


Figure 15. Planting opportunities for trees across New Westminster were simulated using the CanopyFit model and summarized by 1-hectare hexagons to illustrate areas of additional canopy coverage opportunities. The snapshot in the bottom right shows polygons (purple circles) representing small, medium, and large tree planting opportunities.

7. Canopy Modelling and Forecasting

The canopy forecasting model estimates how New Westminster's tree canopy could change over time based on current conditions, planting capacity, and anticipated development. It is not a prediction of the future, but a tool for exploring potential scenarios under different assumptions. The model's value lies in showing how various factors, such as planting rates, tree growth, and canopy loss, interact over time, helping the City plan how to achieve its 27% canopy cover target.

In 2016, New Westminster's Urban Forest Management Strategy (UFMS) estimated planting ~11,800 trees by 2035 (6,300 in boulevards, 2,200 in parks, and 3,300 on private land) to reach 27% canopy cover by 2035. These targets were based on broad assumptions about planting space, tree growth, and survival, at a time when detailed LiDAR and canopy modelling data were not yet available.

The 2025 update uses LiDAR-derived canopy data, tree growth and mortality modelling, and the CanopyFit planting opportunity model, providing a much more spatially detailed and realistic understanding of where trees can be added, how fast they grow, and how many are needed to achieve the same canopy gain.

The model can be refined as new data becomes available or as City priorities evolve, allowing ongoing adjustment to reflect real-world trends and outcomes.

7.1 MODEL APPROACH

The model combines several inputs to simulate canopy growth and loss across the city:

- Development forecasts: Estimates of how many properties are likely to redevelop over the next 25 years, and how much canopy may be lost as a result.
- LiDAR canopy data: Information on current tree sizes, ages, and distribution used to model canopy growth over time.
- Tree mortality and regeneration rates: Based on published urban forestry research and professional judgment.
- Planting potential: Based on the CanopyFit analysis of available planting space and recent City planting data.

Together, these inputs allow the model to estimate how canopy cover might evolve under different planting scenarios.

Housing and land use forecasts were used to estimate how many parcels may redevelop over the next 25 years[4]. The proportion of redeveloping parcels was applied to existing canopy cover to approximate potential canopy loss. About 6 hectares of canopy (roughly 2% of the city's total) was assumed to be removed through redevelopment, equivalent to about 1,300 trees, or 50 trees per year. These values are approximate but help indicate where canopy loss pressures are most likely to occur as New Westminster continues to grow and densify.

7.1.1 Key Model Inputs

LiDAR data was used to describe the structure of the existing urban forest, including the distribution of tree sizes and canopy areas.

Tree population and age structure were then modelled to estimate how canopy might expand as trees mature. Mortality rates were set at 1.6% per year, based on published research[5], reflecting New Westminster's proactive maintenance and watering practices that support high tree survival.

Planting assumptions include the 3,750 trees already planted since 2022, and the approximately 25,400 new planting opportunities identified through the CanopyFit model.

7.1.2 Forecast Scenarios

Two growth scenarios were tested to explore potential outcomes:

Scenario 1: Steady Planting to Capacity

This scenario assumes planting about 1,250 new trees per year from 2025 to 2045, with most trees planted on non-City property. The City is forecast to plant 6,300 trees by 2030, after which most suitable municipal sites will be filled, and further gains will depend on private and other non-City lands. With steady mortality and growth, and allowing for expected redevelopment losses, canopy cover is projected to increase from 17% in 2022, to 20% by 2035, 23% by 2050, and 27% by 2055 (Figure 16).

This represents gradual but consistent growth, suggesting that maintaining current planting rates would be enough to meet the City's canopy goal over the long term, provided planting space is fully utilized.

Scenario 2: Double the Planting Rate

This scenario assumes tree planting occurs at the rate of roughly 2,500 new trees per year until 2035, filling all identified planting sites within 10 years. Under this accelerated program, the canopy would reach 20% by 2030, 23% by 2040, and the 27% target by about 2050—five years earlier than in Scenario 1 (Figure 16).

Even under this more ambitious approach, overall canopy growth remains gradual, emphasizing that trees take time to mature and that long-term maintenance and protection are just as critical as planting.

Achieving the City's goal of 27% canopy cover is feasible, but it will require planting more trees and allowing more time for the urban forest to mature.

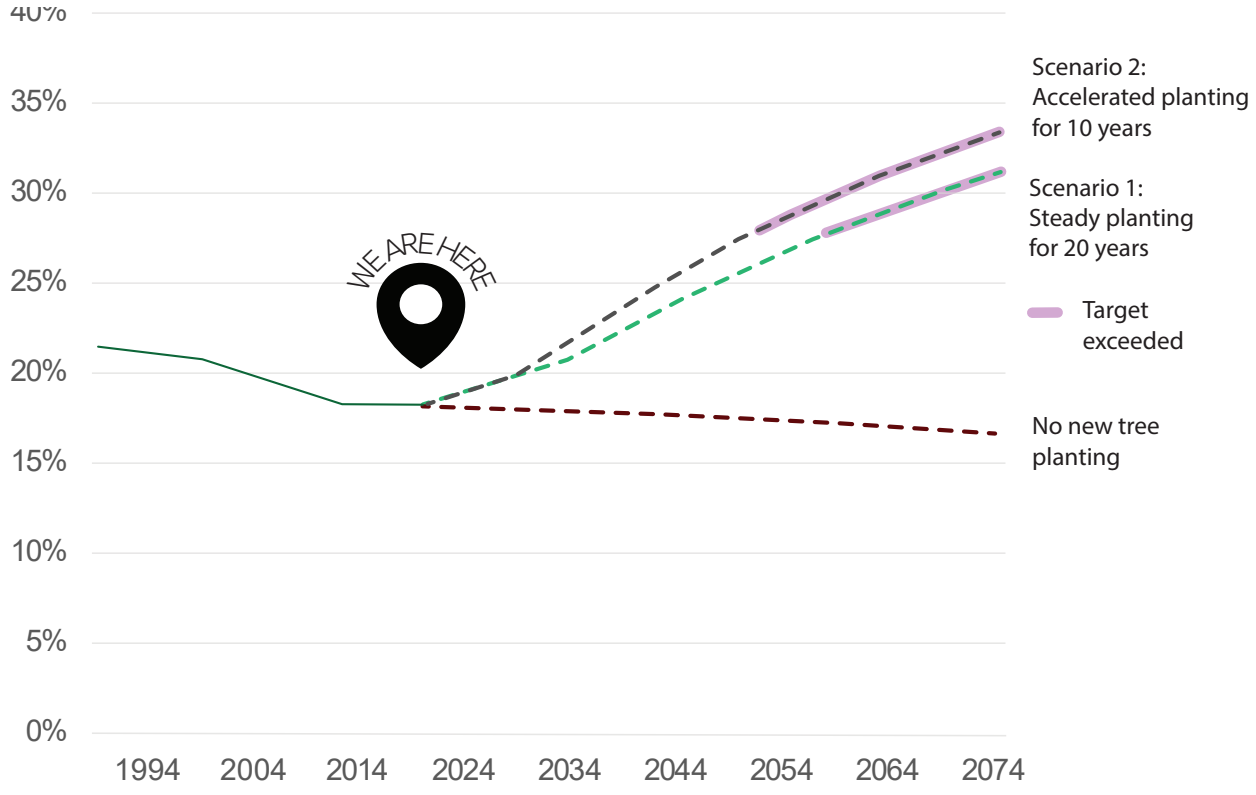


Figure 16. Canopy forecasts under future planting scenarios.

8. Conclusion

The 2025 Urban Forest Canopy and Planting Opportunities Assessment provides the most complete picture to date of New Westminster's urban forest, including its current condition and its potential for growth. The analysis found that the city's canopy has stabilized since 2013 and that policies and strategic planting have yielded tangible results.

Continued monitoring through future LiDAR updates will allow canopy change to be measured directly, providing a clear baseline for tracking progress toward the 27%. To track this progress, canopy cover will be formally measured every five years, with the next assessment scheduled for 2030.

Moving forward, the City will continue to build on this momentum through sustained and equitable planting efforts, data-driven planning, and strong partnerships. Achieving the 27% canopy target (equivalent to adding roughly 149 ha of new canopy), will require a shared commitment across public and private lands. Most future planting opportunities lie beyond City property, underscoring the need for strategies or plans of action to incentivize mature tree retention and increased tree planting on privately-owned lands.



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