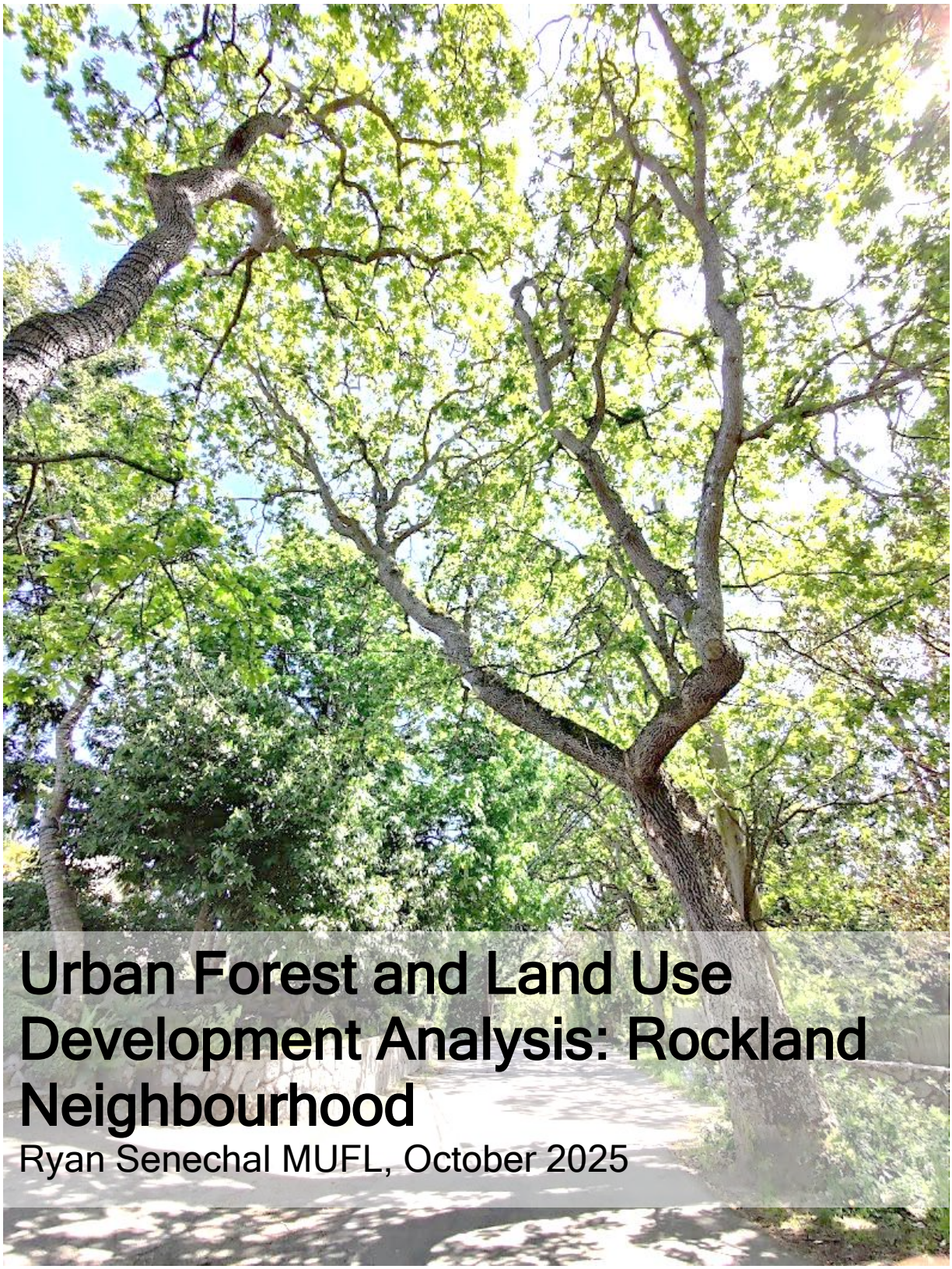


Urban Forest and Land Use Development Analysis: Rockland Neighbourhood

Ryan Senechal MUFL, October 2025

The information included in this report was gathered from numerous City of Victoria datasets and include publicly available information and information obtained through freedom of information (FOIPPA) requests. The data that has been obtained is assumed to have been validated by City of Victoria staff prior to releasing information publicly. All analysis on City of Victoria's datasets has been conducted by Ryan Senechal.

1.0 - Introduction

As part of Victoria's 10 year Official Community Plan (OCP) update in 2025, City of Victoria Council adopted a 2050 Canopy Target of 40%. This ambitious City-wide canopy cover goal establishes urban nature as a value as the City introduces several changes to urban development policies in alignment with Provincial Government requirements.

2007	2013	2019	2023
26.41%	26.46%	28.83%	30.01%
Rate of growth	0.05%	2.37%	1.18%

Table 1 – City-wide Canopy Coverage and Canopy Growth Rate (TRS 2019-2023 Table 1)

To achieve a 40% City-wide urban forest canopy, a gain of 194.91 hectares of canopy in addition to 2023's 582.69 hectares of coverage is needed. This is equivalent to 243.6 soccer fields of canopy increase distributed across the City. Plans and resourcing details outlining how the City will achieve its 2050 canopy targets (Table 1) weren't available at the time this report was produced.

Area	2050 Canopy Targets
Citywide	40%
Residential Infill Areas	50%
Priority Growth Areas	25%
Districts and Community Nodes	15%
Downtown Core Area	15%
Industrial Areas	10%

Table 2 – Victoria 2050: Official Community Plan Urban Forest Canopy Targets (2050 OCP Part 4.3)

2.0 - Urban Forest Canopy and Tree Bylaws

Victoria's tree canopy analysis conducted by Terra Remote Sensing has illustrated that City-wide canopy has grown across neighbourhoods and City-wide between 2013 and 2023 (Table 1). The City's most recent analysis acquired in 2023 indicates that City-wide canopy cover is 30%, which is up from 26.41% in 2007. Rockland's neighbourhood canopy increased by 2.98 hectares over this same period, growing from 45.01% canopy cover in 2013 to 47.39% in 2023. Monitoring the rate of canopy growth will be crucial to understand how development policies influence growth rates which fell by half between 2013-2019, and 2019-2023 measurements (Table 1).

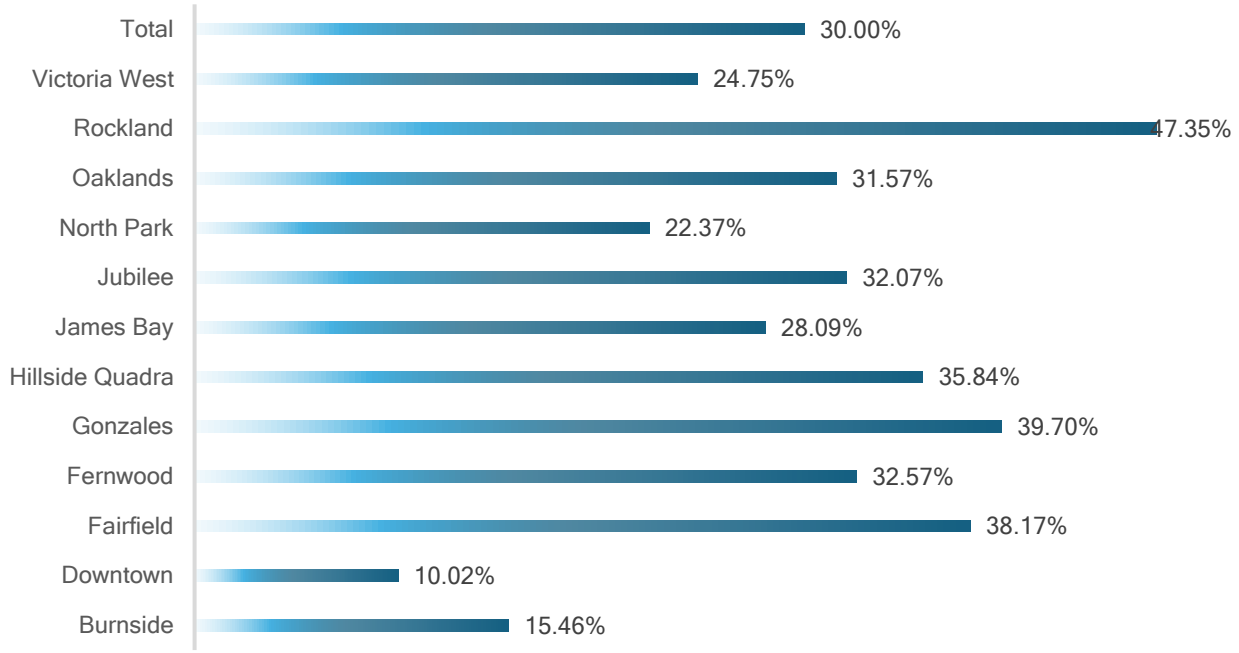


Figure 2 – 2023 Urban Forest Canopy Measurements (based on TRS 2019-2023 neighbourhood areas and neighbourhood GIS area obtained from VicMap.

2.1 - Canopy analysis as an indicator of tree bylaw effectiveness

Aerial canopy measurements are a snapshot in time, and regular measurements conducted by City of Victoria provide helpful information to monitor and manage the urban forest. Urban tree canopy measurements highlight canopy change in 3 distinct ways:

- Canopy lost from urban development and tree decline/mortality;
- Canopy gained from planting new trees and vegetation growing vertically above the 2 m heigh threshold for urban forest canopy measurement
- Canopy gained from existing trees growing larger.

2.2 – City of Victoria Tree Preservation and Protection Bylaws

Changes to Victoria's Tree Preservation Bylaw were recently implemented in 2019 (05-106) and further strengthened in the completely revised Tree Protection Bylaw (21-035). The latter Bylaw product which presently governs tree protection and development in the municipality set the strongest tree protection and tree replacement requirements for development projects in the region at the time. The Tree Protection Bylaw (21-035) was developed with support of an urban forestry contractor and included considerations of anticipated development demand in the City. The finished product was adopted in July of 2021. Notable changes to arrive in the new Bylaw (21-035) were tree replacement minimums established based on development lot size, and increased requirements for replacement trees to qualify for tree replacement minimums.

2.3 - Province of BC development legislation

Provincial Bills 44 and 47 and Provincial Housing Target Orders implemented in 2023 have substantially changed the scale of pressures on urban forests by way of the Province regulating higher floor space ratios (FSR) in mandated local government Official Community Plan updates. The limitations of Tree Protection Bylaws are already established in Division 7 of the Provincial Government Community Charter (Authority in Relation to Trees), primarily that the local government does not have the authority to prevent development to allowed zoning density. The

combination of lot unit minimums that municipalities are mandated to enable in updated OCP's results in reduced space to retain existing trees, and to plant replacements.

3.0 - Victoria 2050: Official Community Plan (Landscape Dedication)

The City of Victoria has proceeded to adopt a reduction in required landscape dedication for new developments (6%) from its previous OCP (9%). The City has suggested that less plantable space is more: that contiguous planting corridors across developed lots will offset the increased floor space ratio on individual lots.

A 3% loss scenario was evaluated comparing plantable space with the Tree Protection Bylaw's tree replacement minimums (Figure 3). The model uses the City average development lot size (460 m²) and the minimum soil volume for a replacement tree to be accepted. A 9% landscape dedication per lot produced a minor deficiency (126 trees) in available space for planting vs. what the Tree Protection Bylaw has intended in its tree replacement minimum requirements. The reduced landscape dedication approved in Victoria 2050: Official Community Plan (6%) provides a striking discrepancy at scale (1408 lots) between what the Tree Protection Bylaw requires in quantity of trees (2976) and how many trees can be planted in the space available (1900).

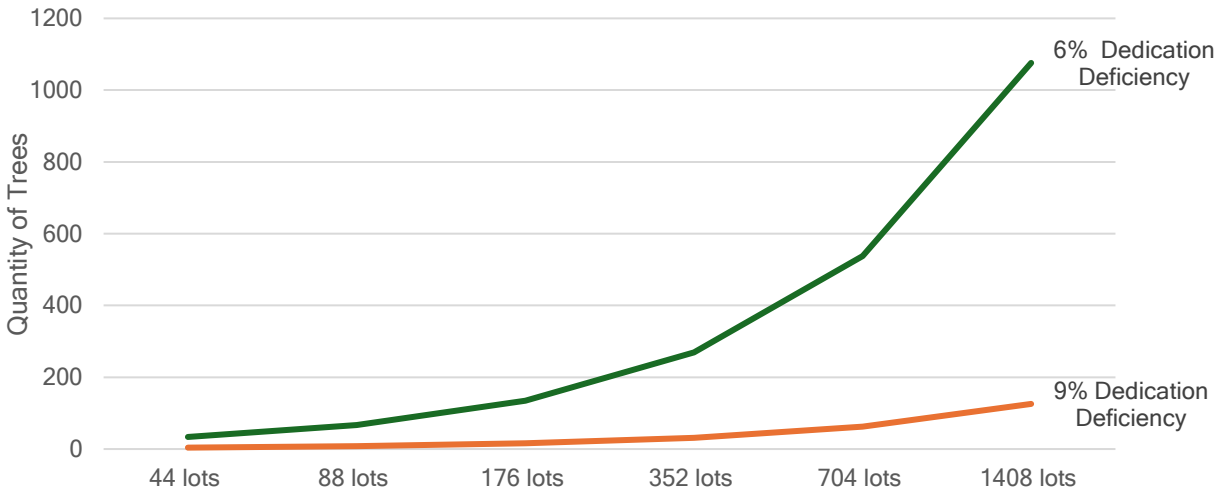


Figure 3 – Landscape Dedication and Bylaw Replacement Tree Deficiency Scenarios based on Bylaw 21-035 soil volume, and tree replacement minimums for a 460 m² lot.

3.1 - Sustainable Development, Sustainable Urban Forest

City of Victoria senior staff and Council have provided consistent comment that it is conducting urban development sustainably relative to stewardship of the urban forest. The proof for sustainable urban forest management according to the City has been demonstrated in its ongoing urban forest canopy analysis results. Terra Remote Sensing has provided additional detail to take in consideration in its technical reports that "it will be important to monitor the continual changes in the City's vegetation canopy to assess whether the fill in growth of existing and new plantings will continue to outstrip the vegetation loss". The cautionary approach suggested by the City's LiDAR analysis contractor is valuable to consider, as is the rate of growth between 2007 and 2023 which has averaged 1.2% of growth between each measurement.

3.2 – Vegetation Gain, Vegetation Loss

In Terra's 2019-2023 technical report, the author further elaborates that "there is an imbalance between added vegetation (new plantings) versus removed vegetation -- removed vegetation is far greater than the added vegetation, however, the overall losses are offset by the effect of horizontal vegetation growth". The contrast of measured vegetation gain and loss is illustrated in Figure 4, and the impact to neighbourhood level canopy loss can stand out visually as is the case of trees removed as part of the Victoria High School expansion.

It is helpful to recognize that 175.6 hectares of canopy was lost, and 248.5 hectares of canopy was gained over the 16 years of LiDAR vegetation surveys City of Victoria has analyzed. The results of LiDAR analysis indicates a dilemma for achieving a 10% canopy gain over 25 years: 70 hectares of vegetation gain has been measured in 16 years, and 194 hectares of vegetation are required to achieve the 40% milestone in the year 2050. If changes to the OCP have no effect on the present balance of vegetation gain vs. loss and canopy continues to grow at its current rate, the City will fall short of its 40% in 2050 target without interventions.

Figure 4 – Pink colour represents 2019-2023 canopy gain (left) and loss (right). Green colour represents existing canopy. City of Victoria LiDAR rasters obtained through City of Victoria's open data portal.

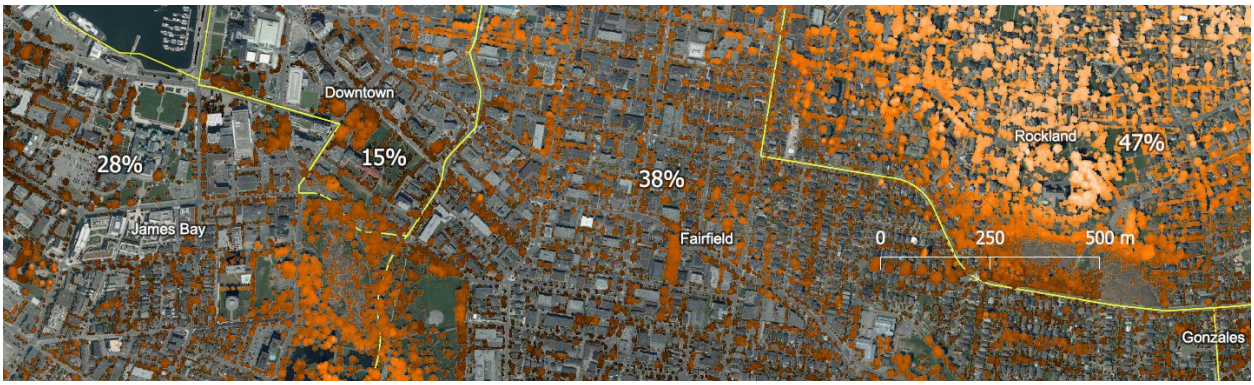


Figure 5 – City of Victoria 2023 LiDAR Vegetation Canopy False-Colour Visualization and Neighbourhood Canopy Percentages. LiDAR raster obtained through City of Victoria's open data portal.

4.0 – City-wide tree inventory

In October 2025, the City's public tree inventory held a total of 34,293 trees and little is known of their status as the City provides minimal public information on its trees presently. In the fall of 2021, City staff removed several categories of information that had previously been public including year of planting, structural and health condition, maintenance prescribed, and last date of inspection.

34,293	9,941 (29%)	36 cm
City Trees	Native Species	Average Diameter (DBH)

Revisiting 33,356 trees City-wide, and 956 trees in Rockland in inventory data from August of 2021 (prior to the City's removal of condition information from public data), tree condition information was reviewed. These data points (Figure 6) give a clearer picture than the limited present data on what challenges are ahead for the urban forest management including service demands and annual tree replacement requirements.

The City's full inventory was captured once in 2013 and is now updated partially and opportunistically by staff as they attend to perform maintenance and inspections. Trees in fair condition typically require more interventions and may be in early stages of decline; this category can create higher levels of service requests and maintenance requirements. The City has been effective at keeping its exposure to trees in poor, critical and dead condition trees very low. Presently, the overall health and structure condition of the urban forest is known only to City of Victoria staff.

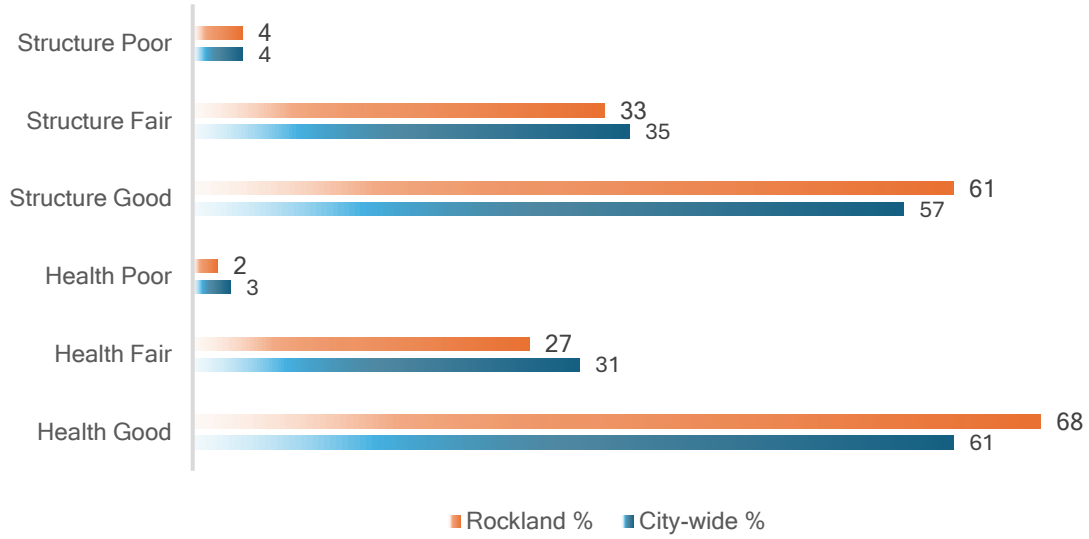


Figure 6 – Public inventory tree health and structure condition (2021)

4.1 – City-wide planting analysis

The City's performance on tree planting has averaged 398 trees planted on public property per year between 2014 and 2024. Public tree removals over the same period averaged 264 per year (data was not reported in 2014, 2023, and 2024). Existing planting commitments are adding approximately 1% to the inventory and removing 0.7% annually, resulting in an annual net inventory gain of 0.3%.

The last 5 years have improved on the 10 year average, with annual planting at 494 trees and removals at 251 trees, which amounts to a 0.7% annual net gain. City of Victoria's Climate Action newsletter (Sustainable City) highlighted a planting commitment of 350 trees for the year 2025, which is below average for the 5 year and 10 year periods, and is the lowest planting quantity achievement since 2018.

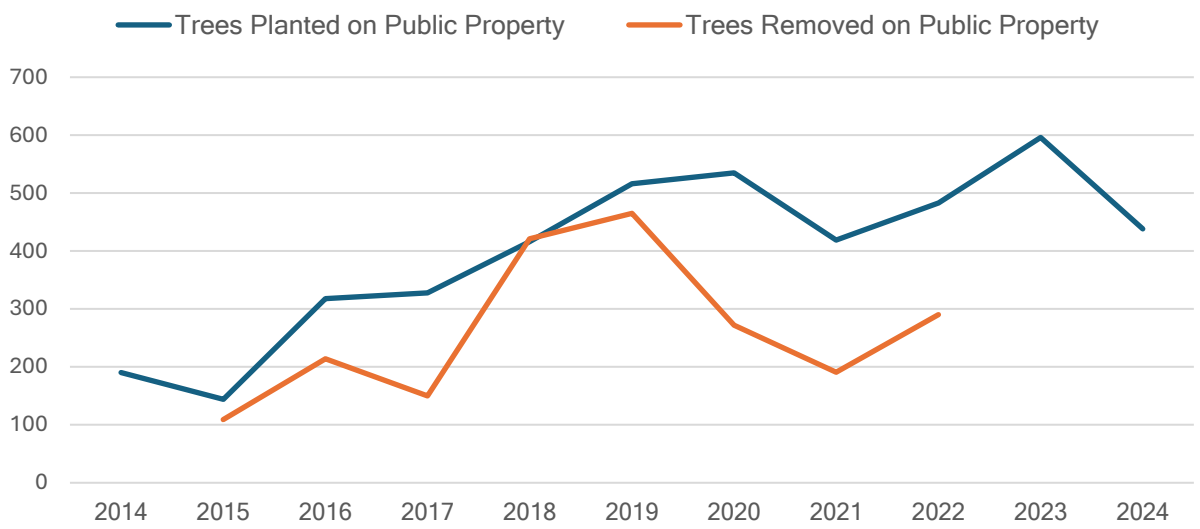


Figure 7 – City of Victoria 10 year public tree planting and removal quantities. City of Victoria Annual Reports 2014-2024.

4.2 – Rockland Neighbourhood Public Tree Planting and Removal

Neighbourhood level public tree planting and removal metrics are captured by the City but are not released publicly. While the information obtained through FOI does not seamlessly align with the totals highlighted in the City's Annual Reports, the numbers are reasonably close and most importantly provide clarity on neighbourhood level replanting efforts.

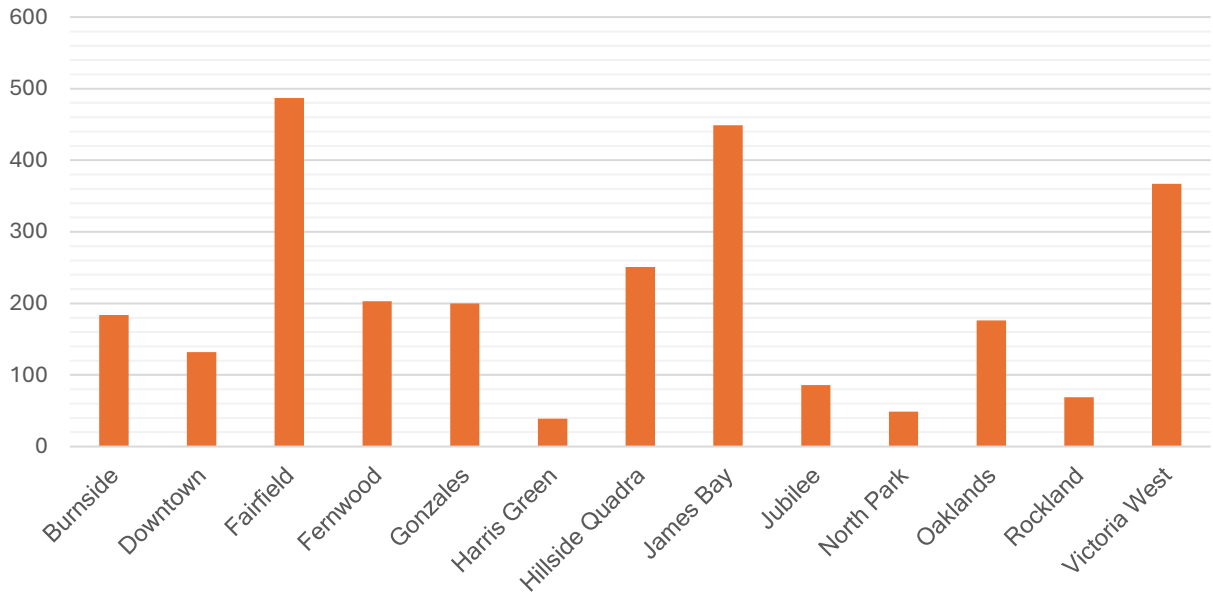


Figure 8 – Total public tree planting by neighbourhood, 2019-2023 data obtained by FOI request.

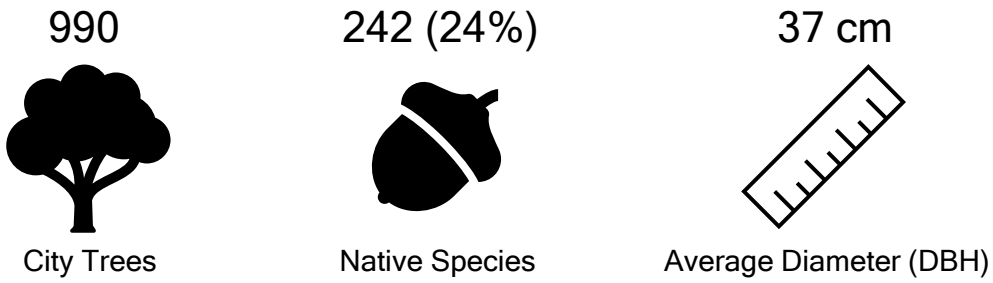
The City of Victoria presently lacks policy and plans the guide neighbourhood level targets. Based on information put forth in Victoria 2050's OCP Canopy Targets (Figure 1), we can anticipate that the City will shift away from neighbourhood level planning toward its zoning modernization typologies. With the City's inventory and reporting metrics presently geared to neighbourhoods, this will be a challenging transition for the City to navigate and for residents to understand.

4.3 - Distributional Tree Equity

An important indicator of urban forest canopy distributional equity is where trees are being planted within neighbourhoods. For example, James Bay which is below the City-wide average with 28% canopy (Figure 2) was second highest planted neighbourhoods in 2019-2023 (Figure 8). Only 27% of the 449 trees planted in James Bay in 2021-2023 were planted outside of Beacon Hill Park.

4.4 - Public Trees in Rockland

Reviewing the City's public tree inventory updated as of October 2025, Rockland has a total of 990 trees (Figure 9), amounting to approximately 3% of total City-owned and inventoried trees. This figure is an important contrast to neighbourhood level urban forest canopy. Rockland has nearly double the urban forest canopy of Victoria West, and 30% of Victoria West's public trees.



Rockland faces greater risks through development intensification due to a lack of City-owned parkland and plantable space on public right of ways. The contiguous canopy that presently exists in the Rockland neighbourhood provides crucial corridors for wildlife and important ecosystem services to the whole of the community. Direct benefits on human well-being are limited in some ways due to much of the canopy being situated on private and inaccessible land.

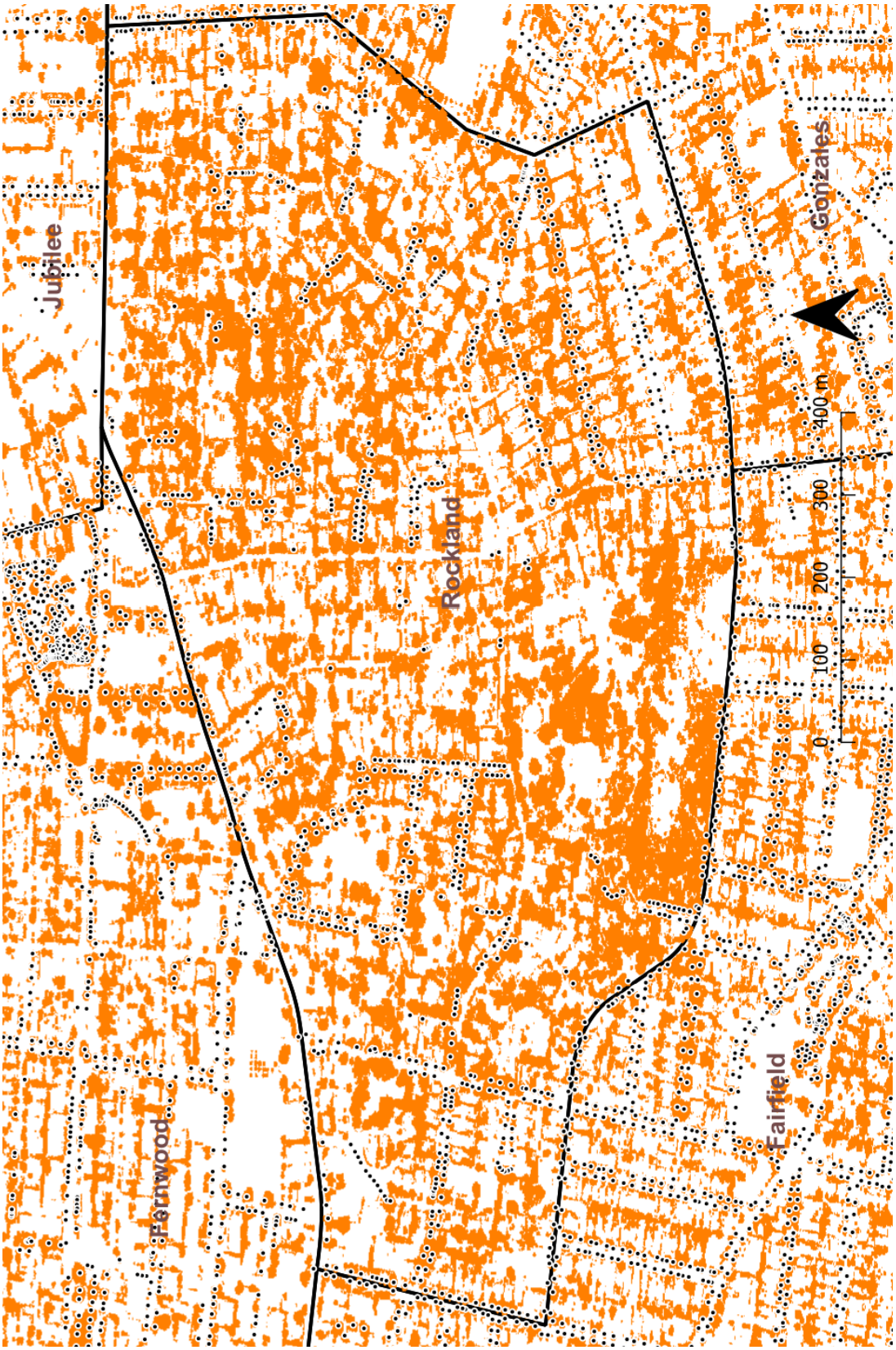


Figure 9 – Rockland's 2023 urban forest canopy (orange) and public trees (black circles). City of Victoria public tree inventory and LiDAR raster obtained through City of Victoria's open data portal.

4.5 - Tree Planting and Premature Mortality

Taking a granular view of the City's tree removal program in fall of 2025 highlights how tree planting efforts are further eroding an annual public tree net gain that is producing under 1% growth annually. Of 176 trees removed in fall of 2025, 34 (19%) had been planted within the last 5 years.

4.6 - Tree Planting on Private Lands

The City has recently begun inventorying of Bylaw Protected replacement trees on private property in addition to maintaining its inventory of public trees. Minimal information is provided publicly such as year of planting, species of planting, or measurements of tree diameter and height. Thus far, the City has recorded 59 privately-owned replacement trees in the Rockland neighbourhood, and a City-wide total of 455 trees.

5.0 - Tree Reserve

The City of Victoria collects funds into the Tree Reserve when development projects are unable to achieve the minimum quantity of replacement trees. Since the Tree Protection Bylaw (21-035) was adopted in 2021, cash-in-lieu funds are being generated from tree replacement shortcomings in the Bylaw at a cost of $2,000 per tree that the applicant falls short. The funds collected are designated "to plant trees on public and private lands to replace tree canopy lost, and for the promotion and stewardship of a healthy tree canopy in the City".

2021	2022	2023	2024
164900	407333	94825	265344
Reserve Growth Rate	147%	-76%	180%

Table 3 – City of Victoria Tree Reserve Revenues 2021-2024 obtained by FOI request.

5.1 - Tree Reserve Expenditures

A review of City expenditures that have been associated with Tree Reserve funds indicates that existing operational commitments for tree planting and tree removal are extending beyond budgets. For example, 232 trees were purchased using Tree Reserve funds in 2024, but the City's overall planting achievement in 2024 fell short of 4 of the 5 previous year's planting outputs. Other expenses including annual inspection and certification of bucket trucks, and $115,000 in contracted arborist services in 2024 alone raise questions about the City's financial resources to meet existing program commitments.

Datasets reviewed

City of Victoria 2007-2013 Vegetation Change Detection Analysis – Phase 1 Report
City of Victoria 2013-2019 Vegetation Change Detection Analysis – Phase 2 Report
City of Victoria 2019-2023 Vegetation Change Detection Analysis – Phase 3 Report
City of Victoria Tree Protection Bylaw 21-035
City of Victoria Official Community Plan 2050 (Draft)
City of Victoria Official Community Plan 2023
City of Victoria Annual Reports 2014-2024
City of Victoria Tree Reserve Fund 2023-2025 (FOI Request VIC-2025-188)
City of Victoria Tree Reserve Fund 2021-2024 (FOI Request VIC-2024-044)
City of Victoria Tree Planting 2019-2023 (FOI Request VIC-2024-082)
City of Victoria Tree Protection Bylaw Implementation Manual (FOI Request VIC-2023-08)
City of Victoria Public Tree Inventory
City of Victoria Private Replacement Tree Inventory