metrovancouver

2020 Regional Tree Canopy Cover and Impervious Surface

in Metro Vancouver

March 2024

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EXECUTIVE SUMMARY

This report focuses on two physical components of urban areas: tree canopy cover and impervious surface. Tree canopy refers to the leaves and branches, and their coverage can be identified by the ground area they cover when viewed from above. Impervious surface, such as paved roads and buildings, are areas that allow very little or no water to pass through.

Trees provide a range of important ecosystem services for humans including shading, carbon storage, stormwater management, and physical, mental, and social well-being.[1,2] Measuring tree canopy cover is a simple way to determine the extent of the urban forest and the magnitude of services it provides. In contrast, impervious surface is associated with many of the negative effects of urbanization, such as higher temperatures (the 'Urban Heat Island' effect)[3], and increased flood risk, hydrological cycle disruptions and poor water quality, all of which can impact stream health. Measuring the level of impervious surface across a landscape gives an indication of the potential extents of these negative effects. Tree canopy cover and impervious surface are also indicators of how resilient communities may be to climate change-related impacts. Looking at whether these indicators are distributed equitably across cities or regions can help to identify communities or populations more vulnerable to risks and receiving fewer ecosystem service benefits.

Adopted by the Metro Vancouver Board in February 2023, *Metro 2050*, the Regional Growth Strategy, commits Metro Vancouver to collect and maintain tree canopy cover and imperviousness data, and to and share these datasets with member jurisdictions. *Metro 2050* also includes a regional target to "increase the total regional tree canopy cover within the Urban Containment Boundary from 32% to 40% by the year 2050" and actions for member jurisdictions to: a) identify local tree canopy cover targets that contribute to the regional target; and b) enable the retention and expansion of urban forests using various tools.

Using 5-metre resolution land cover classification data from 2020, Metro Vancouver has summarized tree canopy cover, impervious surface, and potential planting area for various geographies. These data were also compared to the regional 2014 tree canopy cover and impervious surface datasets to report on change. For this analysis, the following conclusions were drawn:

- In 2020, tree canopy covered 53% of the entire Metro Vancouver region and 31% of the Urban Containment Boundary (UCB). Between 2014 and 2020, tree canopy cover in the UCB decreased by 1% (from 32 to 31%). Concentrated areas of tree canopy cover loss generally corresponded with greenfield development or densifying urban areas.

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[1] Livesley, S.J., McPherson, E.G. and Calfapietra, C. (2016), The Urban Forest and Ecosystem Services: Impacts on Urban Water, Heat, and Pollution Cycles at the Tree, Street, and City Scale. J. Environ. Qual., 45: 119-124. https://doi.org/10.2134/jeq2015.11.0567

[2] van den Bosch, M. and Ode Sang, Å. (2017). Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews. *Environmental Research*, 158: 373-384. https://doi.org/10.1016/j.envres.2017.05.040

[3] The term "Urban Heat Island" describes built up areas that are hotter than nearby rural areas. More details at https://climateatlas.ca/urban-heat-island-effect

- In 2020, impervious surface covered 22% of the region and 54% of the UCB. Between 2014 and 2020, impervious surface in the UCB increased by 4% (from 50 to 54%). Areas of increasing impervious surface generally correspond to greenfield development and industrial areas.
- The proportion of area covered by tree canopy and impervious surface varies across the region. The greatest percentages of canopy cover and impervious surface were found in residential lands within the UCB. Single detached residential neighbourhoods alone observed 21% tree canopy cover and 19% impervious surface – in part due to the abundance of this land use across the UCB.
- In 2020, private lands had a relatively low tree canopy coverage (27%), but the majority of tree canopy cover in the UCB (57%) was found on private land - primarily because the majority of land in the UCB (69%) is privately-owned. Impervious surface on private lands was relatively high (57%).

This report predicts that over the next 20-30 years, tree canopy cover within the UCB could decrease from 31% to 29% as greenfield lands are developed and single detached housing stock is redeveloped.[4] However, with the implementation of progressive urban forest management strategies, it is possible to 'offset' these losses and to reach the *Metro 2050* UCB tree canopy cover target of 40% through tree planting. Metro Vancouver's Potential Planting Area dataset identifies areas that member jurisdictions can further explore for tree planting. Municipal staff are encouraged to ground-truth this information. Metro Vancouver also recommends conducting additional social equity spatial analysis in collaboration with communities to identify potential areas for tree planting that could improve health outcomes and climate resilience for vulnerable populations.

It should be noted that several Metro Vancouver member jurisdictions have conducted finer-resolution tree canopy analyses within their boundaries, and some have also reported change over time. Metro Vancouver's analysis provides a consistent regional assessment and fills data gaps for municipalities that do not currently have local mapping.

In summary, this analysis concludes that tree canopy cover has declined and impervious surface levels increased in most member jurisdictions between 2014 and 2020. Such trends are expected to continue as parts of the region urbanize. To help reverse this trend, this report recommends municipalities employ tools various tools, such as adopting urban forest management strategies, setting ambitious local tree canopy cover targets, conducting regular monitoring and reporting, strengthening and enforcing local tree protection bylaws, and including tree canopy cover requirements in zoning bylaws. Best practices and alternatives can be found in the Metro Vancouver Tree Regulations Toolkit.

As part of *Metro 2050* performance monitoring, Metro Vancouver will continue to measure and report on tree canopy cover and impervious surface changes every 6 years in alignment with the collection of regional remote sensing imagery.

[4] This projected decrease does not consider the implementation of requirements under the new Provincial housing legislation because significant uncertainty remains about the magnitude and pace of local uptake. When more detail becomes available, Metro Vancouver will include those projections.

BACKGROUND

This report focuses on two physical components of urban areas: tree canopy cover and impervious surface. Tree canopy refers to the leaves and branches, and their coverage can be identified by the ground area they cover when viewing from above. Impervious surface, such as paved roads and buildings, includes areas that allow very little or no water to pass through them.

Trees provide a range of 'ecosystem services' – the benefits people obtain from ecosystems – including shading and cooling (which helps to mitigate the Urban Heat Island effect[5]), carbon storage, stormwater management, and wildlife habitat.[6] There is also a growing body of evidence demonstrating that trees and other greenspace have significant human health and well-being benefits through disease prevention and promotion of health.[7] Measuring tree canopy cover is a relatively simple way to determine the extent of the urban forest and the extent of services it provides.[8] Healthy forests in both urban and natural areas are an important component of regional livability and resilience to climate change.

The amount of impervious surface is a general measure of urbanization. It is also an ecological health indicator because increasing levels of imperviousness result in disrupted hydrological cycles and increased amounts of polluted runoff entering streams. Increased imperviousness also results in increased temperatures compared to surrounding rural areas because there is less vegetation, which results in less shade and cooling (from plant evapotranspiration). This is known as the 'Urban Heat Island' effect and identifying areas with high imperviousness is a way of identifying communities at higher risk of potential impacts from heat – an issue of increasing concern as climate change results in increasing temperatures. Areas with high imperviousness may also be at greater risk of localized flooding as water is less able to infiltrate into the ground. This issue will also be exacerbated by climate change, which is expected to bring more frequent extreme rain events. Imperviousness is an indicator of ecological health, vulnerability to climate impacts, and human health and well-being.

Policy Context

In February 2023, Metro Vancouver adopted *Metro 2050*[9], the Regional Growth Strategy, which is the regional federation's collective vision for how growth will be managed to support the creation of complete, connected, and resilient communities, while protecting important lands and supporting the efficient provision of urban infrastructure like transit and utilities. Among other actions, *Metro 2050* requires the Metro Vancouver Regional District to:

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[5] The term "Urban Heat Island" describes built areas that are hotter than nearby rural areas. More details at https://climateatlas.ca/urban-heat-island-effect

[6] Livesley, S.J., McPherson, E.G. and Calfapietra, C. (2016), The Urban Forest and Ecosystem Services: Impacts on Urban Water, Heat, and Pollution Cycles at the Tree, Street, and City Scale. J. Environ. Qual., 45: 119-124. https://doi.org/10.2134/jeq2015.11.0567

[7] van den Bosch, M. and Ode Sang, Å. (2017). Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews. *Environmental Research*, 158: 373-384. https://doi.org/10.1016/j.envres.2017.05.040

[8] Leff, M. (2016). The Sustainable Urban Forest - A Step-by-Step Approach

[9] *Metro 2050* (metrovancouver.org)

> *collect and maintain data, including the Sensitive Ecosystem Inventory,* ***tree canopy cover, imperviousness,*** *and carbon storage datasets; report on gains and losses and climate change impacts on ecosystems; and share these datasets with member jurisdictions. (Action 3.2.2a)*

Metro 2050 also set a regional target to:

> *increase the total regional tree canopy cover within the Urban Containment Boundary from 32% to 40% by the year 2050. (Action 3.2.1b)*

The 32% baseline was calculated using data from 2014[10]. To assess change since 2014, and report on progress toward the regional tree canopy cover target, Metro Vancouver has conducted the same analysis for the year 2020. This report shares the results of that analysis and offers some recommendations for decision-makers to consider. Because urban forest management is within local government jurisdiction, *Metro 2050* includes actions for Metro Vancouver member jurisdictions to:

- *identify local ecosystem protection and tree canopy cover targets, and demonstrate how these targets will contribute to the regional targets in Action 3.2.1. (Action 3.2.7a)*; and

- *enable the retention and expansion of urban forests using various tools, such as local tree canopy cover targets, urban forest management strategies, tree regulations, development permit requirements, land acquisition, street tree planting, and reforestation or restoration policies, with consideration of resilience. (Action 3.2.7c ii)*

As of January 2024, most member jurisdictions have tree bylaws, several have adopted tree canopy cover targets (as noted in the "Local Tree Canopy Cover Targets" section of this report), and many are in the process of implementing or developing urban forest management strategies.

Metro 2050 currently does not include targets or actions regarding the reduction of impervious surface.

2020 Data and Methodology

The 2020 Metro Vancouver Regional Land Cover Classification dataset was used to map and measure tree canopy cover and impervious surface across the Metro Vancouver region. The Land Cover Classification is a 5 metre resolution GIS raster spatial dataset that was created using PlanetScope satellite imagery, LiDAR data (where available), and other ancillary datasets.[11] Further analysis was conducted using a 1 metre resampled GIS raster spatial dataset. The 2020 tree canopy cover and imperviousness, and Land Cover Classification datasets are available on the Metro Vancouver Open Data portal (arcgis.com).

Tree canopy cover is the area covered by all deciduous and coniferous tree crowns as measured from above. The Land Cover Classification dataset includes deciduous tree and coniferous tree classes that

[10] Regional Tree Canopy Cover and Impervious Surfaces, 2019 (metrovancouver.org)
[11] Metro Vancouver Regional District Regional Land Cover Classification and Sensitive Ecosystem Inventory Update – Summary Report, 2022. Data is available on the Metro Vancouver Open Data Portal (arcgis.com)

were summed to provide the area of all tree canopy cover. The overall accuracy of the Land Cover Classification data is high (88.3%; kappa value of 0.85) and comparable to the accuracy reported for the 2014 Land Cover Classification. However, potential sources of error with this type of data include misclassification (e.g., small trees versus tall shrubs) and 5 metre data resolution (e.g., some small trees may be missed). The tree classes had relatively high accuracies – 80% for deciduous trees and 94% for coniferous trees.

Impervious surface includes areas that let little to no water pass through. The Land Cover Classification dataset includes several classes that are, or tend to be, impervious and the area of these classes was summed to provide an estimate of total impervious surface. The Land Cover classes included as impervious surface areas were Buildings, Paved, Other Built, and Barren.[12] Potential sources of error include tree canopy obscuring impervious surface areas and the 5 metre resolution (e.g., some small features may be missed). Further, this approach designates everything impervious or pervious whereas in reality, many surfaces are somewhere in-between, and perviousness can change over time. For example, permeable pavement appears impervious but actually allows some water through; and, an area of bare soil would typically be considered permeable but once baked by the sun it can be quite impervious. To account for these nuances, impervious 'weightings' were applied to the appropriate Land Cover classes when summarizing impervious surface by city block (i.e., census dissemination block; more details in Table C2 in Appendix C).

Potential planting area is land that could theoretically be used to increase tree canopy cover. Potential Planting Area (%) includes areas currently occupied by non-tree vegetation (e.g., grass, shrubs), soil patches, barren surfaces, and pavement that does not fall on roads. Under the right circumstances, potential planting areas could be modified to increase tree canopy cover.

In this report, tree canopy cover and imperviousness are reported as a percentage of an area, for example, tree canopy cover % by city block, or % impervious surface within the Urban Containment Boundary (UCB). Areas considered in tree canopy cover, impervious surface, and potential planting area calculations do not include rivers and oceans, but do include areas covered by inland water bodies.

Analysis Areas

As shown in Figures 1 and 2, this study focused on five main analysis areas:

1. The Metro Vancouver **Region** is the area within the administrative boundaries of the Metro Vancouver member jurisdictions.

2. The **Regional Core** is the more urbanized southern part of the region and excludes the large parks and estuaries under provincial management, watersheds and other higher elevation areas. The Regional Core is most relevant for local policy and land use planning, and it is where local decisions and actions typically have the most impact.

[12] See Table C1 in Appendix C for descriptions of Land Cover classes.

3. The **Urban Containment Boundary** (UCB) is the area within Metro Vancouver where urban development and future urban growth are focused. In addition to the *Metro 2050* 40% tree canopy cover target for the UCB, *Metro 2050* has also set a target of containing 98% of the region's population growth within the UCB. The UCB is used as the primary analysis area in this report because it is where most people in the region live and work. It is where losses in tree canopy cover and increases in impervious surface most likely to occur through development and redevelopment. It is also where the negative impacts from high levels of impervious surface (e.g., extreme heat, flooding) will be experienced by the most people, and therefore an important area to prioritize tree retention and replanting efforts so residents can benefit from the urban forest's ecosystem services (e.g., shading, cooling, stormwater management).

4. Metro Vancouver is a federation of 21 municipalities, one treaty First Nation, and one Electoral Area (including the University of British Columbia (UBC) and University Endowment Lands (UEL)). These '**member jurisdictions**' include the Village of Anmore, the Village of Belcarra, Bowen Island Municipality, the City of Burnaby, the City of Coquitlam, the City of Delta, Electoral Area A, the City of Langley, the Township of Langley, the Village of Lions Bay, the City of Maple Ridge, the City of New Westminster, the City of North Vancouver, the District of North Vancouver, the City of Pitt Meadows, the City of Port Coquitlam, the City of Port Moody, the City of Richmond, the City of Surrey, scəwaθən məsteyəxʷ (Tsawwassen First Nation), the City of Vancouver, the District of West Vancouver, and the City of White Rock.

5. A **Watershed** is an area of land that drains surface water and groundwater to a common water body, such as a creek, stream, lake or the ocean. In this report, the term 'watershed' refers to areas defined by the Province as watersheds of third order and greater (based on the Strahler Stream Order classification method).[13]

[13] WSA - Third-Order and Greater Watersheds (50,000) - BC Geographic Warehouse Custom Download - Data Catalogue (gov.bc.ca)

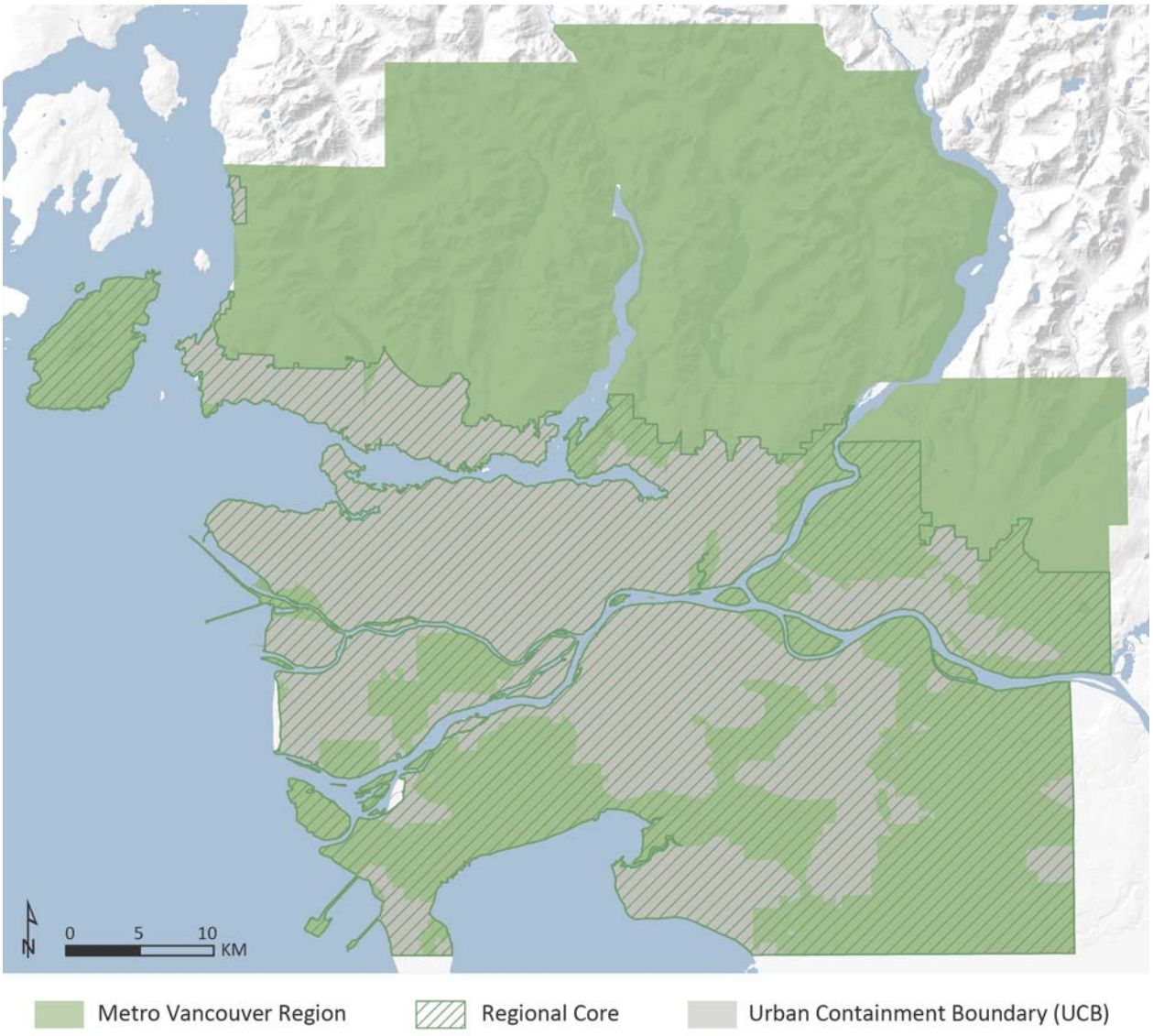

Figure 1. The Metro Vancouver Region, Regional Core, and Urban Containment Boundary (UCB).

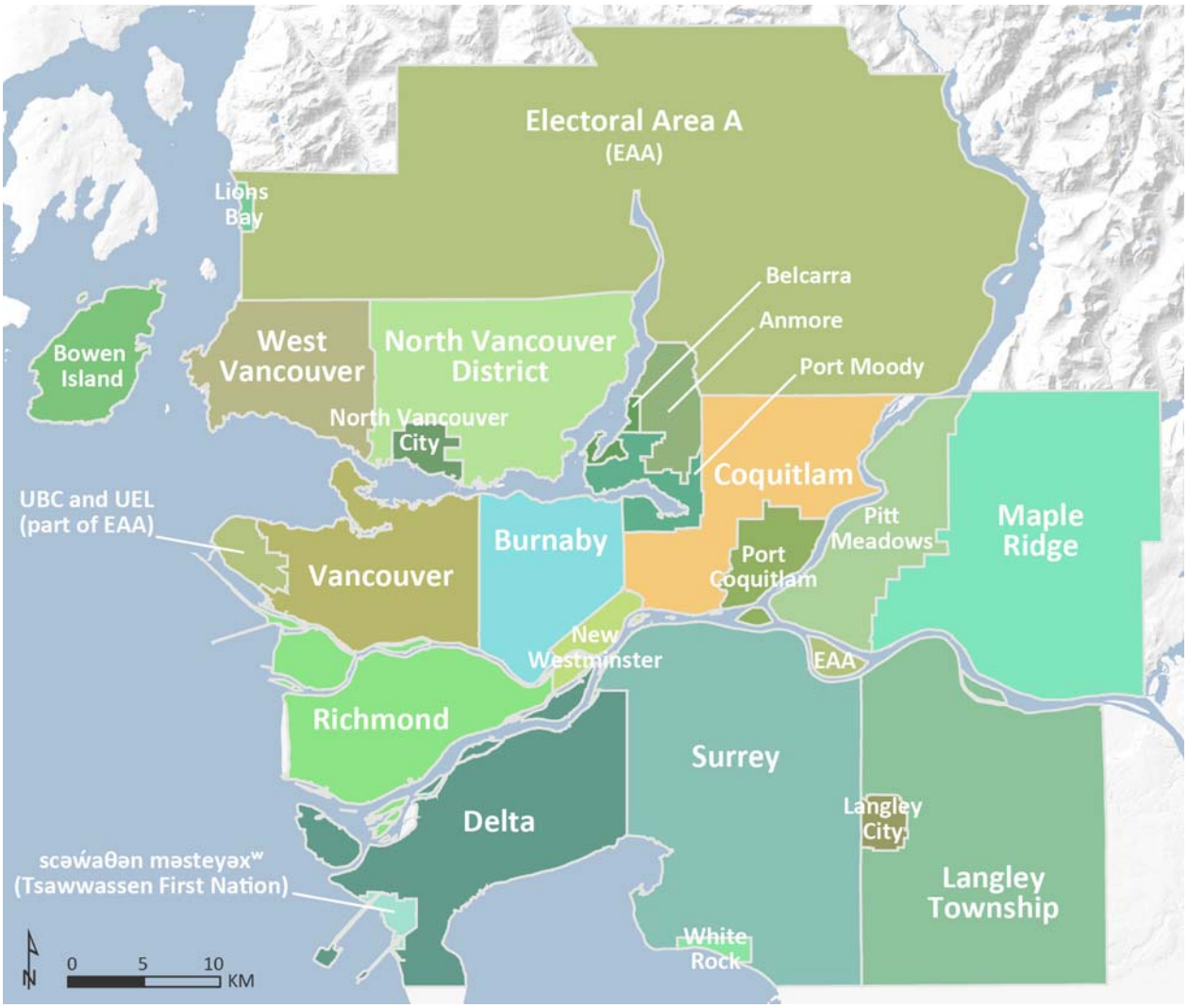

Figure 2. Metro Vancouver member jurisdictions. Note that the UEL refers to the University Endowment Lands, and UBC refers to the University of British Columbia – both part of Electoral Area A (EAA).

TREE CANOPY COVER ANALYSIS

Tree canopy cover spatial data can be used by local governments to inform urban forest planning, determining priority planting locations and identifying underserviced communities.

2020 Tree Canopy Cover

The analysis found that 155,275 ha of the Region, 53,233 ha of lands in the Regional Core, and 27,978 ha of lands within the UCB are covered by tree canopy. In summary, 53% of Metro Vancouver's land base, 32% of the Regional Core, and 31% of lands within the UCB (Figure 3) were covered by tree canopy in 2020.

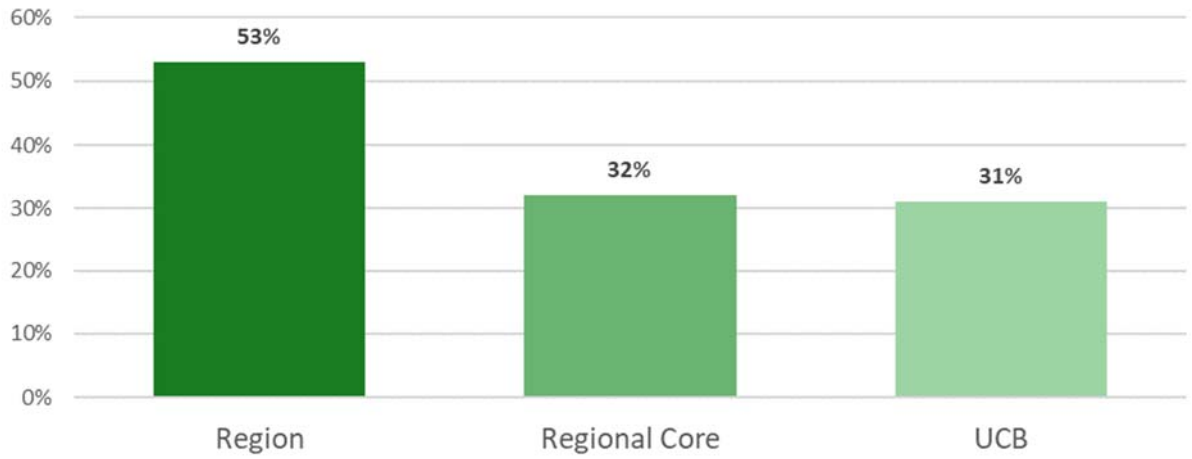

Figure 3. Tree canopy cover (%) for 2020 within the Metro Vancouver Region, Regional Core, and within the Urban Containment Boundary (UCB).

These tree canopy cover values include canopy from both coniferous and deciduous trees. Table 1 provides the 2020 breakdown between these two tree types for the Region, Regional Core, and the UCB.

Table 1. Tree canopy cover (%) by tree type in the Region, Regional Core, and UCB (2020).[14]

Tree canopy cover type	Region (ha, %)	Regional Core (ha, %)	UCB (ha, %)
Coniferous	117,827 (76%)	17,097 (32%)	7,594 (27%)
Deciduous	37,448 (24%)	36,136 (68%)	20,384 (73%)

The lands outside the UCB, such as the watersheds on the North Shore, contain mostly (76%) mature coniferous trees and forests, whereas the majority of trees found in the more urbanized parts of the region (73%) are deciduous. Although native coniferous trees may require more space above and below

[14] Table B4 in Appendix B provides a breakdown of deciduous and coniferous trees by member jurisdiction.

ground, they often provide more ecosystem services (e.g., carbon sequestration, habitat for native wildlife) than the non-native deciduous trees that are more common in urban areas.

Table 2 below summarizes each member jurisdiction's 2020 total tree canopy cover within their administrative boundary, their portion of the Regional Core, and their portion of the UCB.[15] Overall, tree canopy cover in nine member jurisdictions (Burnaby, Coquitlam, Maple Ridge, Port Moody, Surrey, North Vancouver District, West Vancouver, Electoral Area A, and Lions Bay) met or exceeded the 2020 regional UCB tree canopy cover (31%). Six jurisdictions (Maple Ridge, Port Moody, North Vancouver District, West Vancouver, Electoral Area A, and Lions Bay) met or exceeded the *Metro 2050* UCB target tree canopy cover of 40%.

Table 2. Tree canopy cover (%) for Metro Vancouver member jurisdictions (2020).

Member jurisdiction	Tree canopy cover (%)		
	Within the member jurisdiction's boundary[16]	Within the Regional Core	Within the member jurisdiction's UCB
Bowen Island Municipality	90%	90%	Not in UCB
City of Burnaby	31%	31%	31%
City of Coquitlam	58%	38%	36%
City of Delta	12%	12%	19%
City of Langley	21%	21%	21%
City of Maple Ridge	73%	55%	47%
City of New Westminster	14%	14%	14%
City of North Vancouver	23%	23%	23%
City of Pitt Meadows	14%	15%	14%
City of Port Coquitlam	23%	23%	21%
City of Port Moody	64%	65%	51%
City of Richmond	11%	11%	10%
City of Surrey	26%	26%	31%
City of Vancouver	25%	25%	25%
City of White Rock	23%	23%	23%
District of North Vancouver	81%	46%	45%
District of West Vancouver	77%	62%	62%
Electoral Area A	78%	51%	67%
UBC[17]	*31%*	*31%*	*31%*
Township of Langley	33%	33%	29%
sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)	5%	5%	8%
Village of Anmore	85%	73%	12%
Village of Belcarra	90%	89%	Not in UCB
Village of Lions Bay[18]	88%	88%	88%

[15] Additional tables with tree canopy cover information are provided in Appendix B.
[16] Excluding the ocean and the Fraser River.
[17] UBC refers to the University of British Columbia.
[18] The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Figure 4 below shows tree canopy cover (%) by city block within the UCB and illustrates the distribution of tree canopy cover within the UCB[19]. Cream-coloured blocks indicate very low tree canopy cover (less than 5%) and dark green blocks indicate very high tree canopy cover (more than 60%). Concentrated areas of low tree canopy cover generally correspond to dense urban areas, newly developed lands, and industrial lands. Areas of high tree canopy cover within the UCB tend to be parks and undeveloped greenfield areas that may be planned to accommodate future urban growth.

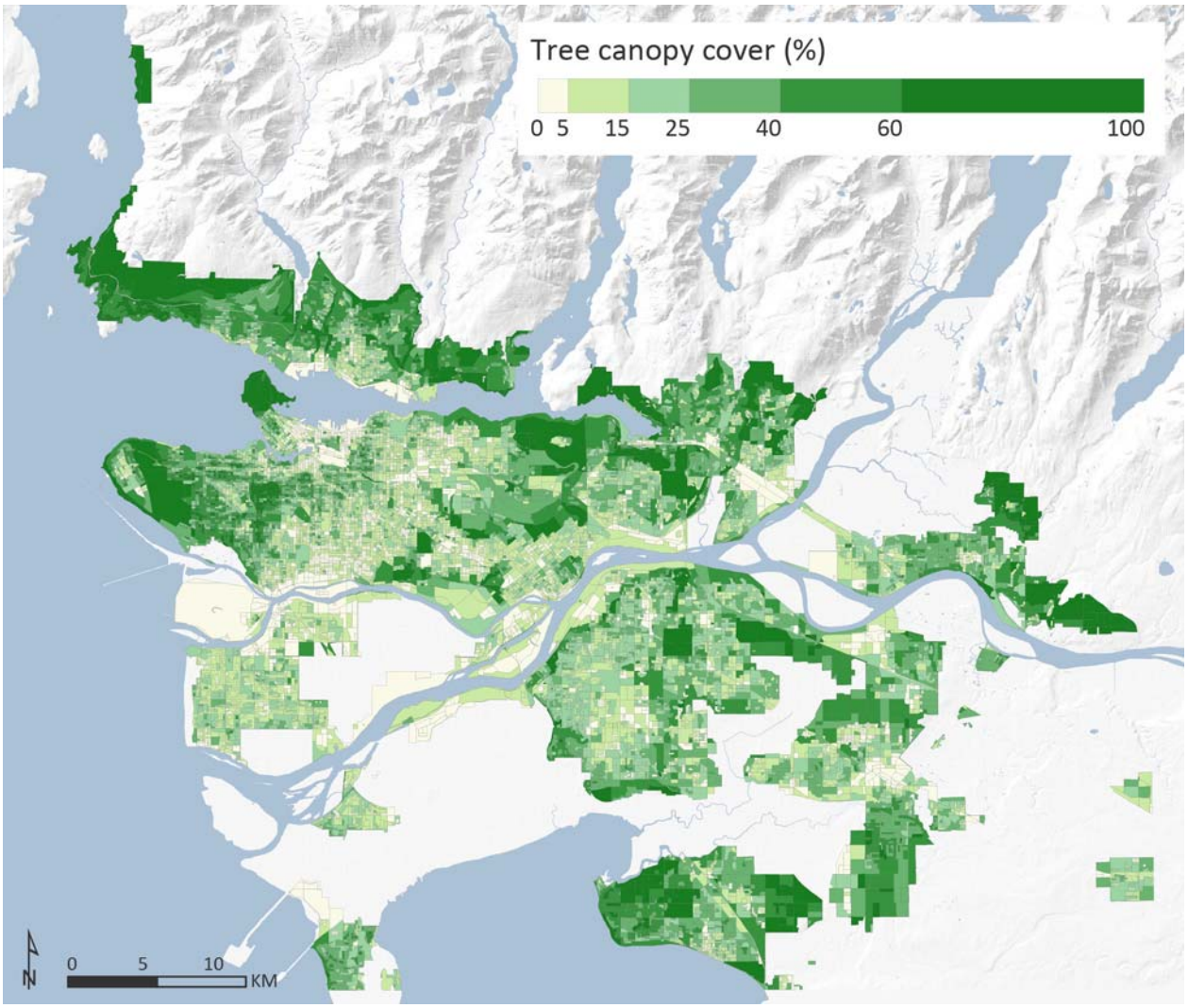

Figure 4. Tree canopy cover (%) summarized by city block (using 2021 Census dissemination blocks) within the Urban Containment Boundary.

[19] Figures showing tree canopy cover (%) for the Region and Regional Core can be found in Appendix B. The UCB is the main focus of this report because the *Metro 2050* tree canopy cover target was established for the UCB.

Tree Canopy Cover Change Since 2014

As shown in Figure 5, between 2014 and 2020 tree canopy cover within the Region, Regional Core, and the UCB decreased by 1% for each analysis area.

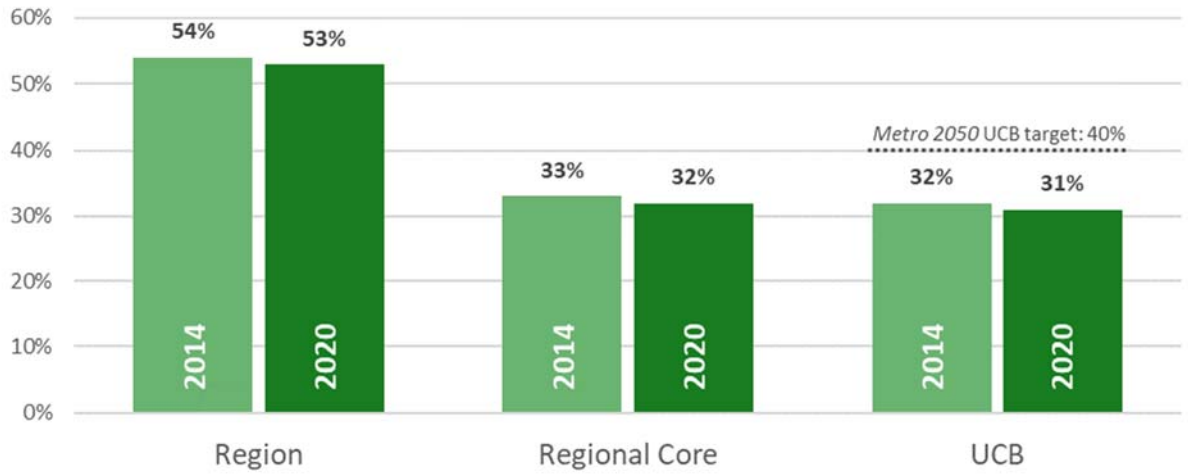

Figure 5. Tree canopy cover (%) for 2014 and 2020 within the Metro Vancouver Region, Regional Core, and the Urban Containment Boundary (UCB).

Figure 6 shows the tree canopy cover within the UCB for each member jurisdiction in 2020, as well as previously reported 2014 levels. Overall, nine member jurisdictions met or exceeded the 2020 level of tree canopy cover in the region's UCB (31%).

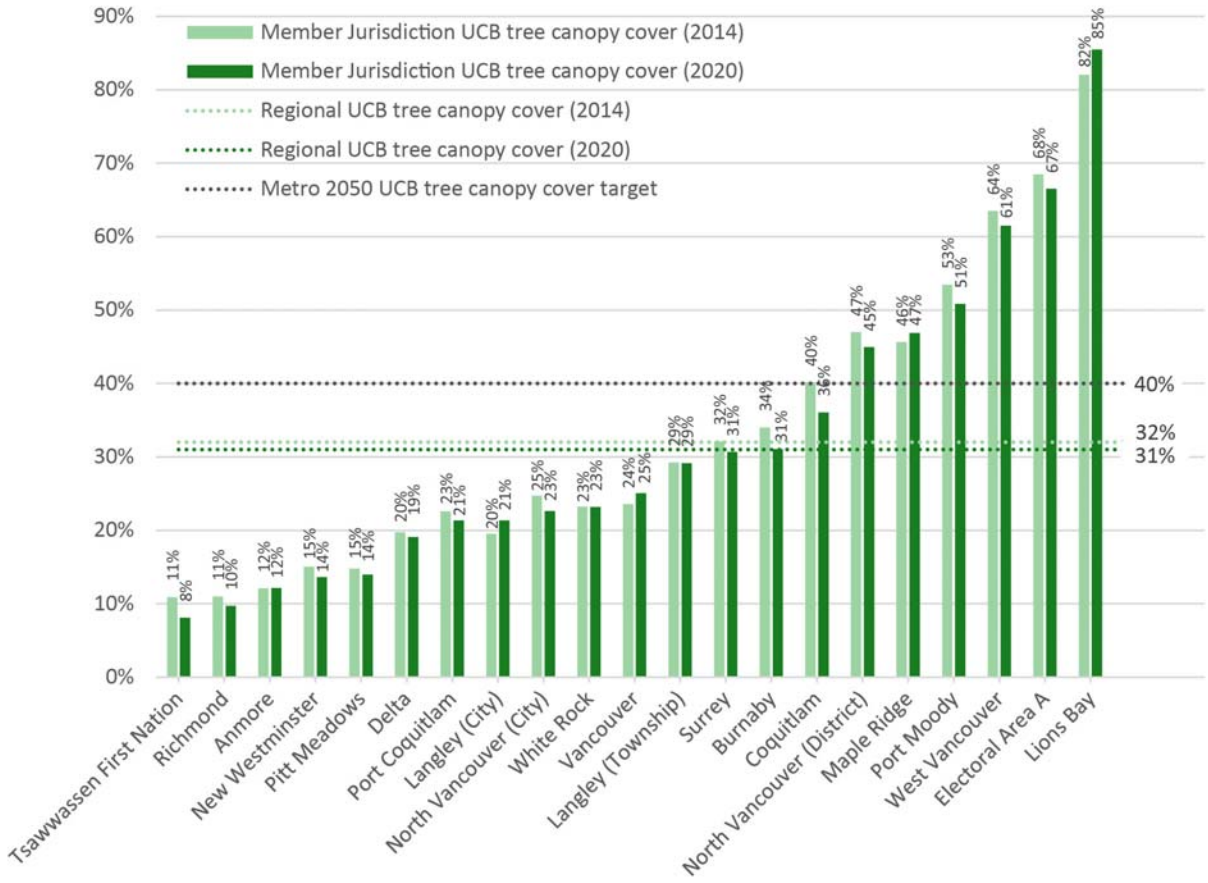

Figure 6. Tree canopy cover (%) within the Urban Containment Boundary (UCB) for each Metro Vancouver member jurisdiction (2020) compared with 2014 levels and the Metro 2050 UCB target.[20]

It is important to note that although much of the Metro Vancouver region was historically forested, some member jurisdictions (such as sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation), Richmond, Pitt Meadows, and Delta) contained large grassland and wetland areas, and fewer trees.[21] Communities with this historical context often have lower tree canopy cover levels.

[20] Please note that Belcarra and Bowen Island are not included on Figure 6 because they fall outside the UCB - these results show tree canopy cover (%) within the UCB only. The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

[21] North M.E.A. and Teversham, J.M. (1983). The vegetation of the floodplains of the Lower Fraser, Serpentine and Nicomekl Rivers, 1859 to 1890. Syesis 17: 47-66 + loose map.

Figure 7 shows the % change in reported tree canopy cover in the UCB from 2014 to 2020. Four member jurisdictions experienced notable increases in their tree canopy cover on UCB lands: Lions Bay (+6.3%), Langley City (+1.4%), Maple Ridge (+0.9%), and Vancouver (+0.7%). Most member jurisdictions lost tree canopy cover in the UCB between 2014 and 2020, with the most substantial losses in Coquitlam (-4.0%), Burnaby (-2.9%), sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation) (-2.9%), and West Vancouver (-2.5%).

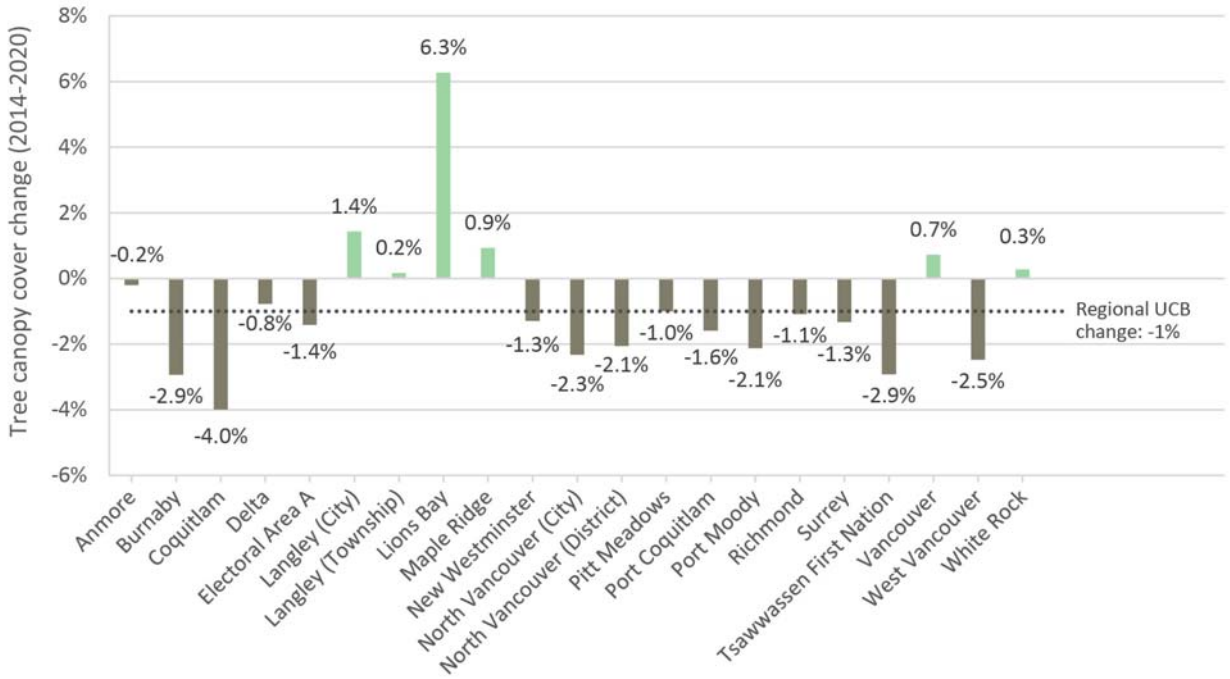

Figure 7. Change in reported tree canopy cover (%) within the Urban Containment Boundary, from 2014 to 2020, for each Metro Vancouver member jurisdiction.[22]

[22] Please note that Belcarra and Bowen Island are not included on Figure 7 because they fall outside the UCB - these results show tree canopy cover (%) within the UCB only. The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Figure 8 shows changes in reported tree canopy cover (%) from 2014 to 2020 across the UCB, as summarized by city block. Orange indicates a decrease in reported tree canopy cover (%), while green indicates an increase in reported tree canopy cover (%); darker hues indicate a greater loss or gain, respectively. Concentrated areas of tree canopy cover loss generally correspond with greenfield development or densifying urban areas. However, Figure 8 shows significant decreases in a few areas (e.g., golf courses, Richmond Department of National Defence lands), which were likely due to improvements in the land cover classification and may not reflect actual tree canopy cover loss between 2014 and 2020 for these areas.

Increases in tree canopy cover occurred in neighbourhoods with substantial baseline tree canopy cover, parks, and greenfield areas that remained undeveloped in 2020. Maps showing the change in tree canopy cover can be used by local governments to help identify areas for tree canopy cover enhancement.

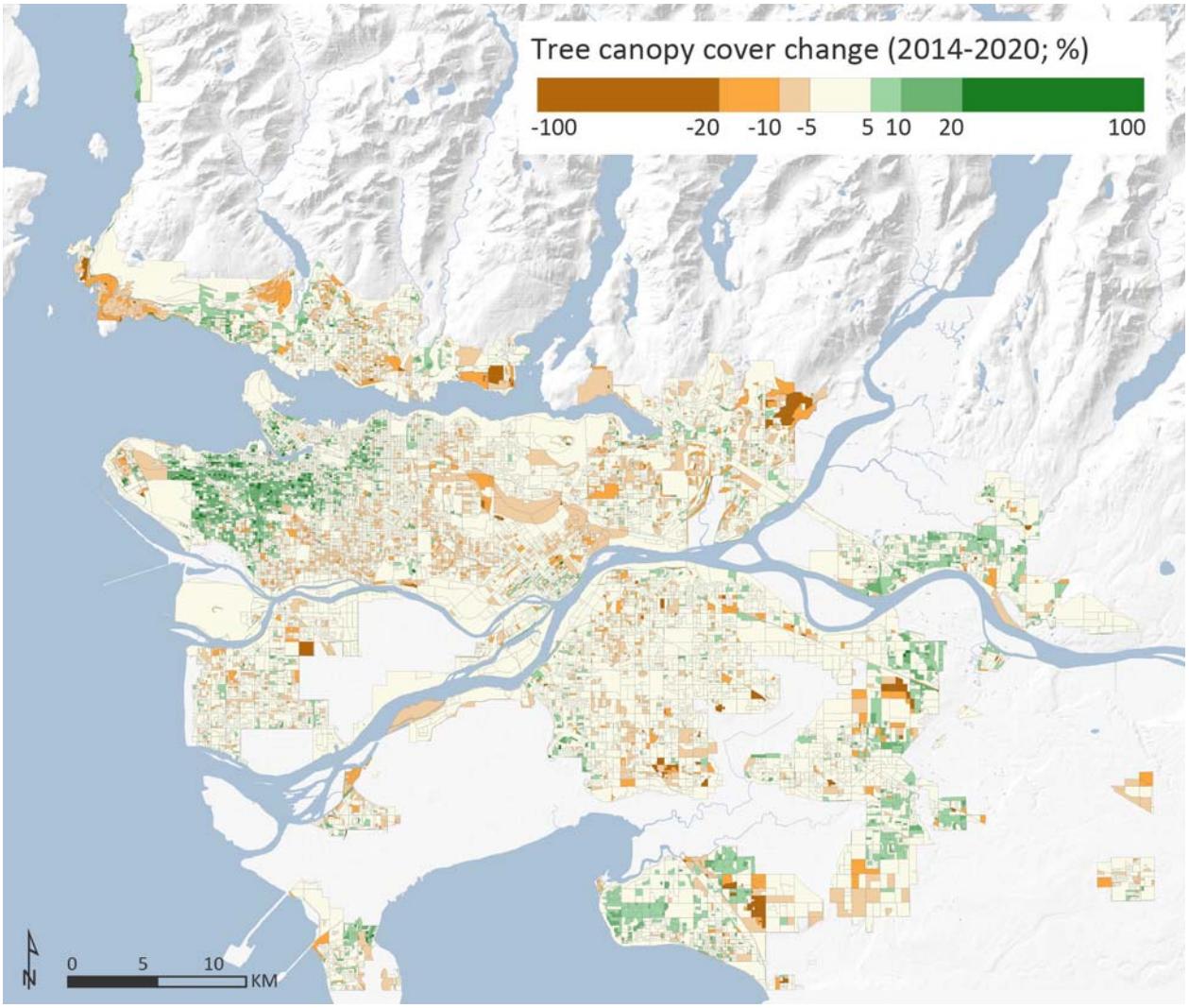

Figure 8. Change in reported tree canopy cover (%), from 2014 to 2020, summarized by city block (using 2021 Census dissemination blocks) within the Urban Containment Boundary.

Tree Canopy Cover Distribution within the Urban Containment Boundary

Figure 9 shows the proportion of regional tree canopy cover by member jurisdiction (within the UCB). This chart reveals each jurisdiction's current contribution to regional UCB canopy cover levels. More than half (53%) of Metro Vancouver's tree canopy cover within the UCB is located within four member jurisdictions - Surrey contributes 23% of all tree canopy cover within the UCB, followed by Burnaby (10%), West Vancouver (10%), and Vancouver (10%). The top four regional tree canopy cover contributors in 2020 were that same as those reported in 2014, with similar contributions.[23]

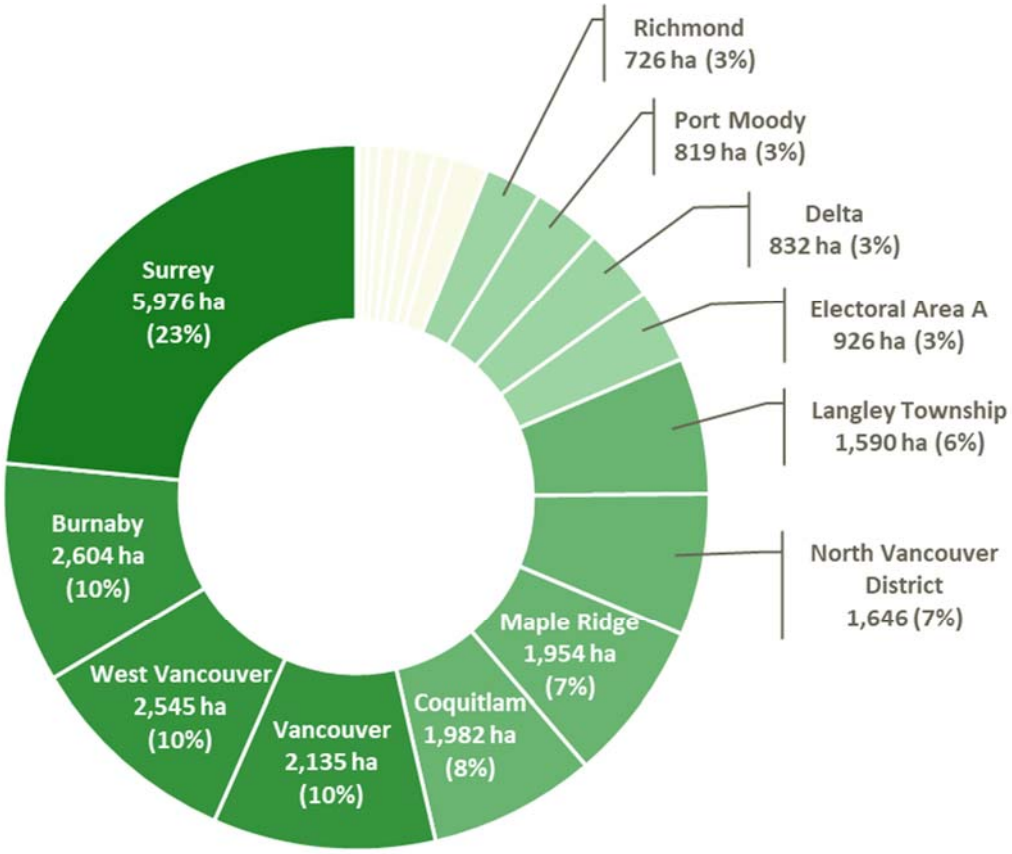

Figure 9. Proportion of tree canopy cover within the Urban Containment Boundary by member jurisdiction in 2020.

[23] Regional Tree Canopy Cover and Impervious Surfaces, 2019 (metrovancouver.org)

Tree Canopy Cover within the Urban Containment Boundary by Land Use Type

To further understand the spatial distribution of tree canopy cover within the UCB, tree canopy cover was measured in relation to land use. Using the regional Generalized Land Use (2020) layer, tree canopy cover (%) was calculated for each different type of land use. Results are shown in Figure 10, and Table B5 in Appendix B provides a detailed breakdown of tree canopy cover for all land use types.

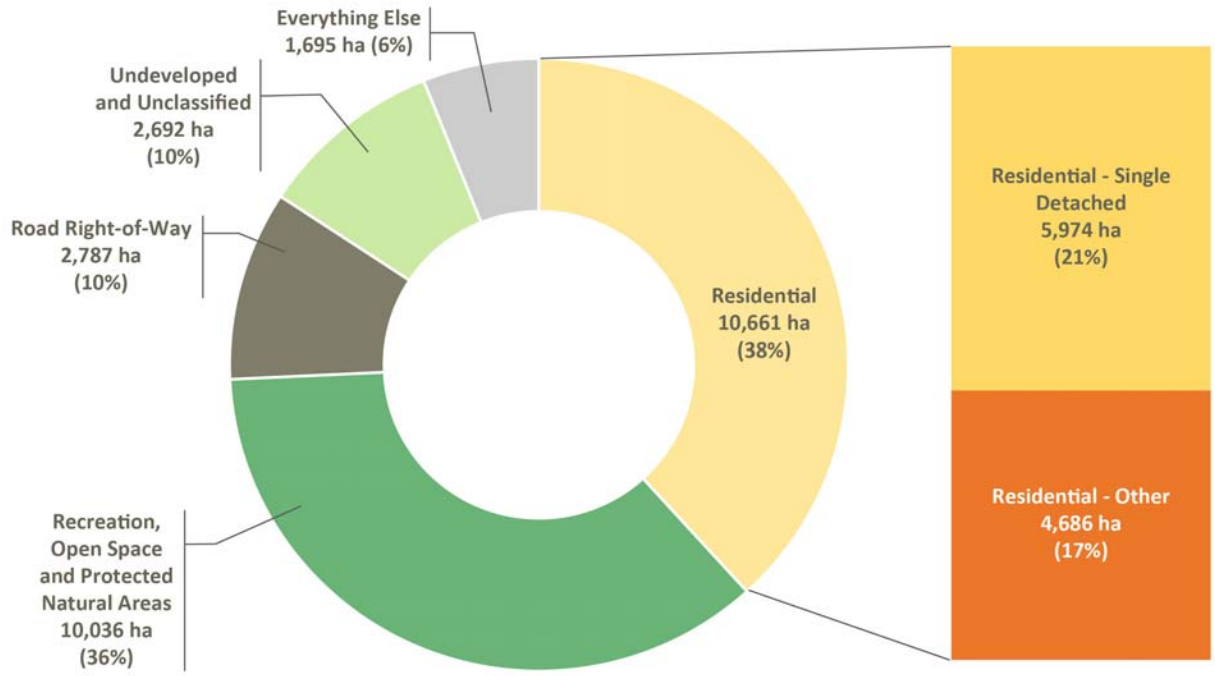

Figure 10. Distribution of tree canopy cover among land use types within the Urban Containment Boundary.

Points to note:

- In 2020, most of Metro Vancouver's tree canopy cover within the UCB was located within residential areas (including mixed residential and commercial areas; 38%) and recreation, open space and protected natural areas (36%).
- 21% of the UCB tree canopy cover was found within single detached residential neighbourhoods, and 17% of the UCB tree canopy cover occurred in other residential areas such as multi-attached, low-rise apartment, mid/high-rise apartment, and mixed residential (low-rise apartment and mid/high-rise apartment).

- Some land use types had notably low tree canopy cover. For example, areas designated 'Retail and Other Commercial' in the UCB had only 4% total tree canopy cover; and 'Mixed Residential (Low-rise Apartment) Commercial' lands in the UCB had only 5% total tree canopy cover[24].

Tree Canopy Cover within the Urban Containment Boundary by Land Ownership

Additional analysis was conducted to understand the spatial distribution of tree canopy cover on public and private lands within the UCB. Using owner mailing address data provided by the British Columbia Automobile Association, tree canopy cover (%) was calculated for public[25] and private lands.[26, 27, 28] Table B6 in Appendix B provides a detailed breakdown of tree canopy cover for all land ownership types across the UCB, per jurisdiction.

Private lands had a relatively low tree canopy coverage (27%), but the majority of tree canopy cover in the UCB (57%) was found on private land in 2020 – primarily because the majority of land in the UCB (69%) is privately-owned (Table 3). In contrast, nearly a half of public lands in the UCB (46%) were covered by tree canopy in 2020 and 13% of tree canopy cover within the whole UCB was located on public land.

Table 3. Tree canopy cover (%) by parcel ownership type in the UCB (2020).

Ownership	Tree canopy cover % within UCB[29]	% UCB's total tree canopy cover[30]	% of UCB area[31]
Private	27%	57%	69%
Public – Total	46%	13%	28%
Public – Federal	*2%*	*1%*	*4%*
Public – Provincial	*3%*	*1%*	*4%*
Public – Crown Corporation	*2%*	*1%*	*2%*
Public – Metro Vancouver	*6%*	*2%*	*2%*
Public – Municipal	*32%*	*9%*	*15%*
Public – TransLink	*0%*	*0%*	*0%*
Public – Colleges/Universities	*1%*	*0%*	*1%*
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	9%	0%	1%
Reserve Lands	39%	0%	0%
Unclassified	32%	1%	1%

[24] Mixed Residential (Low-rise Apartment) Commercial land use type is small in overall area and is included within the 'Residential – Other' category in Figure 10.
[25] Public ownership parcels included federal, provincial, crown corporation (federal and provincial), Metro Vancouver (regional), TransLink corporation, municipal, and public colleges/universities lands.
[26] Parcels in scəẃaθən məsteyəxʷ (Tsawwassen First Nation), except for those still under "Crown Corporation" ownership, were categorized separately.
[27] Reserve Lands were categorized separately due to limited parcel or ownership information.
[28] About 30,500 parcels did not have ownership information and were therefore were categorized as "unclassified".
[29] For example, 27% of Private land within the UCB is covered by tree canopy.
[30] For example, 57% of tree canopy cover within the whole UCB is located on Private land.
[31] The total area of each ownership type within the UCB, for reference.

Local Tree Canopy Cover Targets

In response to declines in tree canopy cover, many cities in Metro Vancouver and across North America have begun monitoring tree canopy cover, establishing targets, and implementing urban forest enhancement initiatives. Targets vary considerably, ranging between 20% and 60%.[32] This variability reflects the many factors that influence target-setting including climate and geography, the pre-development land cover (e.g., grassland versus forest), and constraints such as existing development densities and planned land use.

Tree canopy cover targets that have been adopted by member jurisdictions in the Metro Vancouver region and cities in the US Pacific Northwest include:

Table 4. Current Tree Canopy Cover Targets in Metro Vancouver, Member Jurisdictions, and similar US cities.

Municipality	City-wide Target	Other Targets
City of New Westminster (2016)[33]	18 to 27% by 2035	40% aspirational long-term goal
City of Richmond (2017)		20 to 30% by 2045 on public land (city-owned land in parks, medians and boulevards in streets, road rights of way, civic properties and natural areas)
City of Vancouver (2018)[34]	22.5 to 30% by 2050	
City of Delta (2021)[35]		31.5 to 40% in North Delta 25.2 to 40% in Ladner 19.4 to 40% in Tsawwassen by 2050
City of Port Coquitlam (2019)	24 to 25% by 2060	
Township of Langley (2022)[36]	30 to 31% by 2050	23 to at least 30% in the UCB
City of Surrey (2023)[37]		29 to 30% (excluding the ALR) by 2038
City of Port Moody (2023)[38]	58 to 59% by 2050	28% to 31% in urban areas outside of parks and industrial lands
City of Portland, Oregon[39]	26 to 33% by 2035	Minimum 25% in residential neighborhoods 15% in central city, commercial and industrial areas
City of Seattle, Washington[40]	28 to 30% by 2037	
Metro Vancouver (2023)		32 to 40% in the UCB

Although urban tree canopy extent is the focus of this report, it is not the only criteria to consider when assessing the health of the urban forest. A sustainable urban forest contains trees in good condition, with a diversity of ages and species, and management of such forests will consider climate resilient tree selection. And an equitable distribution of trees across neighborhoods and income levels will ensure all residents receive the benefits provided by the urban forest.

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[32] Leff, M. (2016). The Sustainable Urban Forest - A Step-by-Step Approach
[33] City of New Westminster's Urban Forest Management Strategy (2016)
[34] Vancouver's Urban Forestry Strategy (2018)
[35] City of Delta Urban Forest Strategy (2021)
[36] Township of Langley Community Forest Management Strategy (2022)
[37] City of Surrey Urban Forest Management Strategy (2023)
[38] City of Port Moody Urban Forest Management Strategy 2050 (2023)
[39] Portland Climate Action Plan (2015)
[40] Seattle Urban Forest Management Plan (2020)

IMPERVIOUS SURFACE

Impervious surface spatial data can be used by local governments to inform stormwater management planning, identifying areas for green infrastructure with the intent to reduce the risk of overland flooding and impacts on water quality.

2020 Impervious Surface

As shown in Figure 11, this analysis found that 66,180 ha (22%) of the Region, 61,255 ha (36%) of the Regional Core, and 49,020 ha (54%) of the UCB were covered by impervious surface in 2020.

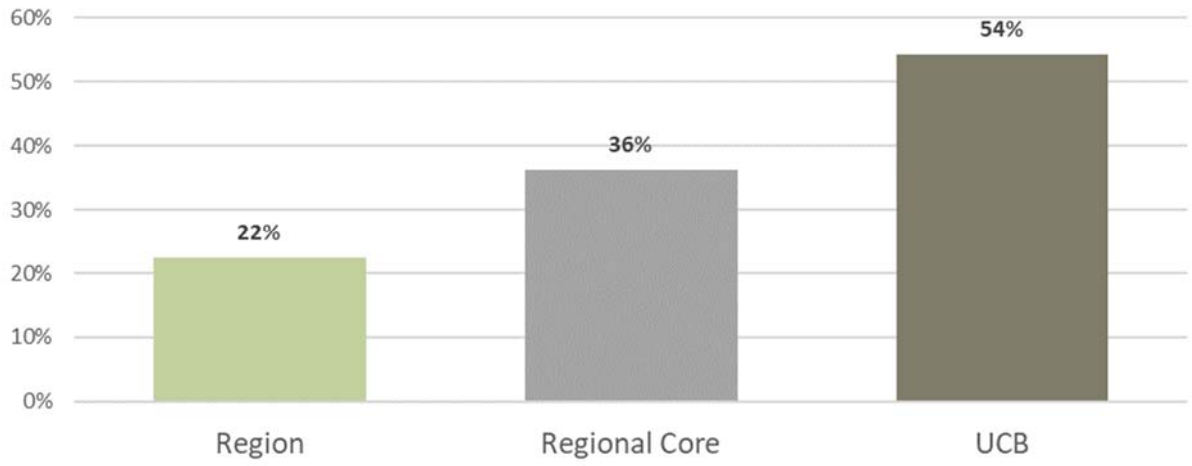

Figure 11. Impervious surface (%) for the Metro Vancouver Region, Regional Core, and Urban Containment Boundary (UCB) (2020).

Table 5 provides a summary of each member jurisdiction's total imperious surface, and impervious surface level within the UCB.[41]

Table 5. Impervious surface (%) for Metro Vancouver member jurisdictions (2020).

Member jurisdiction	Impervious surface (%)		
	Within the member jurisdiction's boundary[42]	Within the Regional Core	Within the member jurisdiction's UCB
Bowen Island Municipality	3%	3%	Not in UCB
City of Burnaby	53%	53%	53%
City of Coquitlam	26%	42%	50%
City of Delta	35%	35%	66%
City of Langley	60%	60%	62%
City of Maple Ridge	10%	21%	37%
City of New Westminster	73%	73%	75%
City of North Vancouver	69%	69%	69%
City of Pitt Meadows	18%	21%	57%
City of Port Coquitlam	53%	53%	67%
City of Port Moody	24%	24%	37%
City of Richmond	53%	53%	75%
City of Surrey	41%	41%	53%
City of Vancouver	64%	64%	66%
City of White Rock	64%	64%	64%
District of North Vancouver	12%	39%	41%
District of West Vancouver	13%	24%	24%
Electoral Area A	5%	21%	24%
UBC[43]	*58%*	*58%*	*58%*
Township of Langley	21%	21%	48%
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	51%	51%	71%
Village of Anmore	3%	13%	65%
Village of Belcarra	5%	6%	Not in UCB
Village of Lions Bay[44]	8%	8%	8%

[41] Additional tables with impervious surface information are provided in Appendix B.
[42] Excluding ocean and the Fraser River.
[43] UBC refers to the University of British Columbia.
[44] The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Figure 12 shows impervious surface (%) summarized by city block within the UCB and illustrates the distribution of impervious surface within the UCB. Grey indicates very high levels of impervious surface (more than 80%); the light to dark turquoise portrays the gradient of moderate (20-60%) to low (less than 20%) impervious surface, respectively. Concentrated areas of high imperviousness generally correspond to urban centers. Areas of low imperviousness within the UCB tend to be parks or greenfield sites that are planned for development.

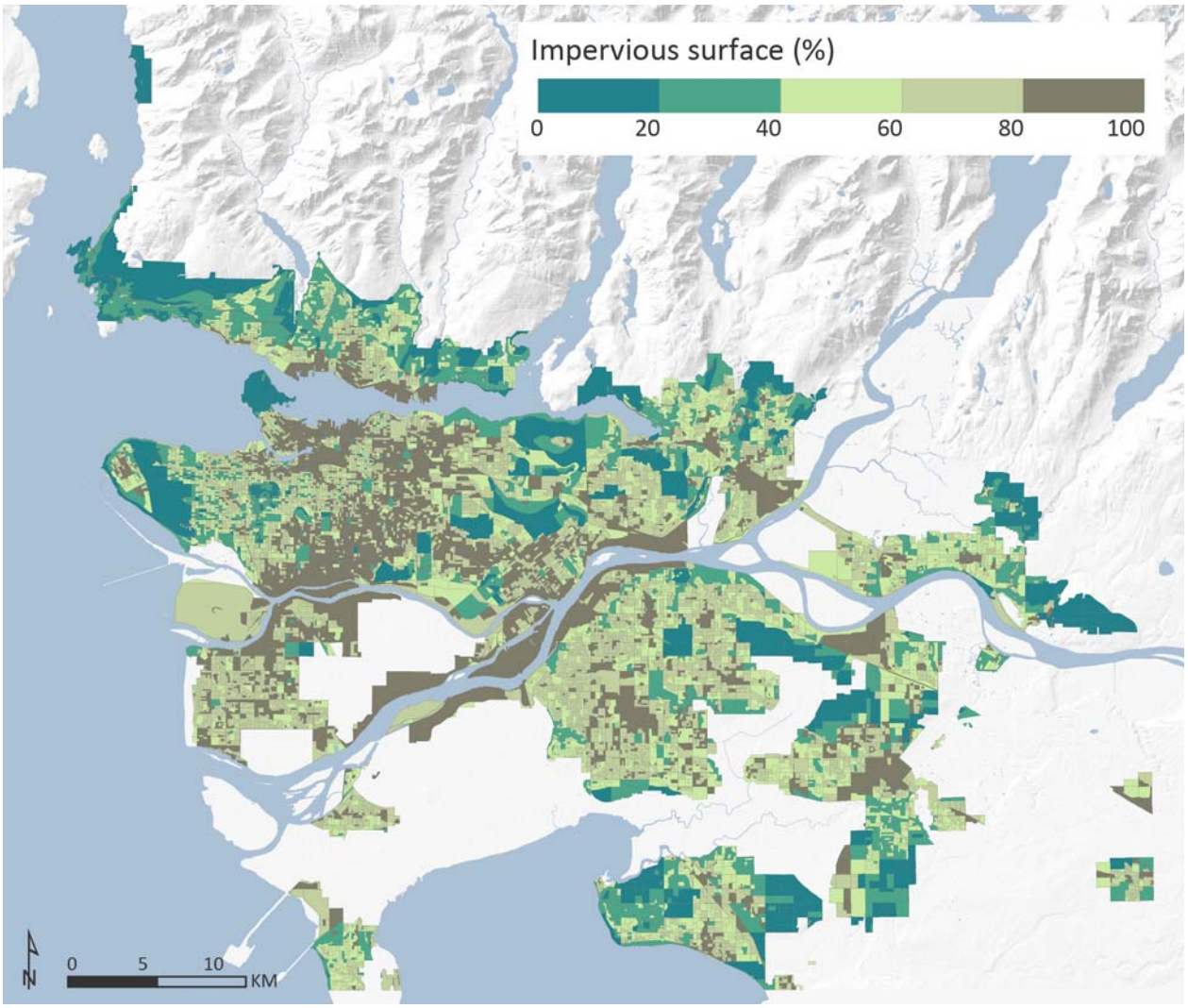

Figure 12. Impervious surface (%) summarized by city block (using 2021 Census dissemination blocks) within the Urban Containment Boundary.

Impervious Surface Change Since 2014

As shown in Figure 13, between 2014 and 2020 impervious surface within the Region, Regional Core, and the UCB increased by 2%, 5%, and 4%, respectively.

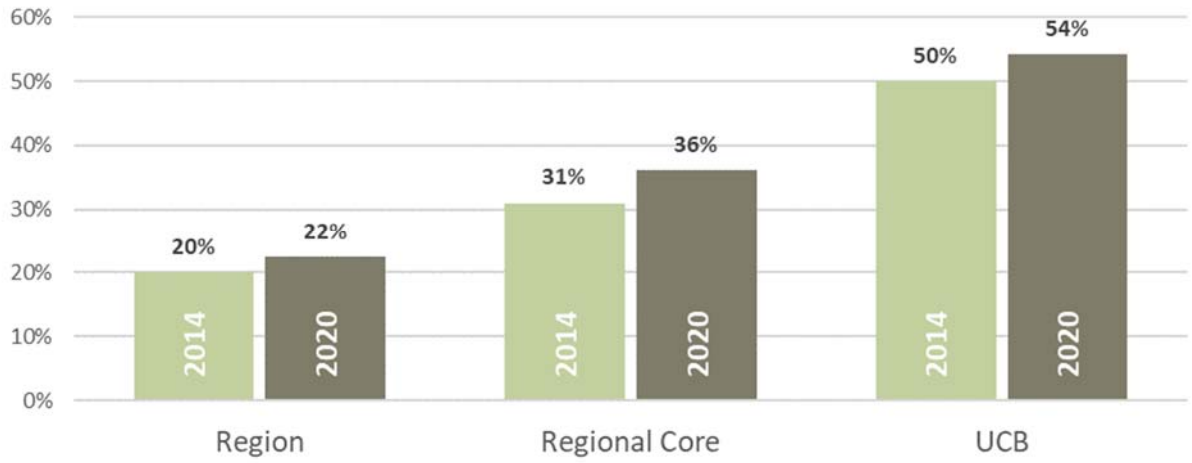

Figure 13. Impervious surface (%) for 2014 and 2020 within the Metro Vancouver Region, Regional Core, and the Urban Containment Boundary (UCB).

Figure 14 shows impervious surface levels within the UCB for each member jurisdiction in 2020, as well as previously reported 2014 levels. Overall, 11 member jurisdictions (New Westminster, Richmond, scəwaθən məsteyəxʷ (Tsawwassen First Nation), North Vancouver City, Port Coquitlam, Delta, Vancouver, Anmore, White Rock, Langley City, and Pitt Meadows) exceeded the 2020 level of impervious surface in the UCB (54%). A UCB impervious surface target has not been set.

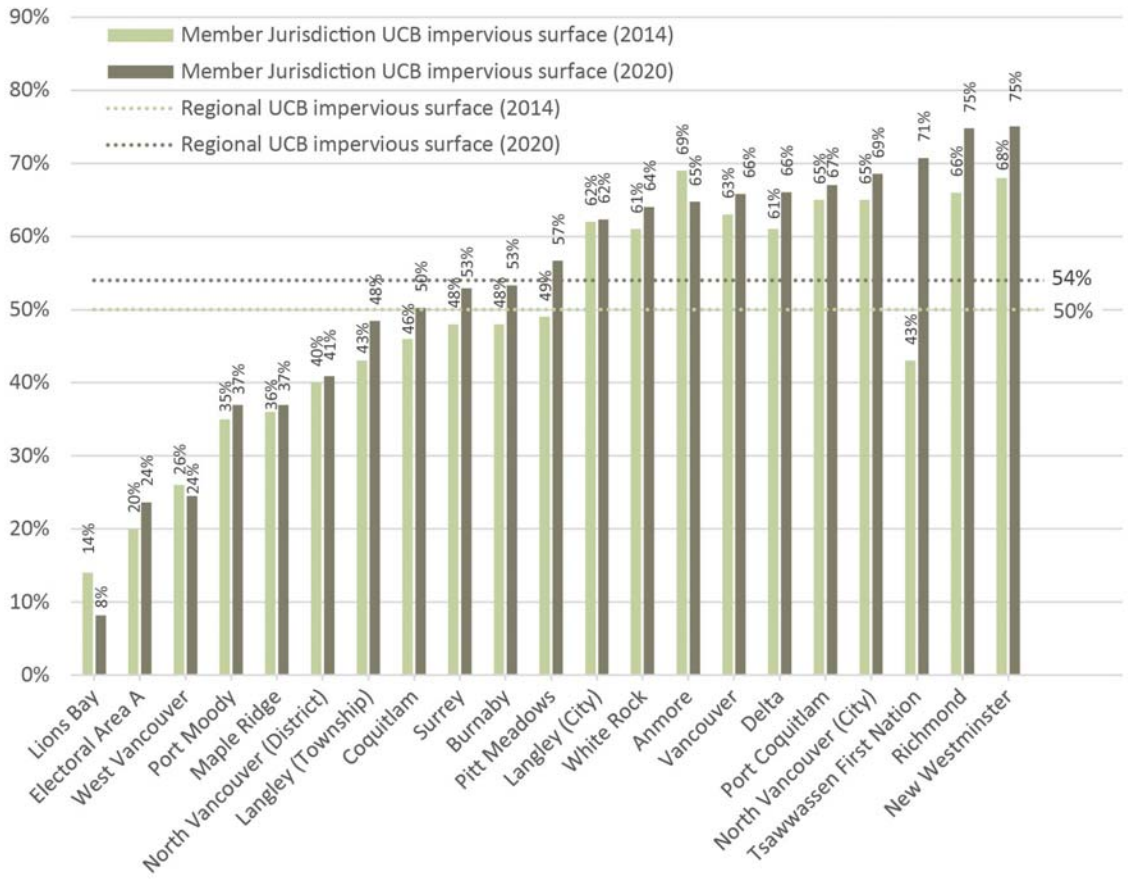

Figure 14. Impervious surface (%) within the Urban Containment Boundary (UCB) for each Metro Vancouver member jurisdiction (2014 and 2020).[45]

[45] Please note that Belcarra and Bowen Island are not included on Figure 14 because they fall outside the UCB - these results show tree canopy cover (%) within the UCB only. The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Figure 14 shows the % increase in impervious surface levels from 2014 to 2020. Metro Vancouver jurisdictions with lands inside the UCB that observed a decrease in impervious surface were Lions Bay (-5.8%), Anmore (-4.3%), and West Vancouver (-1.5%). Jurisdictions with substantial increases in impervious surface levels between 2014 and 2020 included scəwaθən məsteyəxʷ (Tsawwassen First Nation) (+27.7%), and to lesser extents Richmond (+8.8%), Pitt Meadows (+7.7%), and New Westminster (+7.1%). All other jurisdictions also observed increases in impervious surface levels on UCB lands, ranging from +0.3% (City of Langley) to +5.4% (Township of Langley).

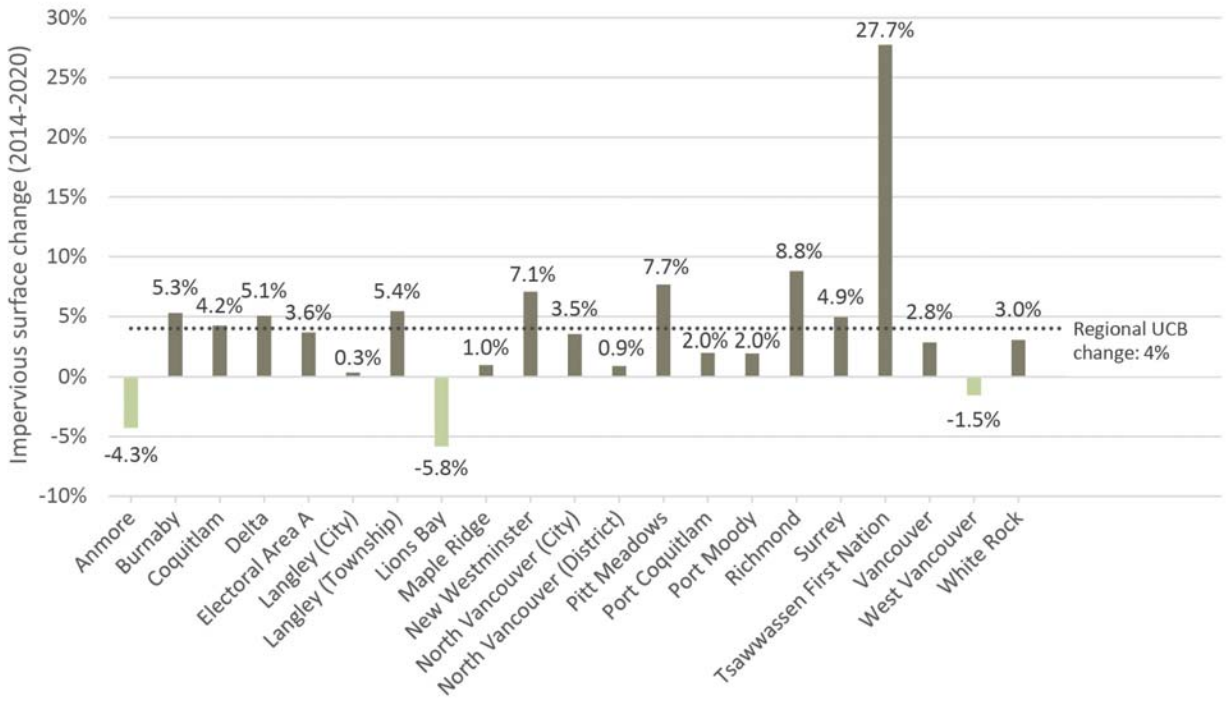

Figure 15. Change in reported impervious surface (%) within the Urban Containment Boundary, from 2014 to 2020, for each Metro Vancouver member jurisdiction.[46]

[46] Please note that Belcarra and Bowen Island are not included on Figure 14 because they fall outside the UCB - these results show tree canopy cover (%) within the UCB only. The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Figure 16 shows changes in impervious surface (%) by city block from 2014 to 2020 across the UCB. Orange-coloured blocks indicate an increase in impervious surface (%), while blue and green colours show a decrease in impervious surface (%); darker hues indicate a greater loss or gain, respectively. Areas of increasing impervious surface generally correspond to residential greenfield development and industrial areas.

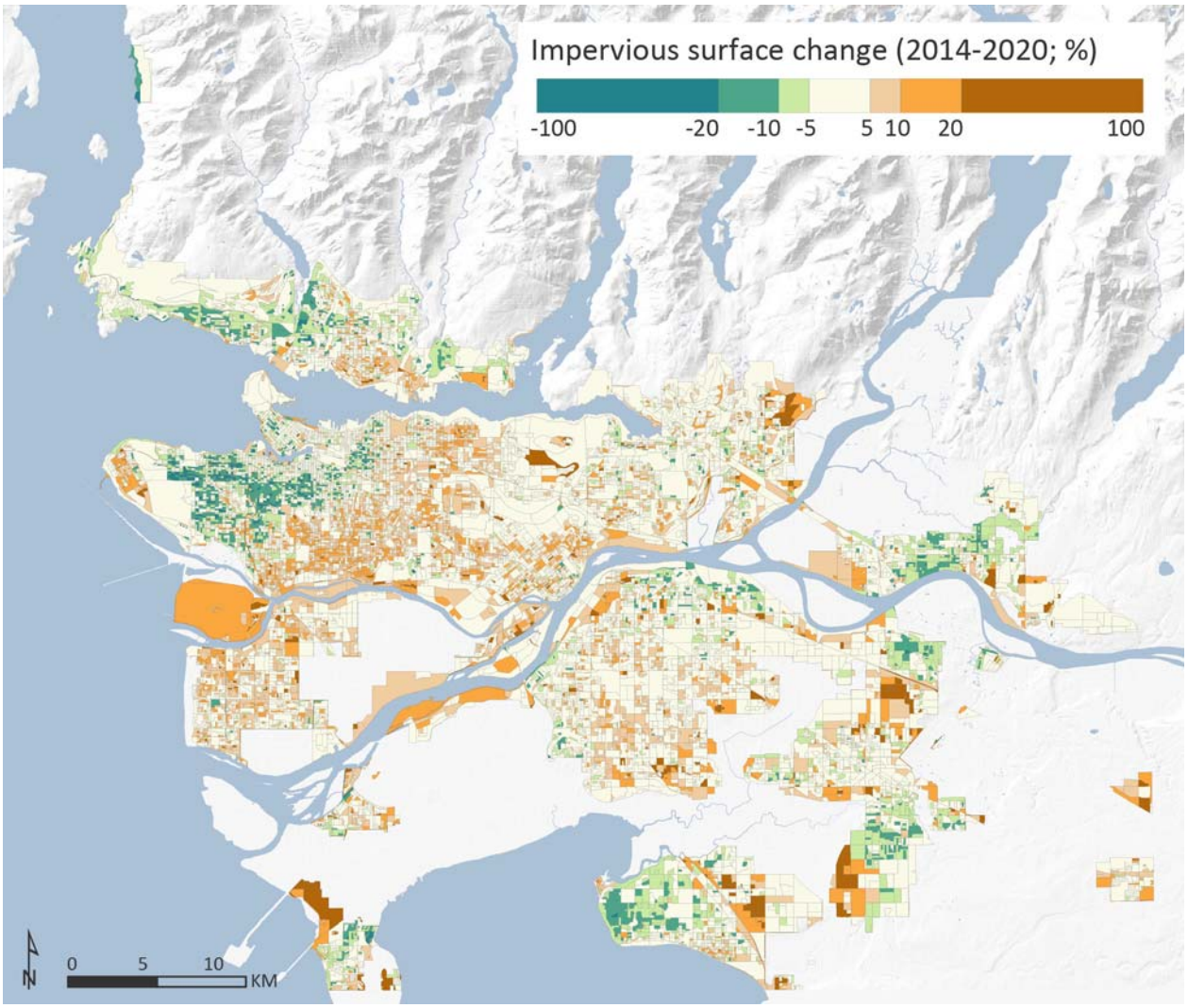

Figure 16. Change in reported impervious surface (%), from 2014 to 2020, summarized by city block (using 2021 Census dissemination blocks) within the Urban Containment Boundary.

Impervious Surface Distribution within the Urban Containment Boundary

Figure 17 shows the proportion of regional impervious surface by member jurisdiction (within the UCB). This chart reveals each jurisdiction's current contribution to regional impervious surface levels. Over half of Metro Vancouver's impervious surface within the UCB is located within four member jurisdictions - Surrey contributes 23% of all the impervious surface within the UCB, followed by Vancouver (15%), Richmond (11%), and Burnaby (10%). The top four regional impervious surface contributors in 2020 were the same as those reported in 2014.[47]

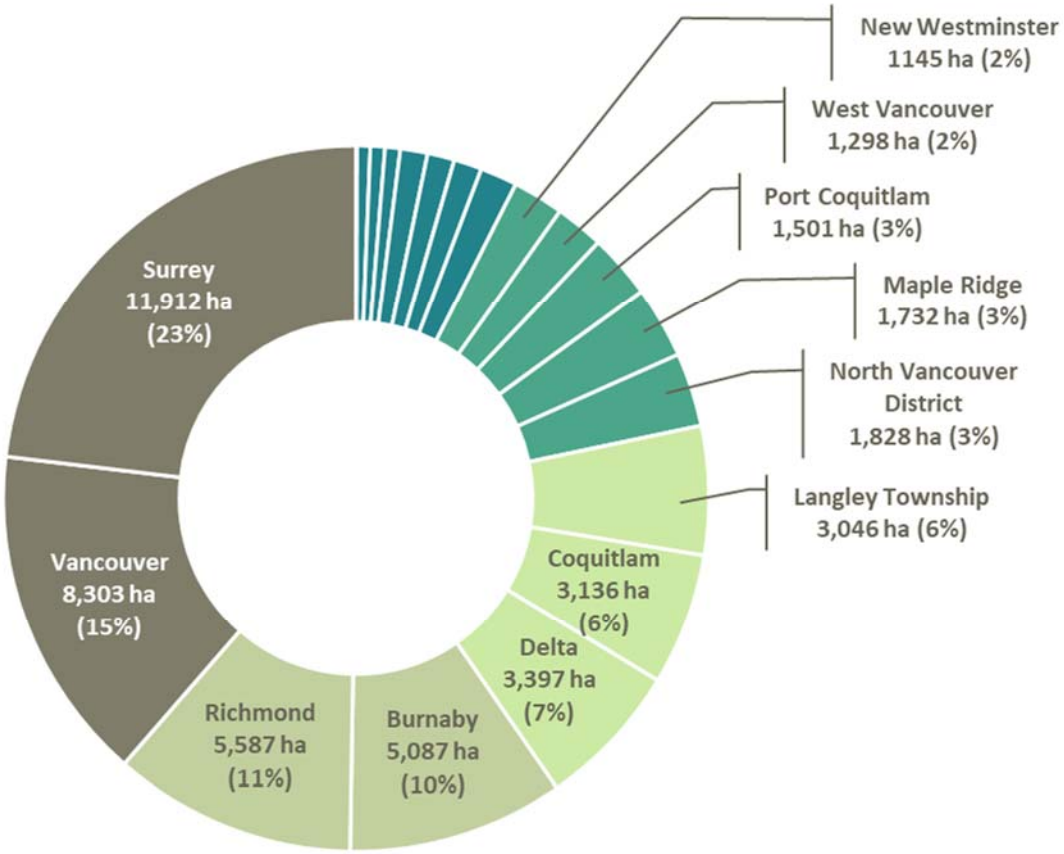

Figure 17. Proportion of impervious surface within the Urban Containment Boundary by member jurisdiction.

[47] Regional Tree Canopy Cover and Impervious Surfaces, 2019 (metrovancouver.org)

Impervious Surface within the Urban Containment Boundary by Land Use

To further understand the spatial distribution of impervious surface within the UCB, the impervious surface levels were measured in relation to land use. Using the regional Generalized Land Use (2020) layer, the level of impervious surface (%) was calculated for different types of land use. The results are shown in Figure 18, and Table B5 in Appendix B provides a detailed breakdown of impervious surface for all land use types.

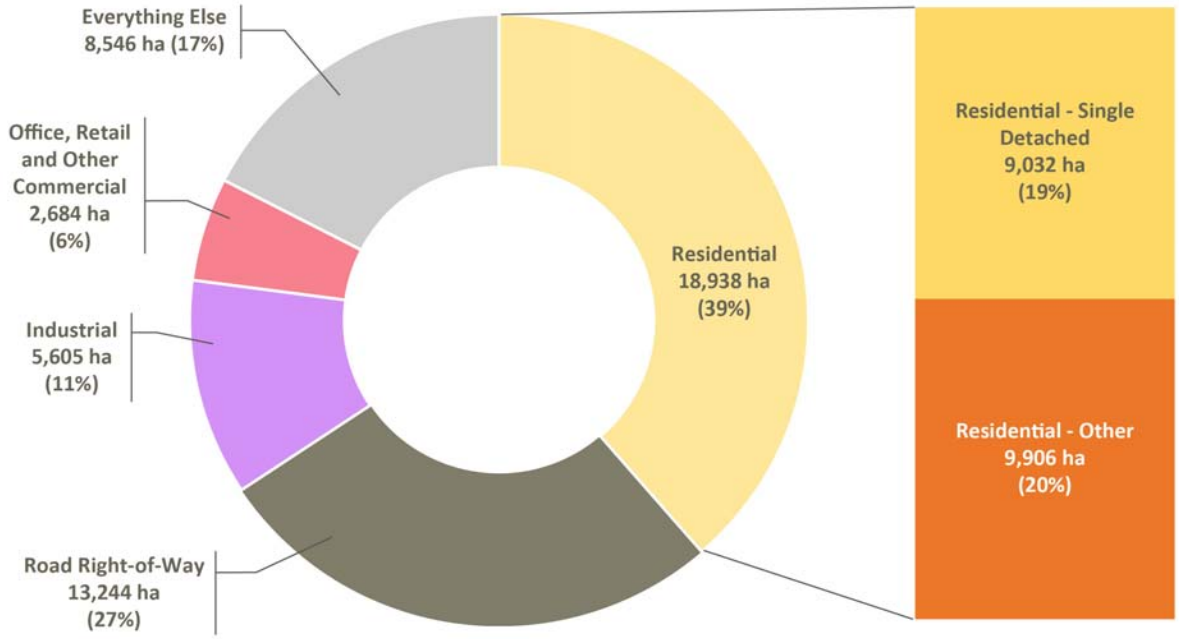

Figure 18. Distribution of impervious surface among land use types within the Urban Containment Boundary.

Points to note:

- Most of Metro Vancouver's impervious surface is located within residential areas (39%) and road rights-of-way (27%).
- 19% of the impervious surface within the UCB is found within one particular type of residential area - "Residential – Single Detached". This land use type covers 20% of land within the UCB, so it is not surprising that a significant portion of the UCB impervious surface is found there.
- Some land use types have notably high impervious surface levels. For example, areas designated for 'Retail and Other Commercial' in the UCB had a total impervious surface of 94%; 'Mixed Residential (Low-rise Apartment) Commercial' lands in the UCB had an impervious surface total of 92%.

Impervious Surface within the Urban Containment Boundary by Land Ownership

Additional analysis was conducted to understand the spatial distribution of impervious surface on public and private lands within the UCB. Using owner mailing address data provided by the British Columbia Automobile Association, tree canopy cover (%) was calculated for public[48] and private lands.[49, 50, 51] Table B6 in Appendix B provides a detailed breakdown of impervious surface for all land ownership types across the UCB, per jurisdiction.

As shown in Table 6, impervious surface on private lands was high (57%). Similar to tree canopy cover, the majority of impervious surface in the UCB (79%) was found on private land in 2020, primarily because the majority of land in the UCB (69%) is privately-owned. Public lands in the UCB had a lower level of impervious surface (33%), and due to their lower coverage across the UCB, public lands did not contribute as substantially as private lands to the UCB's total impervious surface.

Table 6. Impervious surface (%) for UCB lands, per by parcel ownership type in the UCB (2020).

Ownership	Impervious surface % within UCB[52]	% UCB's total impervious surface[53]	% of UCB area[54]
Private	57%	79%	69%
Public – Total	33%	19%	28%
Public – Federal	*8%*	*5%*	*4%*
Public – Provincial	*9%*	*5%*	*4%*
Public – Crown Corporation	*4%*	*2%*	*2%*
Public – Metro Vancouver	*1%*	*1%*	*2%*
Public – Municipal	*8%*	*5%*	*15%*
Public – TransLink	*0%*	*0%*	*0%*
Public – Colleges/Universities	*2%*	*1%*	*1%*
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	69%	1%	1%
Reserve Lands	38%	0%	0%
Unclassified	50%	1%	1%

How Much Impervious Surface is Too Much?

Research has shown there to be "an empirical correlation between a watershed's total impervious area and its health, where the health of a watershed decreases as its unmitigated imperviousness

[48] Public ownership parcels included federal, provincial, crown corporation (federal and provincial), Metro Vancouver (regional), TransLink corporation, municipal, and public colleges/universities lands.
[49] Parcels in scəẃaθən məsteyəxʷ (Tsawwassen First Nation), except for those still under "Crown Corporation" ownership, were categorized separately.
[50] Reserves lands were categorized separately due to limited parcel or ownership information.
[51] About 30,500 parcels did not have ownership information and were therefore were categorized as "unclassified".
[52] For example, 27% of Private land within the UCB is covered by tree canopy.
[53] For example, 57% of tree canopy cover within the whole UCB is located on Private land.
[54] The total area of each ownership type within the UCB, for reference.

increases".[55] Many thresholds of biological degradation (e.g., invertebrate and fish diversity) and physical degradation (e.g., hydrology and geomorphology) in streams are associated with impervious surface levels above 10-20% within a watershed.[56] Figure 19 summarizes impervious surface levels by watershed, illustrating that watershed health could be a concern for several watersheds in the region.[57] However, Seymour, Capilano, and Coquitlam watersheds, which supply most of the region's drinking water, have low impervious surface levels (and high tree canopy cover[58]).

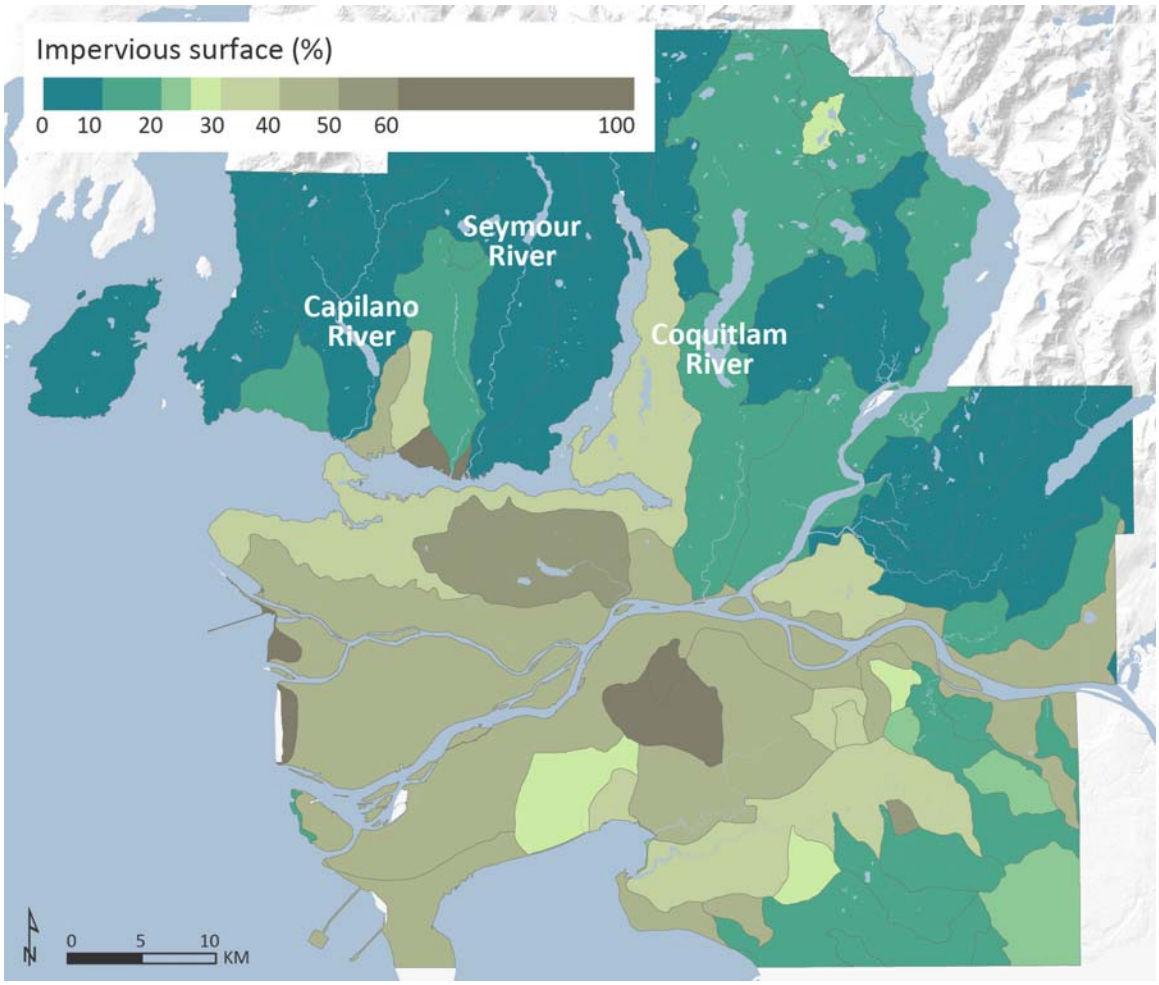

Figure 19. Impervious Surface (%) by Watershed (2020). Capilano, Seymour and Coquitlam River Watersheds supply most of the region's drinking water.

[55] Region-wide Baseline for On-site Stormwater Management | Metro Vancouver (2017)
[56] Paul, M.J. and Meyer, J.L. 2001. Streams in the Urban Landscape. Annual Review of Ecology and the Systematics. 32:333-65.
[57] Growth and Water Resources | Watershed Academy Web | US EPA
[58] See Figure B4 Tree canopy cover by watershed (2020) in Appendix B.

POTENTIAL TREE PLANTING AREA

Following the analyses of tree canopy cover and impervious surface, possible areas of opportunity for new tree canopy were considered. Potential Planting Area (%), is the amount of land that could theoretically be used to increase the percentage of tree canopy cover (i.e., Tree Canopy Cover (%)). Potential Planting Area considers non-tree vegetation (grass, shrubs, etc.), soil patches, barren surfaces, and pavement that does not fall on roads, and that under the right circumstances, could be modified to increase tree canopy cover. It is a measure of what is physically possible, given the current land cover. Physically possible planting area does not necessarily translate into feasible planting area. Other factors, such as land use, also determine the feasibility of a site for tree planting. However, this tool is meant to remain general, in consideration that any conversion of land cover/land use types to tree canopy requires site specific assessments by land managers. This tool is intended to support discussions about how much and where land owners, member jurisdictions and Metro Vancouver might be able to increase tree canopy cover.

As with Tree Canopy Cover (%) and Impervious Surface (%), Potential Planting Area (%) was mapped and quantified for the Metro Vancouver Region, Regional Core, and the UCB for 2020. For each of the three study areas, Figure 20 shows the proportion of: Tree Canopy Cover; Potential Planting Area – Vegetated; Potential Planting Area – Impervious Surface; and Not suitable (Areas generally unsuitable for the establishment of new tree canopy cover (e.g., buildings, roads, other built features). The analysis found that an area of 97,500 ha (33%) of the Region qualifies as Potential Planting Area. More specifically, 24% of the Region was found to be vegetated potential area and 9% impervious potential area. In the Regional Core, 82,360 ha (49%) qualifies as % Potential Planting Area – 36% of the Regional Core was found to be vegetated potential area and 13% is impervious potential area. Finally, 33,000 ha (37%) of the UCB was found to have Potential Planting Area – 16% is vegetated potential area and 21% is impervious potential area.

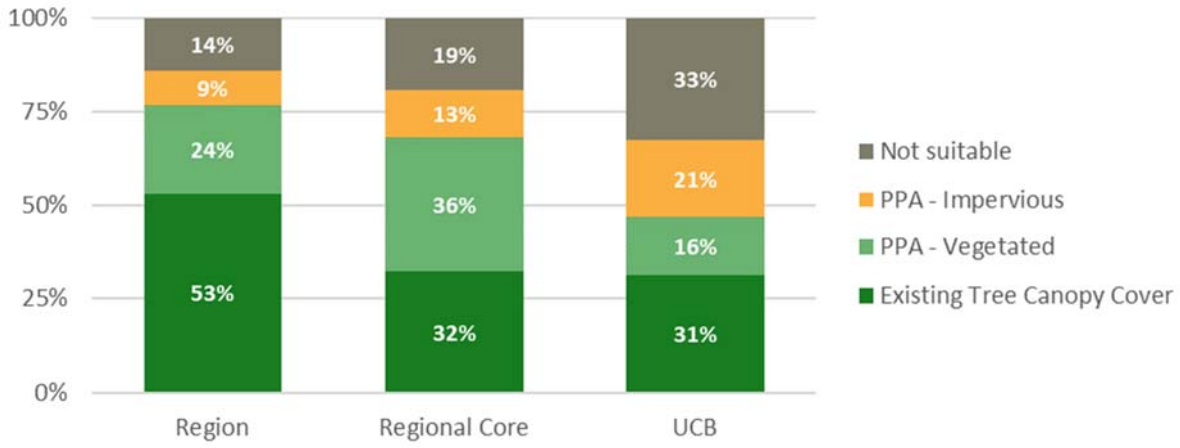

Figure 20. Existing Tree Canopy Cover, Potential Planting Area (PPA) for vegetated surface and impervious surface, and area not suitable for tree planting for the Metro Vancouver Region, Regional Core, and Urban Containment Boundary (UCB).

Figure 21 shows the Potential Planting Area (%) summarized by census block within the UCB. Cream-coloured blocks indicate a low percentage of Potential Planting Area (less than 20%) and dark orange blocks indicate high percentage of Potential Planting Area (more than 40%).

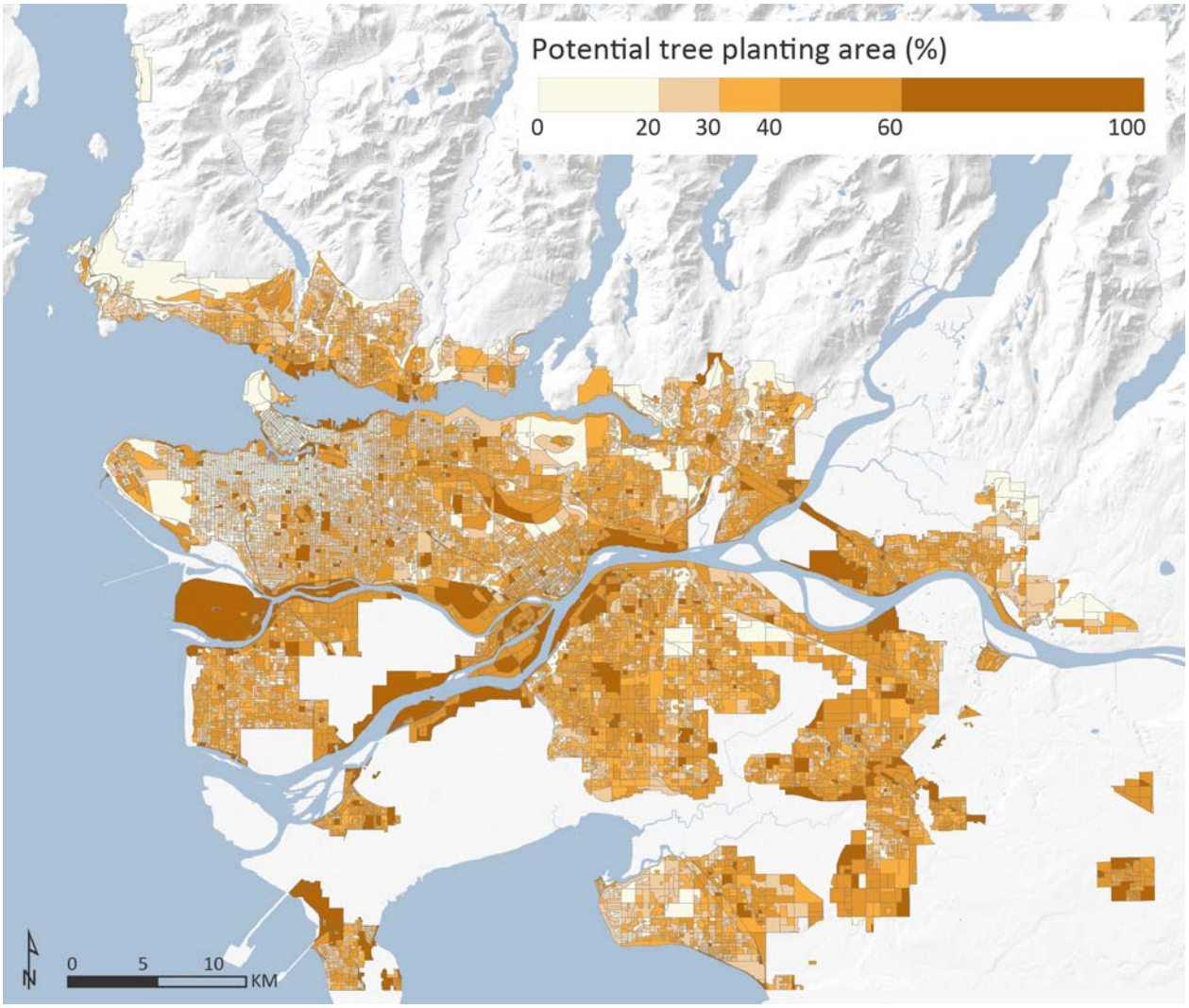

Figure 21. Potential Planting Area (%) for trees, summarized by city block (using 2021 Census dissemination blocks) within the Urban Containment Boundary. Note that areas of high potential will require ground-truthing to confirm their suitability for tree planting.

Table 7 below provides a summary of each member jurisdiction's Potential Planting Area within their administrative boundaries, their portion of the UCB, and their portion of the Regional Core.[59]

Table 7. Potential Planting Area (%) for Metro Vancouver member jurisdictions (2020).

Member jurisdiction	Potential Planting Area (%)		
	Within the member jurisdiction's boundary[60]	Within the Regional Core	Within the UCB
Bowen Island Municipality	7%	7%	Not in UCB
City of Burnaby	35%	35%	35%
City of Coquitlam	26%	37%	33%
City of Delta	74%	74%	46%
City of Langley	46%	46%	44%
City of Maple Ridge	18%	33%	30%
City of New Westminster	40%	40%	41%
City of North Vancouver	35%	35%	35%
City of Pitt Meadows	76%	77%	62%
City of Port Coquitlam	45%	45%	38%
City of Port Moody	19%	19%	27%
City of Richmond	64%	64%	53%
City of Surrey	51%	51%	38%
City of Vancouver	30%	29%	29%
City of White Rock	33%	33%	33%
District of North Vancouver	11%	29%	30%
District of West Vancouver	13%	22%	22%
Electoral Area A	14%	37%	18%
UBC[61]	*33%*	*33%*	*33%*
Township of Langley	58%	58%	44%
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	85%	85%	78%
Village of Anmore	8%	20%	62%
Village of Belcarra	7%	8%	Not in UCB
Village of Lions Bay[62]	5%	5%	5%

[59] Additional tables with potential planting area information are provided in Appendix A.
[60] Excluding ocean and the Fraser River.
[61] UBC refers to the University of British Columbia.
[62] The Village of Lions Bay was removed from the UCB in 2021, but results in this report are relevant for the year 2020.

Potential Planting Area within the Urban Containment Boundary by Land Use

To further understand the spatial distribution of potential planting area within the UCB, the potential planting area (%) was measured in relation to land use. Using the regional Generalized Land Use (2020) layer, potential planting area (%) was calculated for different types of land use. The results are shown in Figure 22, and Table B9 in Appendix B provides a detailed breakdown of potential planting area for all land use types.

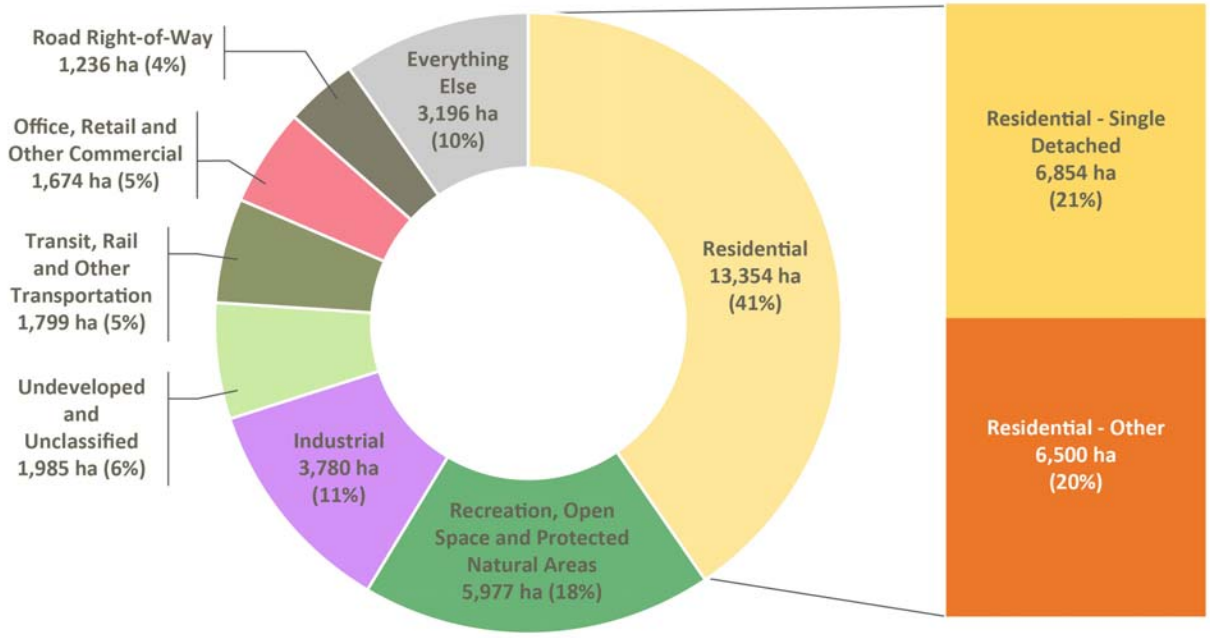

Figure 22. Distribution of potential planting area among land use types within the Urban Containment Boundary.

Points to note:

- Most of Metro Vancouver's potential planting area is located within residential areas (41%) and to a lesser extent recreation, open space and protected natural areas (18%).
- 21% of the potential planting area for trees within the UCB is found within one particular type of residential area – 'Residential – Single Detached'. This land use type has high potential for tree planting (20% of land within the UCB).
- After 'Residential – Single Detached', the next largest areas of opportunity to increase tree canopy cover are 'Recreation, Open Space, and Protected Natural Areas' (18%), Industrial (11%), and 'Residential – Multi-attached' (10%).
- Some land use types (e.g., Port Vancouver; transit, rail and other non-road transportation; and agricultural lands) have notably high potential planting area, but tree planting on these lands would only make a small contribution the UCB tree canopy cover, due to their relatively small geographic extent within the UCB.

Potential Planting Area within the Urban Containment Boundary by Land Ownership

Additional analysis was conducted to understand the spatial distribution of potential planting area on public and private lands within the UCB. Using owner mailing address data provided by the British Columbia Automobile Association, potential planting area (%) was calculated for public[63] and private lands.[64, 65, 66] Table B10 in Appendix B provides a detailed breakdown of impervious surface for all land ownership types across the UCB, per jurisdiction.

As shown in Table 8, 43% of the area for both private and public lands is potentially available for tree planting (43%). However, due to a greater coverage of private lands compared to public lands in the UCB, the contribution of potential tree planting area on private lands is substantially larger (69%).

Table 8. Potential planting area (%) for UCB lands, per by parcel ownership type in the UCB (2020).

Ownership	Potential planting area % within UCB[67]	% UCB's total potential planting area[68]	% of UCB area[69]
Private	43%	69%	69%
Public – Total	43%	28%	28%
Public – Federal	*8%*	*5%*	*4%*
Public – Provincial	*9%*	*6%*	*4%*
Public – Crown Corporation	*4%*	*3%*	*2%*
Public – Metro Vancouver	*2%*	*1%*	*2%*
Public – Municipal	*18%*	*12%*	*15%*
Public – TransLink	*0%*	*0%*	*0%*
Public – Colleges/Universities	*1%*	*0%*	*1%*
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	82%	1%	1%
Reserve Lands	42%	0%	0%
Unclassified	51%	2%	1%

[63] Public ownership parcels included federal, provincial, crown corporation (federal and provincial), Metro Vancouver (regional), TransLink corporation, municipal, and public colleges/universities lands.
[64] Parcels in scəẃaθən məsteyəxʷ (Tsawwassen First Nation), except for those still under "Crown Corporation" ownership, were categorized separately.
[65] Reserves lands were categorized separately due to limited parcel or ownership information.
[66] About 30,500 parcels did not have ownership information and were therefore were categorized as "unclassified".
[67] For example, 27% of Private land within the UCB is potentially available for tree planting.
[68] For example, 57% of potential tree planting area within the whole UCB is located on Private land.
[69] The total area of each ownership type within the UCB, for reference.

EXTREME HEAT AND TREE EQUITY

Researchers and other organizations have recognized that the benefits associated with trees (e.g., shading, cooling, physical and mental health) are inequitably distributed across many cities and regions, including across Metro Vancouver.[70] For example, elderly, children, or socioeconomically marginalized, chronically ill, Indigenous people, and newcomers to Canada are most likely to live in the hottest urban areas with low tree canopy cover, which makes them much more vulnerable to extreme heat[71]. As our climate continues to change, extreme heat events are expected to become more common in the Metro Vancouver region. To minimize negative health-related outcomes, it is important for the most vulnerable people to have access to cooler environments. Enhancing tree canopy cover can provide cooling and shading in the outdoor environment and help to moderate indoor temperatures, especially within urban heat islands.[72,73,74,75]

Potential Urban Tree Planting Locations to Improve Social Equity

As part of ongoing work on social equity in planning, Metro Vancouver retained a consultant to demonstrate how to consider social equity through spatial analysis.[76] Recognizing existing disparities in tree canopy cover and heat exposure across the region, a regional 'Urban Tree Planting Priority' map was produced by overlaying vulnerabilities to extreme heat with the 2014 tree canopy cover data for the UCB. Vancouver Coastal Health provided the extreme heat exposure, sensitivity, and adaptive capacity data from 2016.[77]

Figure 23 shows the results of the tree canopy cover and heat vulnerability spatial analysis. At the regional scale, high-density urban 'core' areas (downtown Vancouver, the Lonsdale area in North Vancouver, Richmond Centre and neighbouring areas, New Westminster, the City Centre area of Surrey, White Rock, and the City of Langley) generally appear as higher priorities for tree planting. This result reflects the lower tree canopy cover and the higher proportion of vulnerable populations in these higher-density neighbourhoods. It is important to recognize that tree planting and retention are more

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[70] HealthyDesign.City

[71] Reducing Urban Heat Islands to Protect Health in Canada: An Introduction for Public Health Professionals, 2020. Health Canada.

[72] Wang, Y., & Akbari, H. (2016). The effects of street tree planting on Urban Heat Island mitigation in Montreal. Sustainable Cities and Society, 27, 122-128.

[73] Loughner, C. P., Allen, D. J., Zhang, D., Pickering, K. E., Dickerson, R. R., & Landry, L. (2012). Roles of Urban Tree Canopy and Buildings in Urban Heat Island Effects: Parameterization and Preliminary Results, Journal of Applied Meteorology and Climatology, 51(10), 1775-1793.

[74] Helletsgruber, C., Gillner, S., Gulyás, Á., Junker, R. R., Tanács, E., & Hof, A. (2020). Identifying tree traits for cooling urban heat islands—a cross-city empirical analysis. Forests, 11(10), 1064.

[75] Henderson S. B., McLean, K. E., Lee, M. J., & Kosatsky, T. Analysis of community deaths during the catastrophic 2021 heat dome: Early evidence to inform the public health response during subsequent events in greater Vancouver, Canada. Environ Epidemiol. 2022 Jan 19;6(1):e189. doi: 10.1097/EE9.0000000000000189. PMID: 35169667; PMCID: PMC8835552.

[76] Social Equity in Planning: Spatial Analysis Case Studies. March 2023. Prepared by: LevelUp Planning Collaborative

[77] Community Health and Climate Change (arcgis.com)

challenging in highly urbanized areas due to harsher growing conditions, lack of pervious surfaces, existing subsurface infrastructure, poor soil quality, and above-ground impedances.

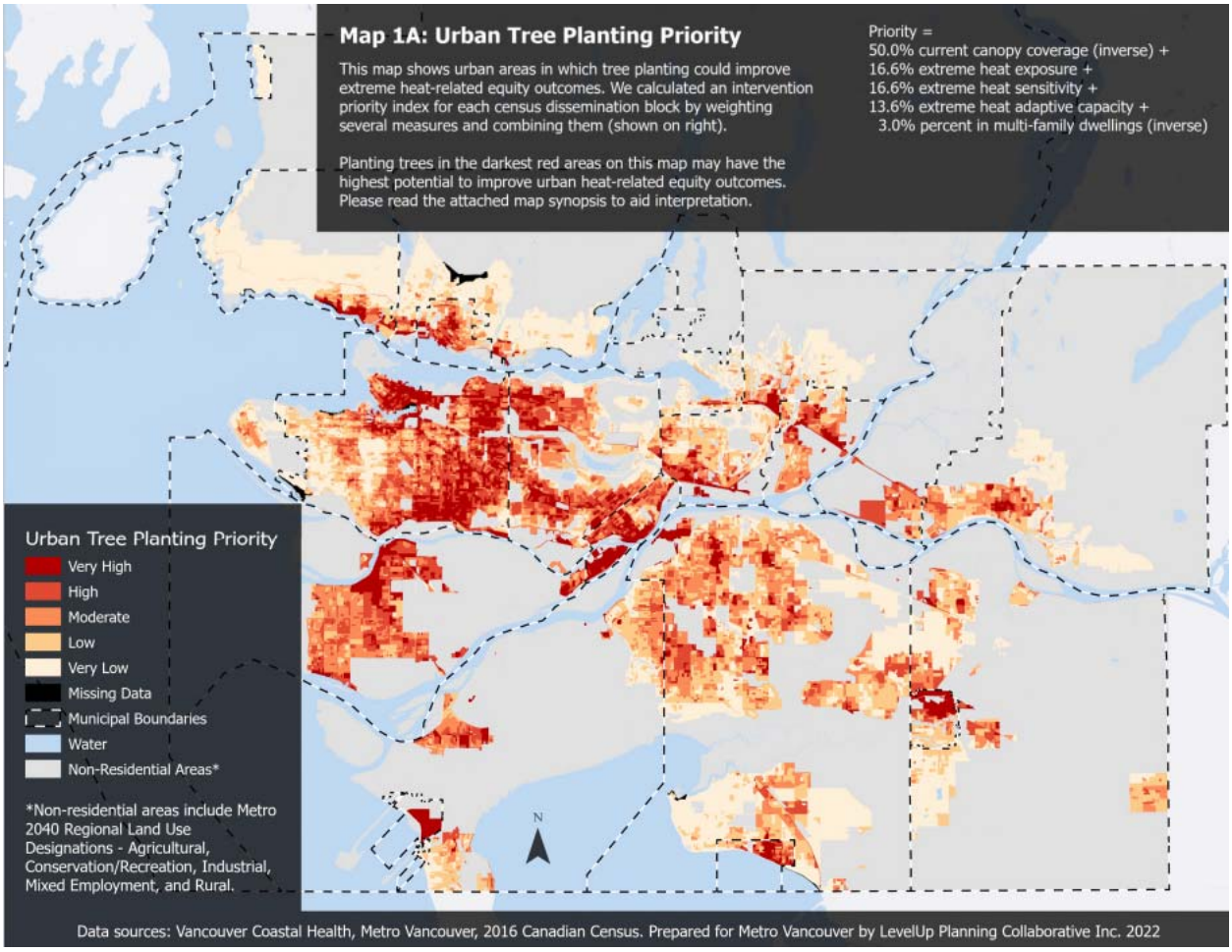

Figure 23. Social Equity Spatial Analysis Case Study - Urban Tree Planting Priority within Metro Vancouver Urban Lands.[78]

In addition to the urban core locations noted above, sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation), much of the North Shore from Dundarave to Ironworkers Memorial Second Narrows Bridge, most of the urban seafront in downtown Vancouver and False Creek, and New Westminster, and other select residential areas along the Fraser, all appear as high priority areas for tree planting. Although tree canopy cover is generally low in these areas, further research is needed to better understand the social vulnerability drivers for this high rating. Other high planting priority areas include neighbourhoods in the

[78] Social Equity in Planning: Spatial Analysis Case Studies. March 2023. Prepared by: LevelUp Planning Collaborative

Cities of Langley, Burnaby, and parts of Surrey (such as Whalley, Newton and Guildford), as well as South and East Vancouver.

As noted above, the 2014 tree canopy cover dataset used for this analysis. Metro Vancouver staff plan to update these figures after Vancouver Coastal Health has updated their extreme heat vulnerability dataset.

The intent behind this social equity spatial analysis exercise was that Metro Vancouver member jurisdictions could use the dataset to support conversations about enhancing equity and mitigating extreme heat risk through urban forest management. Discussions with communities, including equity-denied groups, should take place before implementing tree planting initiatives to reduce the potential for the displacement, exclusion, or marginalization of residents in areas surrounding sustainable/green urban (re)developments by attracting wealthier in-movers ('green gentrification').[79]

[79] Quinton, J., Nesbitt, L., & Sax, D. (2022). How well do we know green gentrification? A systematic review of the methods. *Progress in Human Geography*, *46*(4), 960-987. https://doi.org/10.1177/03091325221104478

FUTURE PROJECTIONS OF TREE CANOPY COVER

Metro 2050 forecasts indicate that over the next thirty years, Metro Vancouver will need to accommodate approximately one million more residents and approximately 500,000 additional housing units.[80] This section considers how projected regional growth trends may impact tree canopy cover by looking at where growth is expected to occur, using the same methodology completed in 2019, but with updated assumptions, as follows:

1. Development on remaining General Urban land
    - In 2020, about 4,015 hectares of lands with the regional land use designation 'General Urban' within the UCB are undeveloped or rural and planned for future urban growth (see Figure 24).
    - The remaining General Urban lands contain 2,240 hectares of tree canopy.
    - It is assumed that the remaining General Urban lands will be largely developed over the next 15-20 years.
    - These areas are expected to be developed as mainly low density housing with some higher density areas but the relative proportions of housing types are unknown.
    - It is assumed that tree canopy cover levels on parcels developed over the next 20-30 years will have comparable tree canopy cover to parcels developed between 1990-2000.[81] The post-1990's average % tree canopy cover for all housing types (low and high density) is 20%.
    - For the purposes of this analysis, it is assumed that by 2050, the remaining General Urban lands planned for future urban growth will be developed to housing types with an average of 20% tree canopy cover.
    - This would result in an estimated loss of **1,440 ha** of tree canopy.
2. Redevelopment of single detached housing within the General Urban regional land use designation
    - The amount of single detached housing (one unit, one lot) is projected to decrease significantly by 2050, mostly as a result of intensification and redevelopment. For this analysis, a conservative estimate of 25% redevelopment is applied.
    - Redevelopment is projected to focus on multi-unit ground-oriented structures (secondary units, laneway, multi-plexes, row houses) and apartments (low rises, mid rises, high rises).
    - In 2020, single detached housing contained 5,900 hectares of tree canopy within the General Urban lands. On average, housing built in this region after 1990 has 37% less tree canopy cover than single detached housing built before 1990.[81]
    - If over the next 30 years, 25% of single detached housing is redeveloped to housing types with 37% less tree canopy cover than the current level of canopy cover across single detached lands, the result would be a loss of **550 ha** tree canopy cover.

[80] *Metro 2050,* the Regional Growth Strategy (2023)
[81] Regional Tree Canopy Cover and Impervious Surfaces, 2019 (metrovancouver.org)

Taking into account only the above two sources of loss (1,440 + 550 ha), tree canopy cover within the UCB is projected to decrease by **1,990 ha** from 31% to **29%** by 2050.

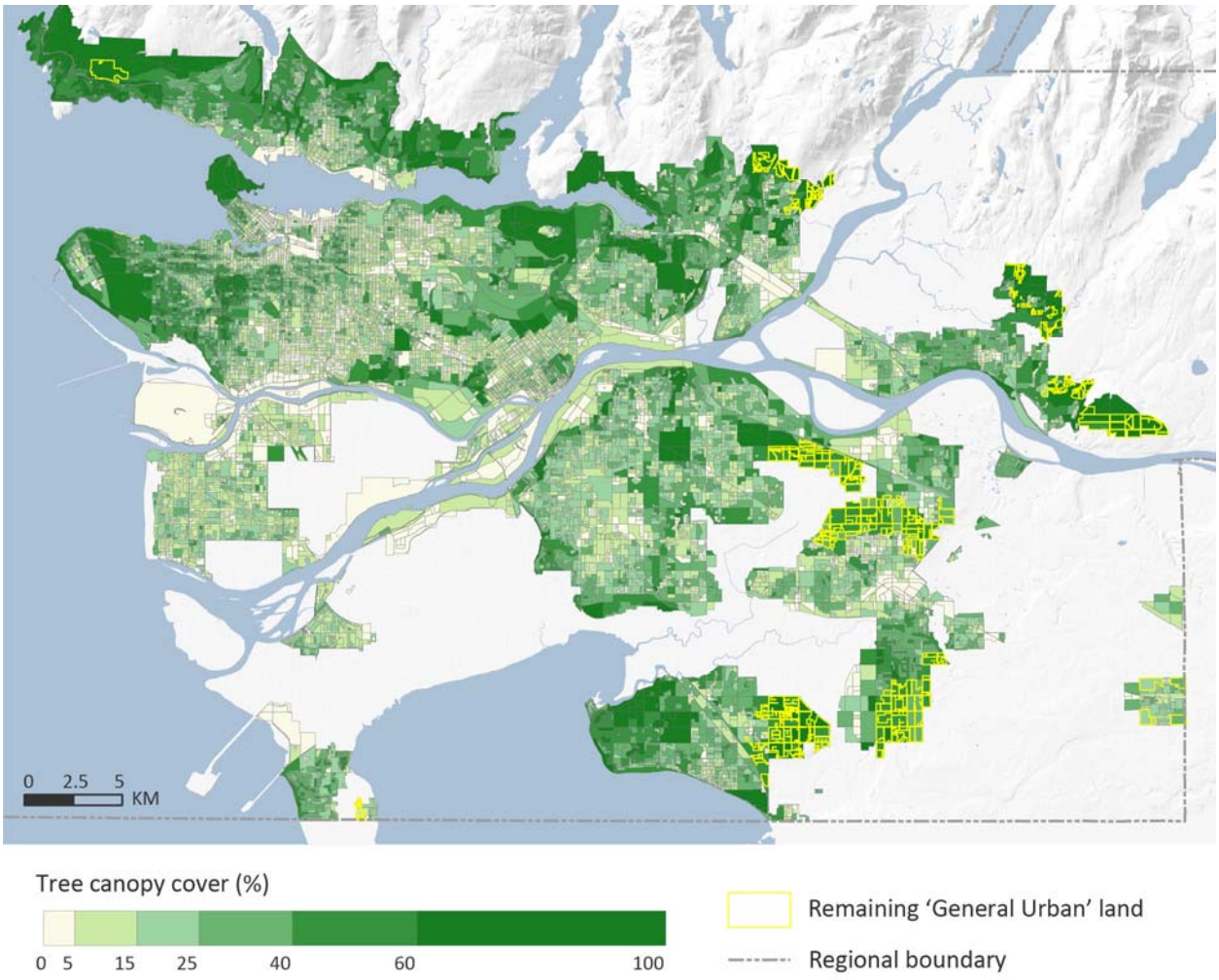

Figure 24. Remaining General Urban areas within the Urban Containment Boundary.

Offsetting Losses through Tree Planting

Municipalities (including several Metro Vancouver member jurisdictions) often use tree planting programs as a way to maintain or expand their canopy, and actions such as these could help to offset anticipated future losses. To offset the projected decline in UCB tree canopy cover from 31% to 29% would require roughly **1,990 ha** of the UCB to be dedicated to tree planting. This figure assumes the mature ground-to-crown ratio of the replacement trees is the same as those lost.

Analysis indicates that almost 33,000 ha of land within the UCB (and 97,500 ha of land within the Region) are *potentially* available for tree planting.[82] Site-level analysis would be required to determine what area is *actually* available, but the Potential Planting Area results suggest that the 1,990 ha required to offset projected losses is attainable.

Achieving the *Metro 2050* Urban Containment Boundary Target

With the adoption of *Metro 2050* in February 2023, an aspirational regional target was set to "increase the total regional tree canopy cover within the Urban Containment Boundary from 32% to 40% by the year 2050". A canopy cover target of 40% is commonly adopted at the local level in cities around the world, and this number represents both an aspirational and achievable goal for the Metro Vancouver region. Local variation in geography, environmental conditions and historical development patterns will need to be considered, given that a 40% target is a regional average that will not be feasible for every individual member jurisdiction to meet at the local level.

As per *Metro 2050* Action 3.2.7, member jurisdictions will "Adopt Regional Context Statements that: a) identify local ecosystem protection and tree canopy cover targets, and demonstrate how these targets will contribute to the regional targets". To assist member jurisdictions with setting local UCB tree canopy cover targets that will help to meet the *Metro 2050* target, Metro Vancouver recommended the local UCB targets in Table 9.

Table 9. Recommended Local UCB Tree Canopy Cover Targets to Reach Metro 2050 target

Member jurisdiction	2014 UCB tree canopy cover	2020 UCB tree canopy cover	Target needed to reach 40% tree canopy cover in the regional UCB by 2050
Bowen Island Municipality	Not in UCB	Not in UCB	N/A
City of Burnaby	34%	31%	40%
City of Coquitlam	40%	36%	40%
City of Delta	20%	19%	35%
City of Langley	20%	21%	35%
City of Maple Ridge	46%	47%	46%
City of New Westminster	15%	14%	30%
City of North Vancouver	25%	23%	35%
City of Pitt Meadows	15%	14%	30%
City of Port Coquitlam	23%	21%	35%
City of Port Moody	53%	51%	53%
City of Richmond	11%	10%	25%
City of Surrey	32%	31%	40%
City of Vancouver	24%	25%	35%
City of White Rock	23%	23%	35%
District of North Vancouver	47%	45%	47%
District of West Vancouver	64%	62%	64%
Electoral Area A	68%	67%	68%

[82] i.e., areas currently occupied by non-tree vegetation (grass, shrubs etc.), soil patches, barren surfaces, and pavement that does not fall on roads. Assessed using the 'Potential Planting Area' dataset – see Section 4.

Member jurisdiction	2014 UCB tree canopy cover	2020 UCB tree canopy cover	Target needed to reach 40% tree canopy cover in the regional UCB by 2050
Township of Langley	29%	29%	40%
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	11%	8%	25%
Village of Anmore	12%	12%	12%
Village of Belcarra	Not in UCB	Not in UCB	N/A
Village of Lions Bay[83]	82%	88%	N/A
UCB tree canopy cover	**32%**	**31%**	**40%**

These recommended local targets considered historical context and space availability using the Potential Planting Area results. The methodology behind these recommended targets was as follows:

Table 10. Metro Vancouver's Recommended Local UCB Tree Canopy Cover Target Setting Methodology

2020 tree canopy cover in the member jurisdiction's portion of the UCB	Local target for the member jurisdiction's portion of the UCB
5-10%	25%
11-15%	30%
16-25%	35%
26-40%	40%
Above 40% or UCB area <5ha	Hold at 2014 tree canopy cover levels (no net loss)

The local targets were converted to area (ha) for each member jurisdiction in the UCB and then compared with each member jurisdiction's Potential Planting Area (ha) within the UCB. Site-level analysis will be required to determine what area is *actually* available, but the Potential Planting Area results suggest that all recommended local targets in Table 9 are *potentially* attainable.

Achieving 40% tree canopy cover in the UCB would involve adding roughly **8,000 ha** of tree canopy above 2020 levels. To offset the projected tree canopy cover losses in the UCB from planned development (29 to 31%; see 'Offsetting Losses Through Tree Planting' section) and achieve the *Metro 2050* UCB tree canopy cover target (increase to 40%) would involve planting a total of **9,900 ha**. Again, the Potential Planting Area analysis has concluded that 33,000 hectares within the UCB are *potentially* available for tree planting.[84] Site-level analysis will be required to determine what area is *actually* available, but the Potential Planting Area results suggest that the *Metro 2050* UCB tree canopy cover target is attainable.

[83] The Village of Lions Bay was removed from the UCB in 2021, so *Metro 2050*'s UCB tree canopy cover target is not applicable for the Village of Lions Bay.

[84] i.e., areas currently occupied by non-tree vegetation (grass, shrubs etc.), soil patches, barren surfaces, and pavement that does not fall on roads. Assessed using the 'Potential Planting Area' dataset – see "Potential Tree Planting Area" section.

LIMITATIONS

During this study, the following limitations were identified:

Resolution limitations. This analysis of regional tree canopy cover, impervious surface, and potential planting area relied on several classes from the 2020 regional Land Cover Classification, a 5 metre resolution GIS raster spatial dataset that was created using PlanetScope satellite imagery, LiDAR data (where available), and other ancillary datasets.[85] This approach provided sufficient detail to facilitate change detection and long term monitoring of land cover in the context of regional changes. However, for finer scale analyses, this scale may generalize land cover types of interest. For example, in urbanized areas, the mosaic of cover types is highly variable, resulting in blended pixels at the 5 metre scale. These blended pixels are assigned land cover types that best represent the mixed spectral signal, so features such as individual houses or trees may not be distinguishable. For finer scale analyses in complex land cover areas (e.g., highly urbanized areas) different approaches can leverage fine scale data to capture specific cover types and uses. For example, LiDAR point clouds could be used to delineate individual tree crowns and quantify tree canopy at fine scales. Several Metro Vancouver member jurisdictions have conducted finer-resolution tree canopy analyses within their boundaries, and some have also reported change over time. Metro Vancouver's analysis provides a consistent regional assessment and fills data gaps for municipalities that do not currently have local mapping.

Actual versus methodological change detection. To detect and report on change in tree canopy cover and impervious surfaces, this analysis used regional Land Cover Classification datasets, which were created using imagery from 2014 and 2020. For 2014, RapidEye 5-metre imagery was used to generate the land cover classes; however, the RapidEye constellation was deactivated in early 2020, so PlanetScope was selected as a replacement as it has comparable resolution and spectral specifications, and thus minimized the amount of land cover change that could be attributed to changes in source imagery. Although the overall dataset accuracy was comparable, this change and other methodological improvements resulted in some land cover class changes in 2020. For example, it appears that classification precision has improved for a few golf courses, rather than changes in the tree canopy cover between 2014 and 2020. Using imagery from the same satellite (i.e., PlanetScope imagery, if available) for the 2026 regional update should improve the actual to methodological change detection ratio.

[85] Metro Vancouver Regional District Regional Land Cover Classification and Sensitive Ecosystem Inventory Update – Summary Report, 2022. Data available on the Metro Vancouver Open Data Portal (arcgis.com)

CONCLUSIONS

This report summarizes consistent regional measurements of tree canopy cover and impervious surface levels for the year 2020, which allows for a cross-regional comparison, and by employing the same methodology from 2014, it is possible to track change between 2014 and 2020.

In 2020, the Metro Vancouver region's tree canopy cover was 53% for the Region and 31% within the Urban Containment Boundary (UCB). Tree canopy cover was unevenly distributed across the UCB and land use types, with most of the tree canopy found within residential areas, followed by protected natural areas. Between 2014 and 2020 tree canopy cover within the Region, Regional Core, and the UCB decreased by 1% for each analysis area. Concentrated areas of tree canopy cover loss generally corresponded with greenfield development or densifying urban areas.

For impervious surface, 20% of Metro Vancouver and 54% of the UCB was impervious in 2020. Most of Metro Vancouver's impervious surface is located within residential areas and road rights-of-way. Between 2014 and 2020 impervious surfaces within the Region, Regional Core, and the UCB increased by 4% for each analysis area. Areas of increasing impervious surface generally correspond to greenfield development and industrial areas.

Projected growth in the region over the next 20-30 years is expected to impact tree canopy cover within the UCB as lands planned for future urban growth are developed, and single detached housing stock is redeveloped. Tree canopy cover in the UCB is projected to decrease from 31% to 29% from these sources of loss. However, potential exists to 'offset' losses or increase canopy through tree planting in the UCB. The Metro Vancouver Potential Planting Area dataset can be used by member jurisdictions to assist with urban forest planning.

A considerable gap exists between the 2020 UCB tree canopy cover level of 31% and the 40% *Metro 2050* UCB target, but the results of the Potential Planting Area analysis suggest that this target remains attainable. Of course, site-level analysis would be required to determine the areas that are *actually* available for tree planting and maintenance will be needed to ensure trees grow to their full potential.

Metro 2050's 40% tree canopy cover target for the UCB is a science-based, aspirational target that represents best practice to ensure that the region's residents will continue to benefit from healthy and resilient urban forests. Local authorities are also encouraged to consider best practices described in the Metro Vancouver Tree Regulations Toolkit, as well as the recommendations in the next section.

RECOMMENDATIONS

Metro Vancouver, member jurisdictions, and other land owners and managers all have roles to play in maintaining tree canopy cover and reducing impervious surface levels. The following recommendations are provided for consideration, as appropriate:

1. Monitor the extent, distribution, and status of tree canopy cover and impervious surface to inform planning and management.
2. Adopt urban forest management plans that consider how to reduce the impacts of future development on tree canopy and imperviousness.
3. Adopt local tree canopy cover targets and consider Metro Vancouver's recommended aspirational local targets for the Urban Containment Boundary included in Table 8 of this report.
4. Use Metro Vancouver's Potential Planting Area dataset to develop realistic and achievable planting plans and targets.
5. Consider focusing tree planting efforts in areas of low canopy cover, particularly when low canopy cover areas coincide with areas with high proportions of vulnerable populations. Consult with equity-seeking groups, prior to initiating tree planting efforts in such areas, to minimize the risk of green gentrification.
6. Strengthen and enforce tree protection bylaws. When development results in loss, require trees to be replaced and maintained.
7. When planning new urban communities, prioritize the retention of existing mature trees that provide the greatest amount of tree canopy cover and ecosystem services, including shade, cooling, and carbon storage.
8. Implement on-site stormwater management and green infrastructure approaches throughout urban areas to reduce overland flooding and impacts on water quality.
9. Look for opportunities to integrate the objectives of maintaining tree canopy cover and reducing impervious surface levels into a broad range of departments, plans, and strategies so responsibilities become a shared corporate goal.
10. Engage with the public about the importance of retaining and enhancing tree canopy cover and the benefits of permeable surface, recognizing that 38% of tree canopy cover and 39% of impervious surface was found within residential areas in the UCB. These efforts could be supported with programs to encourage tree planting and maintenance of existing trees on private land.
11. Calculate and report on the potential changes to tree canopy cover and impervious surface levels that could result from the implementation of requirements under the new Provincial housing legislation (after more information becomes available about the scale and pace of redevelopment for this region).

APPENDIX A – GLOSSARY OF TERMS

City block: City blocks were delineated using the 2021 Census dissemination areas, which are areas equivalent to a city block and bounded on all sides by roads and/or boundaries of standard geographic areas.[86]

Coniferous: A type of tree that bears cones and needle-like or scale-like leaves that are typically (but not always) evergreen.

Deciduous: A type of tree with large identifiable leaves that emerge during spring and shed in autumn.

Impervious surface: Surfaces that allow very little to no water to pass through. Paved roads and asphalt are examples of impervious surface.

Land cover: Biophysical features on the earth's surface mapped using multispectral satellite imagery and LiDAR technology (where available). Classes include coniferous tree, deciduous tree, grass/herb, buildings, paved, and water (see Table C1 in Appendix C for information on Land Cover classes).

Land use: The way in which land is used by humans for specific purposes. Examples include residential, industrial, or agricultural land uses.

Metrics: Statistical information summarized categorically (e.g., zoning class) or spatially (e.g., Census dissemination blocks).

Potential Planting Area: Land that could theoretically be used to increase tree canopy cover. Potential Planting Area (%) includes areas currently occupied by non-tree vegetation (grass, shrubs etc.), soil patches, barren surfaces, pavement that does not fall on roads, and that under the right circumstances, could be modified to increase tree canopy cover.

Urban Heat Island: Elevated temperatures in urban areas compared to their rural surroundings. The closely packed buildings and paved surfaces in cities amplify and trap heat more effectively than natural and rural areas, which are often shaded by trees and vegetation and cooled by plant evapotranspiration.

Urban Containment Boundary: The stable, long-term, regionally-defined area for urban development in Metro Vancouver that protects Agricultural, Conservation and Recreation, and Rural lands from developments requiring utility infrastructure and from auto-oriented, dispersed development patterns. Locating housing, regional transportation, and other infrastructure investments within the Urban Containment Boundary supports land development patterns that can protect food producing land and reduce energy demand and greenhouse gas emissions form commuter traffic; it also secures land that stores carbon and helps communities adapt to climate change. Residential and employment infill development is encouraged within the Urban Containment Boundary.[87]

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[86] The Census dissemination block is the smallest geographic area for which population and dwelling counts are disseminated. Dissemination blocks cover all the territory of Canada. Illustrated Glossary - Dissemination block (DB) (statcan.gc.ca).

[87] *Metro 2050*, the Regional Growth Strategy, 2023

Tree Canopy Cover: The area covered by all deciduous and coniferous tree crowns (i.e., area occupied by leaves as viewed from above), as measured from above.

Watershed: An area of land that drains surface water and groundwater to a common water body, such as a creek, stream, lake or the ocean.

APPENDIX B – ADDITIONAL FIGURES AND SUMMARY TABLES

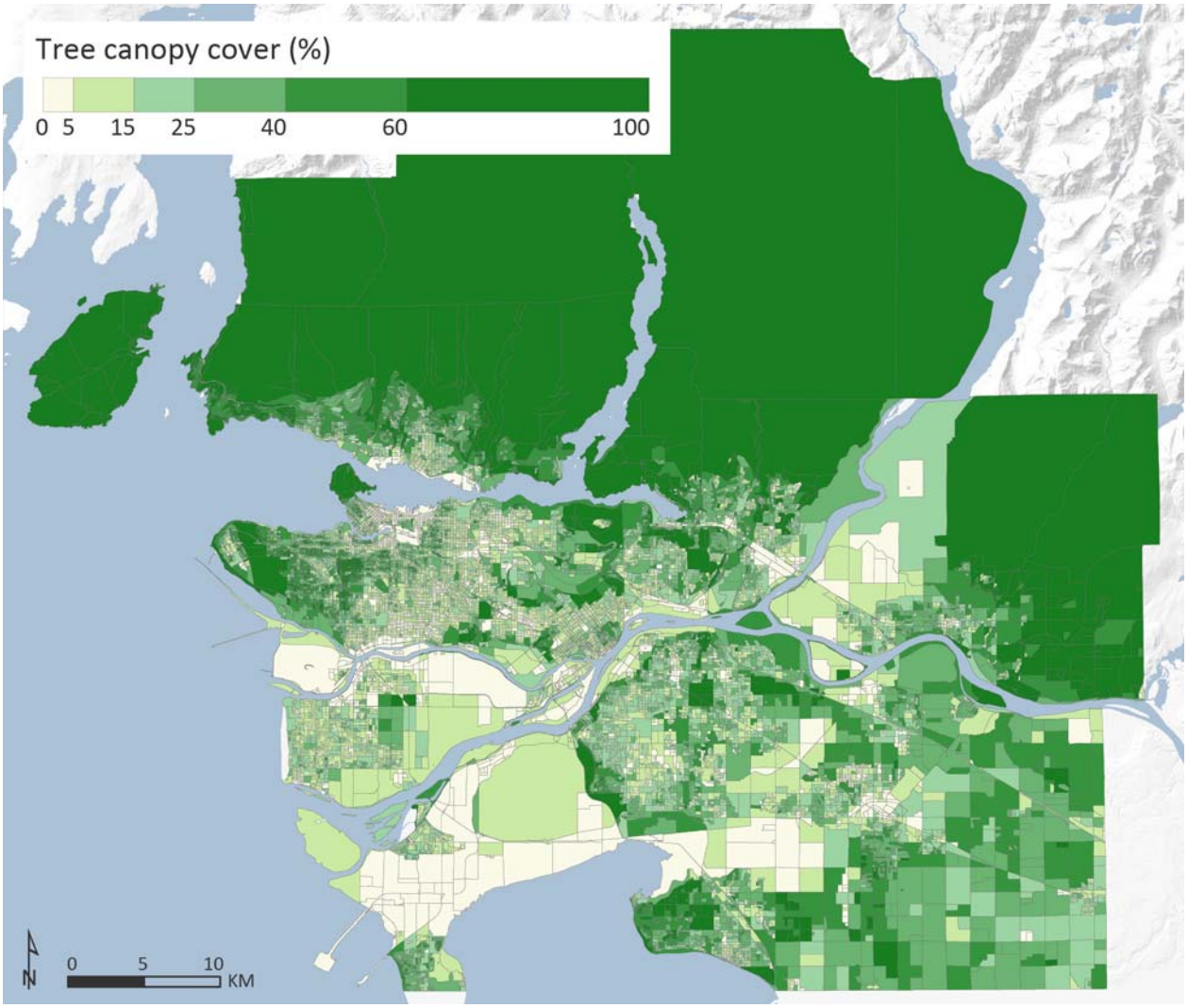

Figure B1. Tree canopy cover (%) summarized by city block (using 2021 Census dissemination blocks) within the Region.

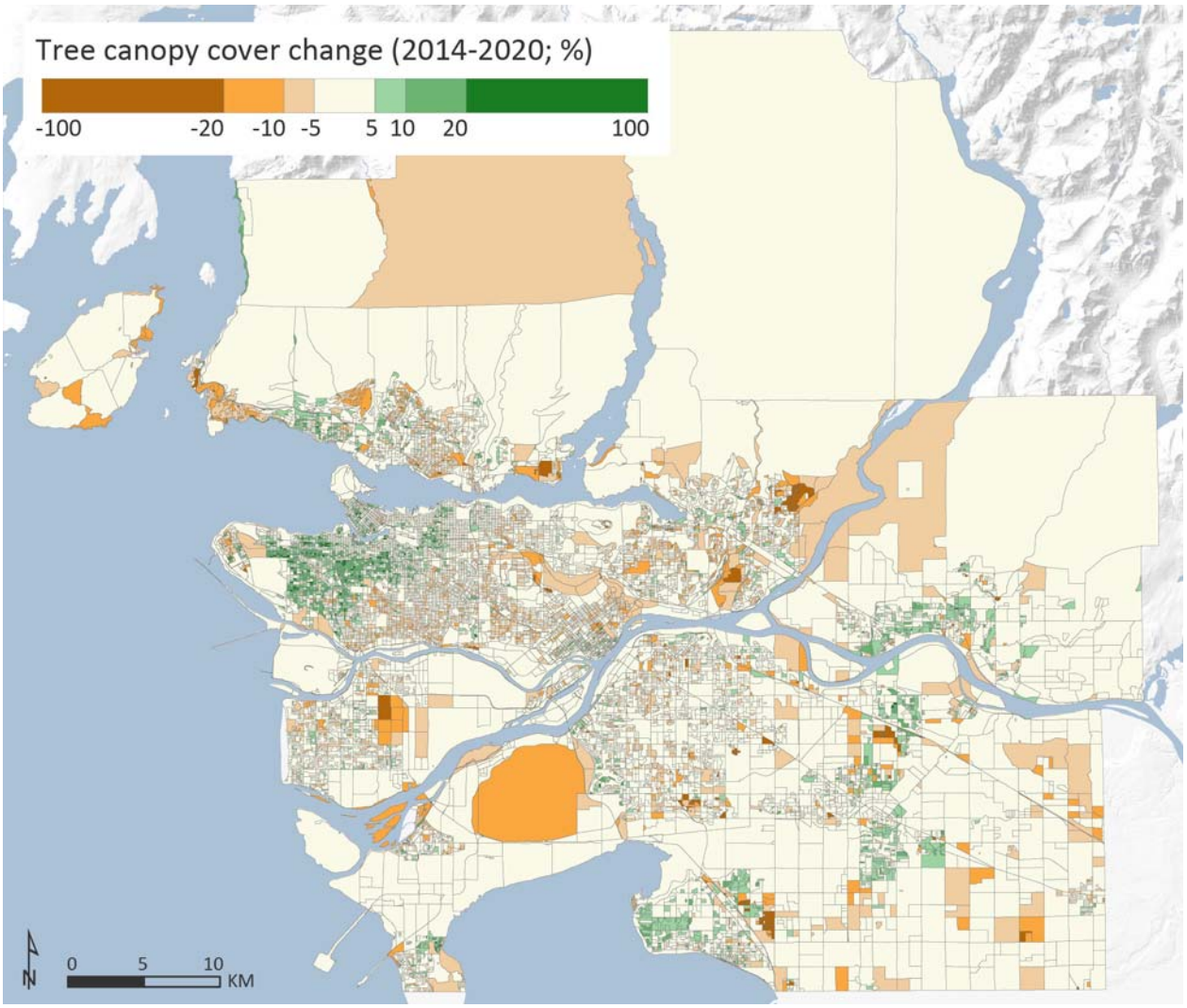

Figure B2. Change in reported tree canopy cover (%), from 2014 to 2020, summarized by city block (using 2021 Census dissemination blocks) within the Region.

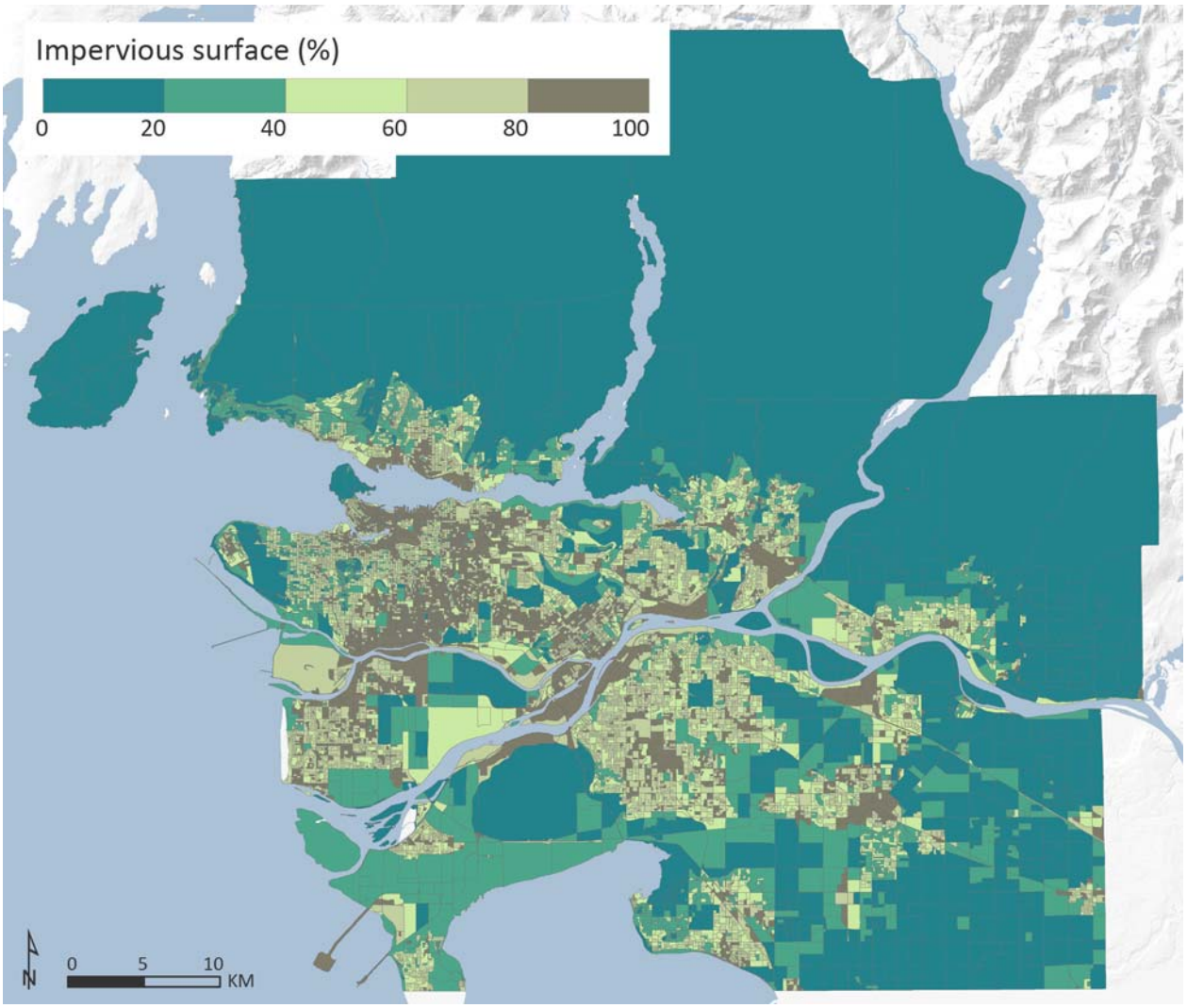

Figure B3. Impervious surface (%) summarized by city block (using 2021 Census dissemination blocks) within the Region.

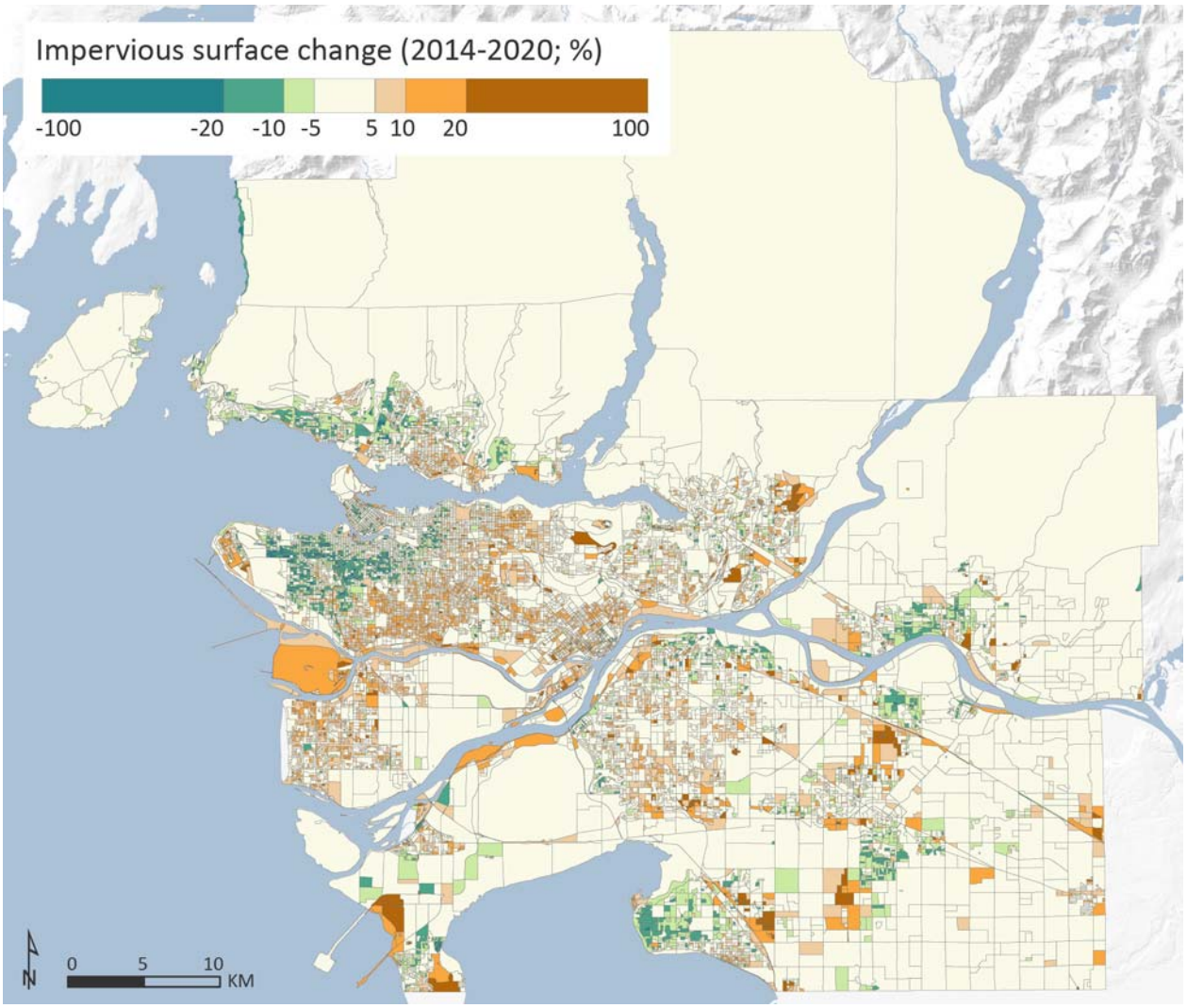

Figure B4. Change in reported impervious surface (%), from 2014 to 2020, summarized by city block (using 2021 Census dissemination blocks) within the Region.

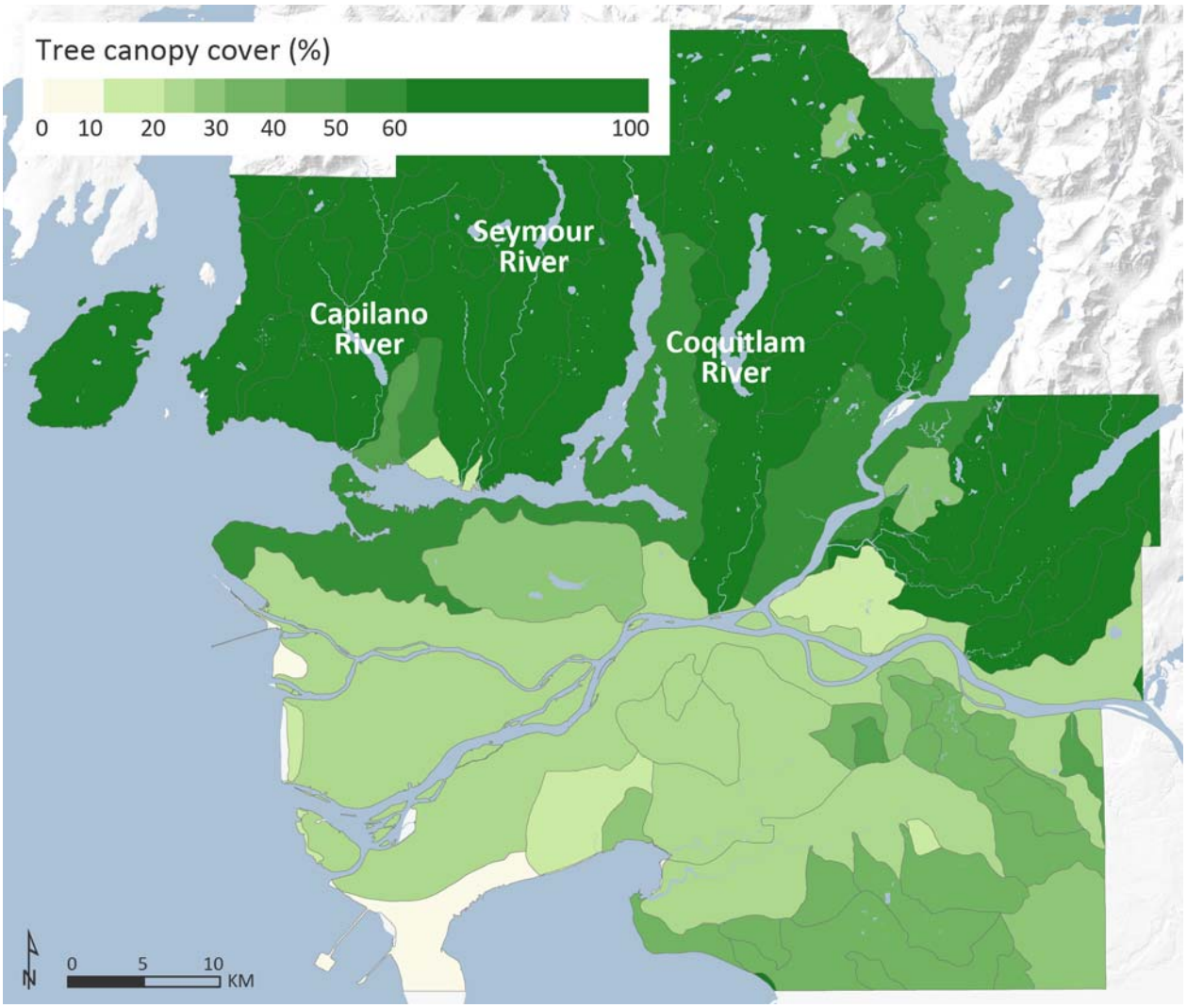

Figure B5. Tree Canopy Cover (%) by Watershed (2020).

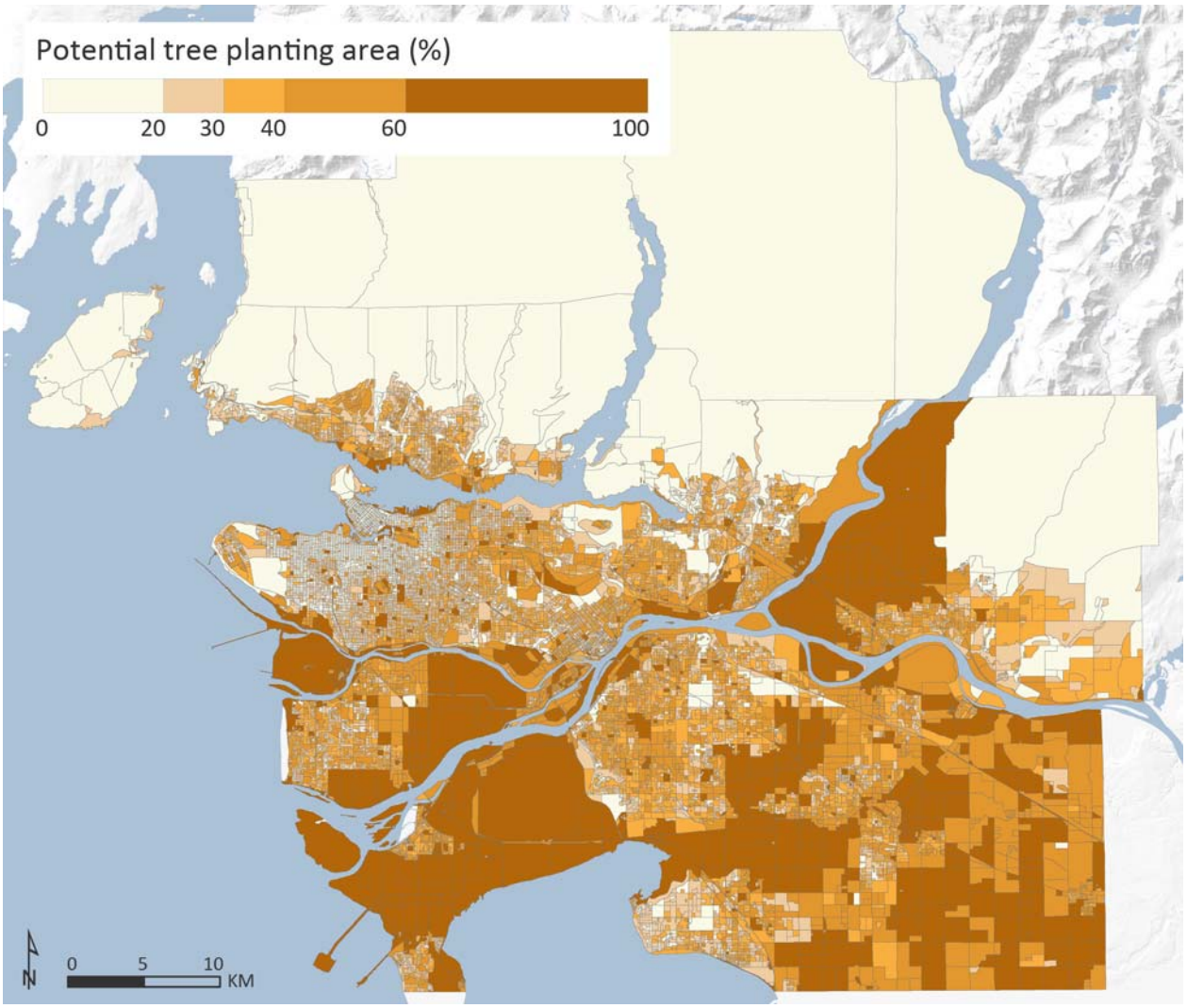

Figure B6. Potential Planting Area (%) for trees, summarized by city block (using 2021 Census dissemination blocks) within the Region. Note that blocks showing low potential planting area include locations with existing high tree canopy cover, large amounts of road surfaces, and rocky alpine areas. Areas with high potential for tree planting include areas with non-tree vegetation (grass, shrubs etc.), soil patches, barren surfaces, pavement that does not fall on roads. Note that areas of high potential will require ground-truthing to confirm their suitability for tree planting. Some areas with high potential for tree planting may not have the appropriate conditions for increased tree canopy cover.

Table B1. Tree Canopy Cover (%) and Impervious Surface (%) by member jurisdiction (2020).

Jurisdiction	Tree Canopy Cover (%)			Impervious Surface (%)		
	Per jurisdiction area[88]	*Per total regional area*[89]	*Per region's total tree canopy cover*[90]	*Per jurisdiction area*[91]	*Per total regional area*[92]	*Per region's total impervious surface*[93]
Bowen Island Municipality	90%	2%	3%	3%	0%	0%
City of Burnaby	31%	1%	2%	53%	2%	7%
City of Coquitlam	58%	2%	5%	26%	1%	5%
City of Delta	12%	1%	1%	35%	2%	9%
City of Langley	21%	0%	0%	60%	0%	1%
City of Maple Ridge	73%	7%	13%	10%	1%	4%
City of New Westminster	14%	0%	0%	73%	0%	2%
City of North Vancouver	23%	0%	0%	69%	0%	1%
City of Pitt Meadows	14%	0%	1%	18%	1%	2%
City of Port Coquitlam	23%	0%	0%	53%	1%	2%
City of Port Moody	64%	1%	1%	24%	0%	1%
City of Richmond	11%	0%	1%	53%	2%	10%
City of Surrey	26%	3%	5%	41%	4%	20%
City of Vancouver	25%	1%	2%	64%	3%	11%
City of White Rock	23%	0%	0%	64%	0%	0%
District of North Vancouver	81%	5%	9%	12%	1%	3%
District of West Vancouver	77%	2%	5%	13%	0%	2%
Electoral Area A	78%	23%	43%	5%	2%	7%
UBC[94]	*31%*	*0%*	*0%*	*58%*	*0%*	*0%*
Township of Langley	33%	3%	7%	21%	2%	10%
scəwaθən məsteyəxʷ (Tsawwassen First Nation)	5%	0%	0%	51%	0%	1%
Village of Anmore	85%	1%	2%	3%	0%	0%
Village of Belcarra	90%	0%	0%	5%	0%	0%
Village of Lions Bay	88%	0%	0%	8%	0%	0%

[88] For example, 31% of the City of Burnaby is covered by tree canopy.
[89] For example, the City of Burnaby's tree canopy cover makes up 1% of the region's total area.
[90] For example, 2% of the region's tree canopy is found within the City of Burnaby.
[91] For example, 53% of the City of Burnaby is impervious surface.
[92] For example, the City of Burnaby's impervious surface makes up 2% of the region's total area.
[93] For example, 7% of the region's impervious surface is found within the City of Burnaby.
[94] UBC refers to the University of British Columbia.

Table B2. Tree Canopy Cover (%) and Impervious Surface (%) within the Urban Containment Boundary (UCB), by member jurisdiction.[95]

Jurisdiction	Tree Canopy Cover (%)			Impervious Surface (%)		
	Per jurisdiction area within UCB[96]	*Per total UCB area*[97]	*Per UCB's total tree canopy cover*[98]	*Per jurisdiction area within UCB*[99]	*Per total UCB area*[100]	*Per UCB's total impervious surface*[101]
Bowen Island Municipality	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
City of Burnaby	31%	3%	10%	53%	5%	10%
City of Coquitlam	36%	2%	8%	50%	3%	6%
City of Delta	19%	1%	3%	66%	4%	7%
City of Langley	21%	0%	1%	62%	1%	1%
City of Maple Ridge	47%	2%	7%	37%	2%	3%
City of New Westminster	14%	0%	1%	75%	1%	2%
City of North Vancouver	23%	0%	1%	69%	1%	2%
City of Pitt Meadows	14%	0%	1%	57%	1%	1%
City of Port Coquitlam	21%	1%	2%	67%	2%	3%
City of Port Moody	51%	1%	3%	37%	1%	1%
City of Richmond	10%	1%	3%	75%	6%	11%
City of Surrey	31%	7%	23%	53%	13%	23%
City of Vancouver	25%	3%	10%	66%	8%	15%
City of White Rock	23%	0%	0%	64%	0%	1%
District of North Vancouver	45%	2%	7%	41%	2%	3%
District of West Vancouver	62%	3%	10%	24%	1%	2%
Electoral Area A	67%	1%	3%	24%	0%	1%
UBC[102]	*31%*	*0%*	*0%*	*58%*	*0%*	*0%*
Township of Langley	29%	2%	6%	48%	3%	6%
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	8%	0%	0%	71%	0%	1%
Village of Anmore	12%	0%	0%	65%	0%	0%
Village of Belcarra	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
Village of Lions Bay	88%	0%	1%	8%	0%	0%

[95] Bowen Island Municipality and Village of Belcarra were not included in the UCB in 2020, and are not included in the UCB presently (2024).
[96] For example, 31% of the City of Burnaby's UCB is covered by tree canopy.
[97] For example, the City of Burnaby's tree canopy cover makes up 3% of the UCB's total area.
[98] For example, 10% of the tree canopy within the whole UCB is located in the City of Burnaby.
[99] For example, 53% of the City of Burnaby's UCB is impervious surface.
[100] For example, the City of Burnaby's impervious surface makes up 5% of the UCB's total area.
[101] For example, 10% of impervious surface within the whole UCB is located in the City of Burnaby.
[102] UBC refers to the University of British Columbia.

Table B3. Coniferous and Deciduous Tree Canopy Covers (%) within the Urban Containment Boundary (UCB), by member jurisdiction.[103]

Jurisdiction	Coniferous Tree Canopy Cover (%)			Deciduous Tree Canopy Cover (%)		
	Per jurisdiction area within UCB[104]	*Per total UCB area*[105]	*Per UCB's total coniferous tree canopy cover*[106]	*Per jurisdiction area within UCB*[107]	*Per total UCB area*[108]	*Per UCB's total deciduous tree canopy cover*[109]
Bowen Island Municipality	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
City of Burnaby	7%	1%	9%	24%	2%	11%
City of Coquitlam	16%	1%	13%	20%	1%	6%
City of Delta	1%	0%	1%	18%	1%	4%
City of Langley	1%	0%	0%	21%	0%	1%
City of Maple Ridge	13%	1%	7%	34%	2%	7%
City of New Westminster	1%	0%	0%	13%	0%	1%
City of North Vancouver	6%	0%	1%	17%	0%	1%
City of Pitt Meadows	1%	0%	0%	13%	0%	1%
City of Port Coquitlam	3%	0%	1%	19%	0%	2%
City of Port Moody	23%	0%	5%	28%	1%	2%
City of Richmond	0%	0%	0%	10%	1%	3%
City of Surrey	3%	1%	9%	27%	6%	29%
City of Vancouver	2%	0%	4%	22%	3%	13%
City of White Rock	1%	0%	0%	22%	0%	1%
District of North Vancouver	23%	1%	12%	22%	1%	4%
District of West Vancouver	43%	2%	25%	18%	1%	4%
Electoral Area A	36%	1%	7%	31%	0%	2%
UBC[110]	*7%*	*0%*	*0%*	*24%*	*0%*	*0%*
Township of Langley	2%	0%	2%	27%	2%	8%
scəwaθən məsteyəxʷ (Tsawwassen First Nation)	2%	0%	0%	6%	0%	0%
Village of Anmore	3%	0%	0%	9%	0%	0%
Village of Belcarra	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
Village of Lions Bay	85%	0%	3%	4%	0%	0%

[103] Bowen Island Municipality and Village of Belcarra were not included in the UCB in 2020, and are not included in the UCB presently (2024).
[104] For example, 7% of the City of Burnaby's UCB is covered by coniferous tree canopy.
[105] For example, the City of Burnaby's coniferous tree canopy cover makes up 1% of the UCB's total area.
[106] For example, 9% of the coniferous tree canopy within the whole UCB is located in the City of Burnaby.
[107] For example, 24% of the City of Burnaby's UCB is covered by deciduous tree canopy.
[108] For example, the City of Burnaby's deciduous tree canopy cover makes up 2% of the UCB's total area.
[109] For example, 11% of the deciduous tree canopy within the whole UCB is located in the City of Burnaby.
[110] UBC refers to the University of British Columbia.

Table B4. Tree Canopy Cover (%) and Impervious Surface (%) by Metro 2050 Regional Land Use Designations within the Urban Containment Boundary (UCB).

Land Use Designation	Tree Canopy Cover (%)			Impervious Surface (%)		
	Per land use type area, within UCB[111]	*Per total UCB area*[112]	*Per UCB's total tree canopy cover*[113]	*Per land use type area, within UCB*[114]	*Per total UCB area*[115]	*Per UCB's total impervious surface*[116]
General Urban	30%	7%	14%	55%	14%	58%
Industrial	11%	0%	1%	76%	3%	12%
Employment	13%	0%	0%	72%	1%	4%
Agricultural	20%	4%	7%	18%	3%	15%
Rural	63%	2%	4%	14%	0%	2%
Conservation and Recreation	82%	39%	74%	5%	2%	10%

[111] For example, 30% of General Urban land within the UCB is covered by tree canopy.
[112] For example, tree canopy cover on General Urban land makes up 7% of the UCB's total area.
[113] For example, 14% of tree canopy cover within the whole UCB is located on General Urban land.
[114] For example, 55% of General Urban land within the UCB is covered by impervious surface.
[115] For example, impervious surface on General Urban land makes up 14% of the UCB's total area.
[116] For example, 58% of impervious surface within the whole UCB is located on General Urban land.

Table B5. Tree Canopy Cover (%) and Impervious Surface (%) by land use types, within the Urban Containment Boundary (UCB).

Land Use Type[117]	Tree Canopy Cover (%)			Impervious Surface (%)		
	Per land use type area, within UCB[118]	*Per total UCB area[119]*	*Per UCB's total tree canopy cover[120]*	*Per land use type area, within UCB[121]*	*Per total UCB area[122]*	*Per UCB's total impervious surface[123]*
Agriculture	25%	0%	0%	20%	0%	0%
Industrial - Extractive	19%	0%	0%	68%	0%	0%
Recreation, Open Space and Protected Natural Areas	61%	11%	36%	14%	3%	5%
Undeveloped and Unclassified	56%	3%	10%	23%	1%	2%
Road Right-of-Way	17%	3%	10%	80%	15%	27%
Residential - Rural Large Lot	55%	2%	6%	11%	0%	1%
Under Construction (at mid-year)	7%	0%	0%	89%	0%	1%
Civic and Other Institutional	16%	0%	0%	74%	1%	1%
Residential - Mobile Homes	19%	0%	0%	73%	0%	0%
Residential - Single Detached	33%	7%	21%	49%	10%	19%
Residential - Multi-Attached (Duplex or Single Detached with 2 or more units on lot)	21%	2%	6%	66%	6%	11%
Retail and Other Commercial	4%	0%	0%	94%	2%	5%
Residential - Low-rise Apartment	20%	0%	1%	73%	1%	2%
Residential - Townhouse	24%	1%	3%	69%	2%	4%
Residential - Mid/High-rise Apartment	23%	0%	0%	69%	0%	1%
Mixed Residential (Low-rise Apartment) Commercial	5%	0%	0%	92%	0%	0%
Residential - Institutional Care/Non-Market Housing	24%	0%	0%	67%	0%	0%
Mixed Residential (Mid/High-Rise Apartment) Commercial	11%	0%	0%	88%	0%	0%
Office	11%	0%	0%	86%	1%	1%
Industrial	9%	1%	2%	86%	6%	11%
Health and Education	16%	0%	1%	78%	1%	2%
Utility, Communication and Work Yards	20%	0%	1%	52%	1%	1%
Transit, Rail and Other Transportation	8%	0%	1%	69%	2%	3%

[117] As defined in the 2022 Metro Vancouver Regional Land Use Assessment, completed in March 2023.
[118] For example, 33% of Residential (Single Detached) land within the UCB is covered by tree canopy.
[119] For example, tree canopy cover on Residential (Single Detached) land makes up 7% of the UCB's total area.
[120] For example, 21% of tree canopy cover within the whole UCB is located on Residential (Single Detached) land.
[121] For example, 49% of Residential (Single Detached) land within the UCB is covered by impervious surface.
[122] For example, impervious surface on Residential (Single Detached) land makes up 10% of the UCB's total area.
[123] For example, 18% of impervious surface within the whole UCB is located on Residential (Single Detached) land.

Land Use Type[117]	Tree Canopy Cover (%)			Impervious Surface (%)		
	Per land use type area, within UCB[118]	*Per total UCB area[119]*	*Per UCB's total tree canopy cover[120]*	*Per land use type area, within UCB[121]*	*Per total UCB area[122]*	*Per UCB's total impervious surface[123]*
Lakes, Large Rivers and Other Water	10%	0%	0%	16%	0%	0%
Port Vancouver	2%	0%	0%	91%	1%	2%
Protected Watershed	95%	0%	0%	3%	0%	0%

Table B6. Tree canopy cover (%) and Impervious Surface (%) by parcel ownership type in the UCB, by member jurisdiction.[124]

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership**[125]	***Per jurisdiction area within UCB***[126]	***Per total UCB area***[127]	***Per UCB's total tree canopy cover***[128]	***Per jurisdiction area within UCB***[129]	***Per total UCB area***[130]	***Per UCB's total impervious surface***[131]
Bowen Island Municipality	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
City of Burnaby	Private	11%	1%	4%	42%	4%	8%
	Public - Total	20%	2%	6%	7%	1%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*16%*	*2%*	*5%*	*3%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*1%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Unclassified	0%	0%	0%	1%	0%	0%
City of Coquitlam	Private	20%	1%	4%	38%	3%	5%
	Public - Total	19%	1%	4%	5%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*15%*	*1%*	*3%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

[124] Bowen Island Municipality and Village of Belcarra were not included in the UCB in 2020, and are not included in the UCB presently (2024).

[125] Parcel ownership includes "Private", "Public" (with several subclasses), "sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)", "Reserve Lands", and "unclassified". "Public – Total" includes federal, provincial, crown corporation (federal and provincial), Metro Vancouver (regional), TransLink corporation, municipal, and public colleges/universities lands. Parcels in sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation), except for those still under "Crown Corporation" ownership, were categorized separately. Reserves lands were categorized separately due to limited parcel or ownership information. About 30,500 parcels did not have ownership information and were therefore were categorized as "unclassified".

[126] For example, 11% of Private land in the City of Burnaby, that is within the UCB, is covered by tree canopy.

[127] For example, the City of Burnaby's tree canopy cover on Private land makes up 1% of the UCB's total area.

[128] For example, 4% of tree canopy cover within the whole UCB is located on Private land in the City of Burnaby.

[129] For example, 42% of Private land in the City of Burnaby, that is within the UCB, is impervious surface.

[130] For example, The City of Burnaby's impervious surface on Private land makes up 4% of the UCB's total area.

[131] For example, 8% of impervious surface within the whole UCB is located on Private land in the City of Burnaby.

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	1%	0%	0%
City of Delta	Private	17%	1%	3%	53%	3%	6%
	Public - Total	4%	0%	1%	7%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Municipal	*3%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	1%	0%	0%
City of Langley	Private	17%	0%	1%	51%	1%	1%
	Public - Total	6%	0%	0%	6%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*0%*	*4%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Unclassified	0%	0%	0%	1%	0%	0%
City of Maple Ridge	Private	32%	2%	5%	27%	1%	3%
	Public - Total	20%	1%	3%	3%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*3%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*16%*	*1%*	*3%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%
City of New Westminster	Private	10%	0%	0%	61%	1%	2%
	Public - Total	5%	0%	0%	11%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Municipal	*4%*	*0%*	*0%*	*5%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	0%	0%	0%	1%	0%	0%
City of North Vancouver	Private	12%	0%	0%	52%	1%	1%
	Public - Total	12%	0%	0%	12%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*5%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*3%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*11%*	*0%*	*0%*	*4%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	1%	0%	0%
City of Pitt Meadows	Private	10%	0%	0%	50%	1%	1%
	Public - Total	3%	0%	0%	4%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*3%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
	Reserve Lands	1%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%
City of Port Coquitlam	Private	13%	0%	1%	57%	1%	3%
	Public - Total	10%	0%	1%	6%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*3%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*8%*	*0%*	*1%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	1%	0%	0%
City of Port Moody	Private	27%	0%	1%	28%	0%	1%
	Public - Total	20%	0%	1%	5%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*5%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*14%*	*0%*	*1%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	6%	0%	0%	1%	0%	0%
City of Richmond	Private	6%	1%	2%	53%	5%	10%
	Public - Total	2%	0%	1%	20%	2%	4%
	Public – Federal	*1%*	*0%*	*0%*	*10%*	*1%*	*2%*
	Public – Provincial	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*5%*	*0%*	*1%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*1%*	*0%*	*0%*	*3%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	0%	0%	0%	1%	0%	0%

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
City of Surrey	Private	21%	5%	16%	41%	10%	20%
	Public - Total	11%	3%	9%	5%	1%	3%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*2%*	*0%*	*1%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*1%*	*0%*	*0%*	*0%*
	Public – Municipal	*9%*	*2%*	*7%*	*2%*	*1%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	1%	0%	0%
City of Vancouver	Private	15%	2%	5%	53%	6%	12%
	Public - Total	10%	1%	3%	10%	1%	2%
	Public – Federal	*4%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*2%*	*0%*	*1%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*1%*	*2%*	*5%*	*1%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	1%	0%	0%
City of White Rock	Private	21%	0%	0%	53%	0%	1%
	Public - Total	5%	0%	0%	4%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	1%	0%	0%
	Private	27%	1%	4%	28%	1%	2%

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
District of North Vancouver	Public - Total	22%	1%	3%	5%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*2%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*18%*	*1%*	*2%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	1%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%
District of West Vancouver	Private	47%	2%	7%	15%	1%	1%
	Public - Total	18%	1%	3%	3%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*16%*	*1%*	*2%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	1%	0%	0%	1%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%
Electoral Area A	Private	16%	0%	1%	24%	0%	1%
	Public - Total	16%	0%	1%	28%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*15%*	*0%*	*1%*	*27%*	*0%*	*1%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%
Township of Langley	Private	25%	2%	6%	37%	3%	5%
	Public - Total	5%	0%	1%	5%	0%	1%

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*1%*	*3%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	1%	0%	0%
sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)	sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)	4%	0%	0%	74%	0%	1%
Village of Anmore	Private	5%	0%	0%	9%	0%	0%
	Public - Total	0%	0%	0%	0%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	0%	0%	0%	0%	0%	0%
Village of Belcarra	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
Village of Lions Bay	Private	53%	0%	0%	1%	0%	0%
	Public - Total	40%	0%	0%	2%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*13%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*4%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*23%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Tree Canopy Cover (%)			Impervious Surface (%)		
Jurisdiction	**Ownership[125]**	***Per jurisdiction area within UCB[126]***	***Per total UCB area[127]***	***Per UCB's total tree canopy cover[128]***	***Per jurisdiction area within UCB[129]***	***Per total UCB area[130]***	***Per UCB's total impervious surface[131]***
	Unclassified	0%	0%	0%	0%	0%	0%

Table B7. Potential Planting Area (%) metrics, within the Urban Containment Boundary (UCB), by member jurisdiction.[132]

	Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	*Per jurisdiction area within UCB*[133]	*Per total UCB area*[134]	*Per UCB's total potential planting area*[135]	*Per jurisdiction area within UCB*[136]	*Per total UCB area*[137]	*Per UCB's total potential planting area*[138]	*Per jurisdiction area within UCB*[139]	*Per total UCB area*[140]	*Per UCB's total potential planting area*[141]
Bowen Island Municipality	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
City of Burnaby	35%	4%	10%	16%	2%	10%	19%	2%	9%
City of Coquitlam	33%	2%	6%	14%	1%	6%	18%	1%	6%
City of Delta	46%	2%	7%	16%	1%	5%	30%	2%	8%
City of Langley	44%	0%	1%	17%	0%	1%	27%	0%	1%
City of Maple Ridge	30%	1%	4%	17%	1%	5%	13%	1%	3%
City of New Westminster	41%	1%	2%	12%	0%	1%	29%	0%	2%
City of North Vancouver	35%	0%	1%	9%	0%	1%	26%	0%	2%
City of Pitt Meadows	62%	1%	2%	33%	0%	3%	28%	0%	2%
City of Port Coquitlam	38%	1%	2%	12%	0%	2%	26%	1%	3%
City of Port Moody	27%	1%	1%	12%	0%	1%	14%	0%	1%
City of Richmond	53%	4%	12%	18%	1%	9%	35%	3%	14%
City of Surrey	38%	9%	25%	18%	4%	27%	20%	5%	23%
City of Vancouver	29%	4%	10%	10%	1%	8%	19%	2%	12%
City of White Rock	33%	0%	1%	13%	0%	0%	19%	0%	1%
District of North Vancouver	30%	1%	4%	14%	1%	4%	15%	1%	3%
District of West Vancouver	22%	1%	3%	14%	1%	4%	8%	0%	2%
Electoral Area A	18%	0%	1%	9%	0%	1%	8%	0%	1%

[132] Bowen Island Municipality and Village of Belcarra were not included in the UCB in 2020, and are not included in the UCB presently (2024).
[133] For example, 35% of the City of Burnaby's UCB area is potentially available for tree planting (as per Potential Planting Area estimate).
[134] For example, the City of Burnaby's potentially available planting area makes up 4% of the UCB's total area.
[135] For example, 10% of the total area potentially available for tree planting within the UCB is found within the City of Burnaby.
[136] For example, 16% of the City of Burnaby's UCB area that is potentially available for planting is currently vegetated (but not treed).
[137] For example, the City of Burnaby's potentially available planting area, that is currently vegetated (but not treed), makes up 2% of the UCB's total area.
[138] For example, 10% of the total vegetated (but not treed) area potentially available for tree planting within the UCB is found within the City of Burnaby.
[139] For example, 19% of the City of Burnaby's UCB area that is potentially available for planting is currently impervious surface.
[140] For example, the City of Burnaby's potentially available planting area, that is currently impervious surface, makes up 2% of the UCB's total area
[141] For example, 9% of the total impervious surface area potentially available for tree planting within the UCB is found within the City of Burnaby.

	Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	***Per jurisdiction area within UCB[133]***	***Per total UCB area[134]***	***Per UCB's total potential planting area[135]***	***Per jurisdiction area within UCB[136]***	***Per total UCB area[137]***	***Per UCB's total potential planting area[138]***	***Per jurisdiction area within UCB[139]***	***Per total UCB area[140]***	***Per UCB's total potential planting area[141]***
UBC[142]	*33%*	*0%*	*0%*	*12%*	*0%*	*0%*	*21%*	*0%*	*1%*
Township of Langley	44%	3%	8%	24%	2%	10%	21%	1%	7%
sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)	78%	0%	1%	24%	0%	1%	53%	0%	1%
Village of Anmore	62%	0%	0%	25%	0%	0%	37%	0%	0%
Village of Belcarra	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
Village of Lions Bay	5%	0%	0%	3%	0%	0%	1%	0%	0%

[142] UBC refers to the University of British Columbia.

Table B8. Potential Planting Area (%) metrics by Metro 2050 Regional Land Use Designations within the Urban Containment Boundary (UCB).

Land Use Designation	Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
	Per land use designation area, within UCB[143]	*Per total UCB area*[144]	*Per UCB's total potential planting area*[145]	*Per and use designation area, within UCB*[146]	*Per total UCB area*[147]	*Per UCB's total potential planting area*[148]	*Per land use designation area, within UCB*[149]	*Per total UCB area*[150]	*Per UCB's total potential planting area*[151]
General Urban	34%	8%	24%	16%	4%	16%	18%	4%	46%
Industrial	61%	2%	6%	14%	0%	2%	47%	2%	18%
Employment	55%	1%	2%	17%	0%	1%	38%	0%	5%
Agricultural	75%	14%	42%	72%	14%	57%	3%	1%	5%
Rural	31%	1%	3%	26%	1%	3%	6%	0%	2%
Conservation and Recreation	16%	8%	23%	11%	5%	22%	5%	2%	24%

[143] For example, 34% of General Urban land within the UCB is potentially available for planting (as per Potential Planting Area estimate).
[144] For example, the potentially available planting area on General Urban land makes up 8% of the UCB's total area.
[145] For example, 24% of the total area potentially available for tree planting within the UCB is located on General Urban land.
[146] For example, 16% of the area potentially available for tree planting on General Urban land within the UCB is currently vegetated (but not treed).
[147] For example, the potentially available planting area on General Urban land, that is currently vegetated (but not treed), makes up 4% of the UCB's total area.
[148] For example, 16% of the total area potentially available for tree planting within the UCB, that is currently vegetated (but not treed), is located on General Urban land.
[149] For example, 18% of the area potentially available for tree planting on General Urban land within the UCB is currently impervious surface.
[150] For example, the potentially available planting area on General Urban land, that is currently impervious surface, makes up 4% of the UCB's total area.
[151] For example, 46% of the total area potentially available for tree planting within the UCB, that is currently impervious surface, is located on General Urban land.

Table B9. Potential Planting Area (%) metrics by land use types, within the Urban Containment Boundary (UCB).

Land Use Type	Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
	Per land use area, within UCB[152]	*Per total UCB area*[153]	*Per UCB's total potential planting area*[154]	*Per land use area, within UCB*[155]	*Per total UCB area*[156]	*Per UCB's total potential planting area*[157]	*Per land use area, within UCB*[158]	*Per total UCB area*[159]	*Per UCB's total potential planting area*[160]
Agriculture	71%	0%	1%	64%	0%	2%	7%	0%	0%
Industrial - Extractive	72%	0%	0%	9%	0%	0%	63%	0%	0%
Recreation, Open Space and Protected Natural Areas	36%	7%	18%	26%	5%	30%	10%	2%	9%
Undeveloped and Unclassified	41%	2%	6%	23%	1%	8%	18%	1%	5%
Road Right-of-Way	7%	1%	4%	3%	1%	4%	4%	1%	4%
Residential - Rural Large Lot	43%	1%	4%	38%	1%	8%	5%	0%	1%
Under Construction (at mid-year)	69%	0%	1%	4%	0%	0%	64%	0%	2%
Civic and Other Institutional	58%	0%	1%	11%	0%	1%	47%	0%	2%
Residential - Mobile Homes	54%	0%	0%	8%	0%	0%	47%	0%	0%
Residential - Single Detached	37%	8%	21%	19%	4%	25%	18%	4%	18%
Residential - Multi-Attached (Duplex or Single Detached with 2 or more units on lot)	39%	4%	10%	14%	1%	8%	26%	2%	11%
Retail and Other Commercial	60%	2%	4%	2%	0%	0%	58%	2%	7%
Residential - Low-rise Apartment	27%	0%	1%	7%	0%	1%	20%	0%	2%
Residential - Townhouse	38%	1%	4%	7%	0%	1%	31%	1%	5%
Residential - Mid/High-rise Apartment	31%	0%	0%	8%	0%	0%	24%	0%	1%
Mixed Residential (Low-rise Apartment) Commercial	31%	0%	0%	2%	0%	0%	29%	0%	0%

[152] For example, 7% of Road Right-of-Way land within the UCB is potentially available for planting (as per Potential Planting Area estimate).
[153] For example, the potentially available planting area on Road Right-of-Way land makes up 1% of the UCB's total area.
[154] For example, 4% of the total area potentially available for tree planting within the UCB is located on Road Right-of-Way land.
[155] For example, 3% of the area potentially available for tree planting on Road Right-of-Way land within the UCB is currently vegetated (but not treed).
[156] For example, the potentially available planting area on Road Right-of-Way land, that is currently vegetated (but not treed), makes up 1% of the UCB's total area.
[157] For example, the potentially available planting area on Road Right-of-Way land, that is currently vegetated (but not treed), makes up 4% of the UCB's total potentially available planting area.
[158] For example, 4% of the area potentially available for tree planting on Road Right-of-Way land within the UCB is currently impervious surface.
[159] For example, the potentially available planting area on Road Right-of-Way land, that is currently impervious surface, makes up 1% of the UCB's total area.
[160] For example, the potentially available planting area on Road Right-of-Way land, that is currently impervious surface, makes up 4% of the UCB's total potentially available planting area.

	Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Land Use Type	*Per land use area, within UCB*[152]	*Per total UCB area*[153]	*Per UCB's total potential planting area*[154]	*Per land use area, within UCB*[155]	*Per total UCB area*[156]	*Per UCB's total potential planting area*[157]	*Per land use area, within UCB*[158]	*Per total UCB area*[159]	*Per UCB's total potential planting area*[160]
Residential - Institutional Care/Non-Market Housing	35%	0%	0%	10%	0%	0%	25%	0%	0%
Mixed Residential (Mid/High-Rise Apartment) Commercial	19%	0%	0%	1%	0%	0%	17%	0%	0%
Office	46%	0%	1%	3%	0%	0%	43%	0%	1%
Industrial	58%	4%	11%	5%	0%	2%	53%	4%	18%
Health and Education	47%	1%	2%	7%	0%	1%	40%	1%	3%
Utility, Communication and Work Yards	70%	1%	2%	30%	0%	2%	40%	0%	2%
Transit, Rail and Other Transportation	73%	2%	5%	29%	1%	5%	44%	1%	6%
Lakes, Large Rivers and Other Water (Fringe)	45%	0%	1%	32%	0%	1%	13%	0%	0%
Port Vancouver	75%	1%	2%	4%	0%	0%	71%	1%	3%
Protected Watershed	4%	0%	0%	2%	0%	0%	2%	0%	0%

Table B10. Potential Planting Area (%) metrics by parcel ownership type in the UCB, by member jurisdiction.[161]

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership**[162]	*Per ownership type area, within UCB*[163]	*Per total UCB area*[164]	*Per UCB's total potential planting area*[165]	*Per ownership type area, within UCB*[166]	*Per total UCB area*[167]	*Per UCB's total potential planting area*[168]	*Per ownership type area, within UCB*[169]	*Per total UCB area*[170]	*Per UCB's total potential planting area*[171]
Bowen Island Municipality	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
City of Burnaby	Private	28%	3%	6%	9%	1%	5%	18%	2%	7%
	Public - Total	14%	1%	3%	10%	1%	5%	4%	0%	2%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*10%*	*1%*	*2%*	*8%*	*1%*	*4%*	*2%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*

[161] Bowen Island Municipality and Village of Belcarra were not included in the UCB in 2020, and are not included in the UCB presently (2024).

[162] Parcel ownership includes “Private”, “Public” (with several subclasses), “scəẃaθən məsteyəxʷ (Tsawwassen First Nation)”, “Reserve Lands”, and “unclassified”. “Public – Total” includes federal, provincial, crown corporation (federal and provincial), Metro Vancouver (regional), TransLink corporation, municipal, and public colleges/universities lands. Parcels in scəẃaθən məsteyəxʷ (Tsawwassen First Nation), except for those still under “Crown Corporation” ownership, were categorized separately. Reserves lands were categorized separately due to limited parcel or ownership information. About 30,500 parcels did not have ownership information and were therefore were categorized as “unclassified”.

[163] For example, 28% of Private land in the City of Burnaby, that is within the UCB, is potentially available for planting (as per Potential Planting Area estimate).

[164] For example, the City of Burnaby’s potentially available planting area on Private land makes up 3% of the UCB’s total area.

[165] For example, 9% of the total area potentially available for tree planting within the UCB is located on Private land in the City of Burnaby.

[166] For example, 9% of Private land in the City of Burnaby, that is within the UCB and is potentially available for planting, is currently vegetated (but not treed).

[167] For example, the City of Burnaby’s potentially available planting area on Private land, that is currently vegetated (but not treed), makes up 1% of the UCB’s total area.

[168] For example, 2% of the total vegetated (but not treed) area potentially available for tree planting within the UCB is found on Private land within the City of Burnaby.

[169] For example, 18% of Private land in the City of Burnaby, that is within the UCB and is potentially available for planting, is currently impervious surface.

[170] For example, the City of Burnaby’s potentially available planting area on Private land, that is currently impervious surface, makes up 2% of the UCB’s total area.

[171] For example, 7% of the total impervious surface area potentially available for tree planting within the UCB is found on Private land within the City of Burnaby.

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%
City of Coquitlam	Private	29%	2%	4%	11%	1%	4%	17%	1%	5%
	Public - Total	8%	1%	1%	5%	0%	2%	4%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*4%*	*0%*	*1%*	*3%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%
City of Delta	Private	42%	2%	5%	13%	1%	4%	29%	2%	7%
	Public - Total	10%	1%	1%	5%	0%	1%	5%	0%	1%
	Public – Federal	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Municipal	*4%*	*0%*	*1%*	*3%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	1%	0%	0%	1%	0%	0%
City of Langley	Private	38%	0%	1%	10%	0%	1%	28%	0%	1%
	Public - Total	13%	0%	0%	9%	0%	1%	4%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*10%*	*0%*	*0%*	*7%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Unclassified	1%	0%	0%	0%	0%	0%	0%	0%	0%
City of Maple Ridge	Private	28%	1%	3%	15%	1%	4%	13%	1%	3%
	Public - Total	5%	0%	1%	3%	0%	1%	2%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*2%*	*0%*	*0%*	*2%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	0%	0%	0%
City of New Westminster	Private	37%	1%	1%	9%	0%	1%	28%	0%	2%
	Public - Total	12%	0%	0%	5%	0%	0%	7%	0%	0%
	Public – Federal	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*0%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*7%*	*0%*	*0%*	*4%*	*0%*	*0%*	*3%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
City of North Vancouver	Private	32%	0%	1%	7%	0%	0%	25%	0%	1%
	Public - Total	11%	0%	0%	4%	0%	0%	7%	0%	0%
	Public – Federal	*3%*	*0%*	*0%*	*0%*	*0%*	*0%*	*3%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*0%*	*3%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%
City of Pitt Meadows	Private	62%	1%	2%	32%	0%	2%	30%	0%	2%
	Public - Total	7%	0%	0%	5%	0%	0%	2%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*0%*	*4%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	0%	0%	0%
City of Port Coquitlam	Private	36%	1%	2%	10%	0%	1%	27%	1%	2%
	Public - Total	9%	0%	0%	5%	0%	1%	4%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*4%*	*0%*	*0%*	*1%*	*0%*	*0%*	*2%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Municipal	*4%*	*0%*	*0%*	*3%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%
City of Port Moody	Private	22%	0%	1%	10%	0%	1%	12%	0%	1%
	Public - Total	7%	0%	0%	4%	0%	0%	3%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*3%*	*0%*	*0%*	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	0%	0%	0%
City of Richmond	Private	35%	3%	7%	8%	1%	4%	27%	2%	10%
	Public - Total	26%	2%	6%	12%	1%	6%	14%	1%	5%
	Public – Federal	*12%*	*1%*	*3%*	*4%*	*0%*	*2%*	*8%*	*1%*	*3%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*7%*	*1%*	*1%*	*3%*	*0%*	*1%*	*4%*	*0%*	*1%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*1%*	*4%*	*0%*	*2%*	*2%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%
City of Surrey	Private	34%	8%	19%	15%	4%	19%	20%	5%	20%
	Public - Total	9%	2%	5%	6%	1%	8%	4%	1%	3%
	Public – Federal	*1%*	*0%*	*0%*	*1%*	*0%*	*1%*	*0%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Provincial	*2%*	*0%*	*1%*	*1%*	*0%*	*1%*	*1%*	*0%*	*1%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*1%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*1%*	*3%*	*4%*	*1%*	*5%*	*1%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	1%	0%	0%	0%
City of Vancouver	Private	23%	3%	6%	5%	1%	3%	18%	2%	8%
	Public - Total	12%	1%	3%	7%	1%	4%	5%	1%	2%
	Public – Federal	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*1%*	*1%*	*0%*	*0%*	*1%*	*0%*	*1%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*8%*	*1%*	*2%*	*5%*	*1%*	*3%*	*3%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	1%	0%	0%
City of White Rock	Private	35%	0%	0%	15%	0%	0%	21%	0%	0%
	Public - Total	5%	0%	0%	2%	0%	0%	3%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*3%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	0%	0%	0%	0%	0%	0%
District of North Vancouver	Private	25%	1%	2%	12%	1%	3%	12%	1%	2%
	Public - Total	8%	0%	1%	5%	0%	1%	3%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*5%*	*0%*	*1%*	*4%*	*0%*	*1%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%
District of West Vancouver	Private	19%	1%	2%	14%	1%	4%	6%	0%	1%
	Public - Total	4%	0%	0%	2%	0%	1%	2%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Crown Corporation	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*2%*	*0%*	*0%*	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	1%	0%	0%	0%	0%	0%	1%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%
Electoral Area A	Private	19%	0%	0%	10%	0%	1%	9%	0%	0%
	Public - Total	18%	0%	0%	6%	0%	0%	12%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*1%*	*0%*	*0%*	*0%*	*0%*	*0%*	*1%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*17%*	*0%*	*0%*	*6%*	*0%*	*0%*	*11%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%
Township of Langley	Private	41%	3%	7%	22%	2%	8%	20%	1%	6%
	Public - Total	8%	1%	1%	5%	0%	2%	4%	0%	1%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*2%*	*0%*	*0%*	*1%*	*0%*	*0%*	*1%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Municipal	*6%*	*0%*	*1%*	*4%*	*0%*	*1%*	*2%*	*0%*	*1%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Reserve Lands	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	1%	0%	0%	1%	0%	0%	1%	0%	0%
scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	scəẃaθən məsteyəxʷ (Tsawwassen First Nation)	85%	0%	1%	25%	0%	1%	60%	0%	1%
Village of Anmore	Private	95%	0%	0%	95%	0%	0%	0%	0%	0%
	Public - Total	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – Federal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Provincial	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Crown Corporation	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Metro Vancouver	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

		Potential Planting Area (%) - Total			Potential Planting Area (%) - Vegetated			Potential Planting Area (%) - Impervious		
Jurisdiction	**Ownership[162]**	*Per ownership type area, within UCB[163]*	*Per total UCB area[164]*	*Per UCB's total potential planting area[165]*	*Per ownership type area, within UCB[166]*	*Per total UCB area[167]*	*Per UCB's total potential planting area[168]*	*Per ownership type area, within UCB[169]*	*Per total UCB area[170]*	*Per UCB's total potential planting area[171]*
	Public – Municipal	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – TransLink	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Public – Colleges/Universities	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%
Village of Belcarra	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB	Not in UCB
Village of Lions Bay	Private	3%	0%	0%	3%	0%	0%	0%	0%	0%
	Public - Total	2%	0%	0%	1%	0%	0%	1%	0%	0%
	Public – Federal	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – Provincial	1%	0%	0%	1%	0%	0%	1%	0%	0%
	Public – Crown Corporation	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – Metro Vancouver	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – Municipal	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – TransLink	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Public – Colleges/Universities	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Unclassified	0%	0%	0%	0%	0%	0%	0%	0%	0%

APPENDIX C – LAND COVER CLASSES AND IMPERVIOUS WEIGHTINGS

Table C1. Land cover classes used in the 2020 Regional Land Cover Classification.

Land cover class	Criteria
Buildings	Identified using shape/size, shadow cast, height, relative canopy height, texture.
Paved	Everything from sidewalks and alleys to highways.
Other Built	*Not* concrete/asphalt built surfaces or building roofs. Sports surfaces (e.g., artificial turf and running tacks), possibly transit or rail areas, other impervious surface, etc.
Barren	Beaches, alpine rock, shoreline rock, etc. Lack of vegetation. Likely not soil (colour/context suggests no organic matter and/or imperviousness). Also quarries, gravel pits, dirt roads.
Soil	Agricultural soils (could be light or dark), cleared/open areas where darker colours indicate organic matter present (as compared to, sand for example), potentially riverine/alluvial deposits.
Coniferous	Predominantly coniferous (>75%).
Coniferous over Paved	Areas when coniferous tree canopy over hangs paved areas.
Deciduous	Predominantly deciduous (>75%).
Deciduous over Paved	Areas when deciduous tree canopy over hangs paved areas.
Shrub	Woody, leafy, and generally rough-textured vegetation shorter than trees (approx. <3-4 metres), taller than grass.
Modified Grass-herb	Crops, golf course greens, city park grass, lawns, etc.
Natural Grass-herb	Alpine meadows, near-shore grass areas, bog/wetland areas.
Non-photosynthetic Vegetation	Dead grass, drought stressed vegetation, could include log booms.
Water	Lakes, rivers, inlets, irrigation channels, retention ponds, pools, etc.
Urban Shadow	Dark pixels with very low reflectance values in urban areas. Image features not easily visible. Compared with PlanetScope image for shadow locations. Urban areas.
Non-urban Shadow	Dark pixels with very low reflectance values in non-urban areas. Image features not easily visible. Compared with PlanetScope imagery for shadow locations.
Clouds/Ice	Very bright pixels, that are not high-reflectance features from built-up areas.

Table C2. Impervious weightings applied to land cover classes in the creation of the impervious surface dataset.

Land cover class	Impervious weighting
Buildings, Other Built, Paved, Urban Shadow	100%
Barren	75%
Soil, Non-photosynthetic Vegetation	50%
Modified Grass-herb, Natural Grass-herb	10%
Coniferous, Coniferous over Paved, Deciduous, Deciduous over Paved, Shrub, Non-urban Shadow, Clouds/Ice	0%


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