Oak Bay Urban Forest Strategy

What is an Urban Forest?

- An Urban Forest is all of a community's trees, shrubs, herbaceous low-growing perennial vegetation and soil. The urban forest is found on both public and private property including parks, street trees, open spaces, and residential properties.
- These trees and plants can be managed as a collective for the value of the canopy they provide.

What is Canopy Cover?

- Envision the layer of leaves, branches and tree stems, understory plants when viewed from above. This distribution of leaf surface area is the driving force behind the urban forest ability to produce benefits for the community.
- The magnitude of the community benefits produced is largely determined by canopy cover and forest structure.

Oak Bay's Oldest Garry Oak Over 400 Years


1911 St David St, Oak Bay Archives | 1994-001-030/031

Garry Oaks

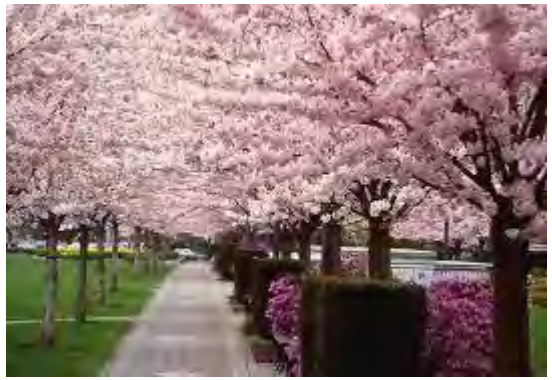
- Garry oaks have proven reasonably resilient and drought tolerant as an urban tree in Oak Bay and are successful as a street tree. Given that the Garry oak's range is so limited, its success as an urban tree is a windfall for persistence of the species in Oak Bay.

Other Drought Tolerant Trees

- Red and Scarlett Oak
- Red Maple
- Indian Bean Tree
- Lavalle Hawthorne
- Ash
- Liquidamber
- Gleditisa
- Linden
- London Plane
- Gingko

Oak Bay's Public Trees

- Oak Bay has 10,000 Boulevard tree.
- Of these 5300 are considered small trees.
- 4700 are considered medium to large trees.
- Most are mature to over mature.



General Urban Forest Health

- With some exceptions Oak Bay's tree population is currently in average to good health overall.
- Soil volume and soil quality in most parts of Oak Bay is adequate to support healthy, long-lived trees.
- Oak Bay's climate lacks adequate summer precipitation to meet vegetation water use requirements therefore plants must obtain water from soil or other sources like irrigation in order to avoid drought stress.

Challenges

Paul's scarlet hawthorn

Silver birch

Plum, cherry, ash

Habitat Acquisition Trust

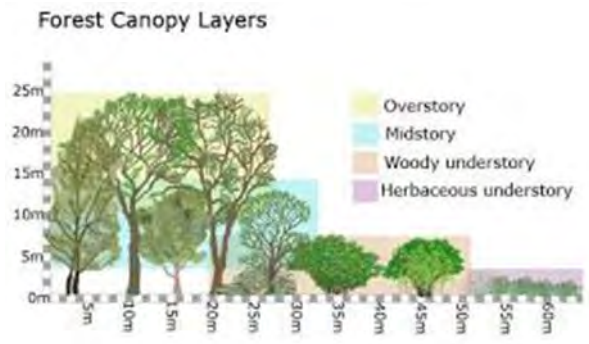
- Habitat Acquisition Trust completed land cover mapping of the Capital Regional District (excluding the Gulf Islands). As expected the mapping reveals that the 13 municipalities in the Regional District have lost significant canopy cover in the 6 year period (2005 – 2011) covered by the report.

- The mapping also looked at changes in impervious surface (e.g. buildings and roads).

- The land trust's findings highlighted the need for action to be taken to reduce the rate of tree loss, and to plant new trees where possible.

Habitat Acquisition Trust

- The six years between 2005 & 2011, the region was covered by 1500 hectares of new impervious surfaces.
- In many ways, impervious surfaces do the opposite of trees: they increase water runoff, trap heat, and concentrate pollution in waterways.
- As trees are lost communities can expect to pay more for the services trees provide for free, such as storm water management and pollution control.



Oak Bay Tree Cover 2005-2011

- Tree Cover, 2011: 362.5 ha of tree cover, 35 % of the District.
- Change 2005 to 2011: - 24.5 ha of tree cover.
- 6.3% of the total tree cover in the Municipality has been lost since 2005.
- Meaning 2.4% of the total land base in the municipality has been deforested.
- Region (Sooke to Sidney) Tree loss 2005 -2011: 1037.7 ha lost
- OR : 3.5 % of the tree cover has been lost in the region.

Tree numbers reflect from January 1st , 2013 until 2016

- 968 publicly owned and protected private trees have been removed from District lands.
- 303 of the 968 trees were publicly owned. Since 2013, 373 have been replanted on our boulevards and in our parks.
- 665 of these trees are private property trees protected by our bylaw. 410 were native (mostly Garry oak) and 258 assorted species like maple and linden.
- Of these 665 private property trees, 85 were removed directly due to development. Of these 85 trees, 118 have will be or have been replanted as per provisions in our bylaw.
- 580 protected private property trees have been lost and it's likely that few were replaced. These trees were removed because they were dead, diseased or dying.
- 12.8% of the District tree loss numbers are due to development.
- 87.2% of private property tree loss is because the trees were dead, diseased or dying.
- Since 2013 staff have planted 70 more publicly owned trees than were removed.

What The Community Said

- Garry oak in particular is valued and protected as a symbol of the community and its natural heritage.
- Policy initiatives related to climate change, sustainability, tree protection and heritage have repeatedly supported protection and enhancement of the urban forest
- The community of Oak Bay has, through numerous planning initiatives, demonstrated that the urban forest is highly valued. (ie: Heritage Strategy)
- The current and previous OCP acknowledge the natural environment and landscape character as being fundamental to the desirability of Oak Bay as a place to live and a destination to visit.

What the Community Said

- The tree canopy is an integral part of Oak Bay's streetscapes and the majority of residents acknowledge a wide range of benefits associated with the urban forest found that the most important benefits provided by the urban forest were perceived as:
- Reduced stormwater runoff and improved flood control (86%)
- Habitat for native plants and animals (83%)
- Improved air quality (83%)
- Beautification of the District (80%)
- A place for heritage trees (79%)
- Carbon storage and sequestration (77%)

What the Community Said

- 83% of people in the Oak Bay community agree that the amount of paved surface allowed on future development sites should be restricted.
- 78% of people in the Oak Bay community agree that the a standard should be set for the amount of soil required for every tree planted to ensure the tree has adequate room to grow.

What the Community Said

- 85% of people in the Oak Bay community agree that securities should be taken to protect trees that are to be retained in the development process.
- 82% of people in the Oak Bay community agree that a minimum canopy cover should be required for new developments and, if not provided, that payment is made for equivalent planting on public land.
- 72% of people in the Oak Bay community agree that the number of trees that must be replaced for every tree being removed should increase.
- 60% of people in the Oak Bay community agree that the bylaw should be strengthened to include trees of a smaller size.

What We Hear

- Typically, preference for small trees in streets is driven by the concerns about maintenance and risk management of large trees. Maintenance and risk management are centrally important to urban forest management, and are the price the community pays for having a healthy urban forest that benefits the community.
- We accept that roads, sewers, buildings and cars require maintenance and carry inherent risk but we continue to use them because they provide us with benefits that improve our quality of life overall.
- To avoid disservices, planting designs must consider tree placement and selection of the right tree for the right place.

Why Should We Value Large Trees our Community

- Studies have repeatedly shown that the value returned by a large tree performing well in a streetscape exceeds the cost of maintenance and, over its lifetime, returns approximately 16 times more value than a small tree.
- Large trees have longer life expectancy and provide far greater canopy cover per individual tree. Infrastructure conflicts can be avoided or managed through good design that designates appropriate space for each type of infrastructure in the streetscape, and by selecting the right tree for the location.
- Large street trees, when well-planned and maintained, complement good urban design by contributing to complete streetscapes that function well for pedestrians, cyclists and vehicles. Large trees can provide a continuous canopy that grows tall enough to give clearance, where as small trees provide fragmented canopy cover that never reaches a height to clear the road space.
- A small tree is the right tree when space is limited but to maximize benefits from the urban forest we must protect or create adequate space for large trees when planning urban infrastructure.

Large tree

$55 Benefits/year

$18 Costs/year

120 years
life expectancy

Small tree

$23 Benefits/year

$14 Costs/year

30 years
life expectancy

Large trees provide **16 times the value**
to the community compared to small trees over their lifetime.

We Love Large Trees

In The Right Place Of Course

- So do not exclude large trees from the neighborhood and streetscapes. Doing so deprives the community of the many benefits large trees provide and greatly reduces the value delivered by the Urban Forest.

How much canopy cover is enough?

- As yet, there are no published benchmarks or thresholds that Canadian communities can use to guide setting urban canopy cover targets. Communities also vary in their natural ecology, urban development, planting opportunities, character and values, which means that no single canopy cover target is appropriate for all cities.

Canopy Targets

- Based on anticipated development, planting opportunities and the community's values, an aspirational canopy cover target to approach 40% by 2045 should drive the District's urban forestry program and inspire the community to contribute.

- Reaching this target will require policy adjustments, a modest public realm planting program and an ambitious private realm planting program.

Canopy Objectives

- Acknowledging that the outcomes for canopy increase on private land will be variable, it is anticipated that the District's canopy cover will ultimately reach between 36% and 40%, and any figure in this range should be judged a success.

What is the Plan

Five key objectives emerged as part of the Plan's development and these guide the priority actions and measureable targets defined for implementation of the Plan:

- A. Protect and enhance canopy cover to approach 40% by 2045
- B. Support a healthy, well-adapted and diverse tree population
- C. Manage the urban forest for community climate change adaptation
- D. Strengthen natural heritage to support healthy ecological systems and biodiversity
- E. Engage and partner with the community to build stewardship of the urban forest

Land use (main zoning) Current Canopy Cover

- Approximate increase in total number of trees*

- Established neighbourhoods (RS 3-5) 28% 35% 3,700 medium trees
- Uplands (RS 1 – 2) 44% 45% 150 large trees
- Community institutional (P2) 42% 50% 900 large trees
- Commercial and mixed use (C/P3) 29% 30% 130 medium trees
- Multi-unit residential (RM) 18% 20% 60 medium trees
- Parks and open space (P1) 35% 38% 200 large trees
- Roads 34% 38% 1,000 medium trees

- Oak Bay District 33% 36-40% 6,000 medium to large trees

Canopy cover

44%	Uplands
42%	Community Institutional
35%	Parks + Open space
29%	Commercial + Mixed use
28%	Established neighbourhoods
18%	Multi-residential

Considerations for maintaining a healthy tree population…

- Collecting tree inventory data that includes species, date planted (where possible), dbh,height, condition, size class at maturity, safe useful life expectancy and tracks date removed for trees in Oak Bay.
- Monitoring branch, stem and whole tree failures, and browse or pest incidences by species and individual tree location
- Increasing regulatory protection for trees, soil volume and permeability.

The Plan

- Implementing a young tree formative pruning, young tree fencing for browsed species, and a cyclical pruning program for semi-mature to over-mature trees.
- Selecting species that are well adapted to future climate.
- Expand the young tree watering program.
- Monitoring emerging pests and diseases and responding rapidly to quarantine any new occurrences.
- Selecting for long-lived trees and managing the diversity of tree species planted in the urban forest (excluding native trees)
- Trialling new trees that have the potential to be long-lived in Oak Bay.

The Plan

- Plant trees intentionally in groves when possible throughout urban landscape. In doing so they weave together natural areas and urban land uses which contributing to the beauty and functionality of urban areas as much as street patterns and architecture do.
- Trees and landscape character are fundamental to the desirability of Oak Bay as a place to live and a destination to visit.
- The mature, overarching canopy provided by trees in Oak Bay's streetscapes is a particularly striking aspect of the District's urban design.

Tree Choice

- Planting trees curbside where possible to extend the canopy over the street
- Selecting large trees that will cover and contain the pedestrian space rather than small trees that interrupt and fragment the pedestrian space, except where screening is needed or there are constraints like high-voltage power lines
- Planting a second row, or grove of trees where boulevard space allows
- Placing trees to frame, not obscure, views to the ocean and Mount Baker
- Selecting deciduous trees in streetscapes with building frontages to maintain winter solar access
- Maintaining or providing adequate soil volume to support healthy trees

Tree Choice

- Considerations for street tree design guidelines.
- Using urban tree canopy to enhance connectivity between natural areas and to unite land uses.
- Where Garry oak groves are present on adjacent park or private land, continuing that landscape character into the streetscape.
- Planting trees in regularly spaced rows that define the pedestrian and roadway space.
- Planting trees close enough together to form a continuous, canopy ceiling.
- Creating uniformity in texture, pattern, light and shade by planting the same species (or species of similar scale, form and texture) for 1-2 blocks at a time.

The Plan

- Identify, utilize and enhance available space for the planting of appropriate tree species within the Municipality to allow the advancement of the Urban Forest's canopy coverage.
- Communicate, educate, consult and engage with the community, stakeholders and potential partners on the Municipalities Urban Forest.
- Identify the need for trees to be recognised in all developments throughout the Municipality and that removal of canopy for any purpose is compensated accordingly.

The Plan

- Identify the Urban Forest and its canopy as paramount to the Urban Liveability and Vision of the Municipality.
- Identify the Urban Forest Strategy as one that compliments and is recognised by all Municipal Policy, Plans, Strategies and Objectives.
- Recognise the Urban Forest Canopy as a tangible asset which requires ongoing asset management.
- Secure funding, resource and policy commitments for the effective implementation of the Strategy.

Tree Planting

- When selecting the tree species, consider:
- a. Neighbourhood character
- b. Place trees to frame, not obscure, views to the ocean and Mount Baker
- c. Connectivity or adjacency to natural areas
- d. Where Garry oak groves are present on adjacent park or private land, continuing that landscape character into the streetscape
- e. Streetscape objective (i.e., maximise future canopy while considering road users, pedestrians and urban design objectives)

Tree Planting

- Species diversity:
- Use the Planting Structure map to broadly guide locations for Garry oak
- Create uniformity in texture, pattern, light and shade by planting the same species (or species of similar scale, form and texture) for 1-2 blocks at a time.
- Select deciduous trees in streetscapes with building frontages to maintain winter solar access
- Planting site constraints (e.g., underground and above ground services, soil and moisture conditions etc.)
- Wind and salt exposure / tolerance
- Biodiversity (if within an area prioritised for native vegetation or other driver of biodiversity objectives)

Tree Planting

- Plant trees in regularly spaced rows that define the pedestrian and roadway space
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Tree Planting

- Where planting opportunities are limited but road widths allow, consider creating plantable space in roadways (e.g., in road pits with parking in between, new nature strips etc.)
- Create or exploit opportunities for large canopy ‘feature’ or placemaking trees in unique urban locations (e.g., curb bulges, roundabouts, small green spaces)
- Do not plant invasive trees
- Examples: Tree of Heaven
- May Tree

Bylaw

- Considerations for strengthening and improving the tree bylaw include …
- Reducing the minimum size of protected trees.
- Strengthening the language regarding reasons for issuing a permit authorizing tree cutting or damage.
- Removing the definition of building envelope and requiring all protected trees on a property to be subject to the tree permit and design process (i.e., including trees in the building envelope)
- Requiring an arborist report to inventory the trees on site and make recommendations for retention, removal and tree protection.

Bylaw

- Requiring arborist supervision of works near the critical root zone of retained protected trees.
- Taking securities for the protection of retained trees to be released contingent on arborist confirmation that tree protection measures were followed and no damage occurred.
- Requiring all developments, by zoning, to meet minimum canopy replacement requirements, even if no trees are being removed on the property.
- Incorporating any future changes to zoning into minimum canopy replacement requirements.
- Expanding the permitted uses of cash-in-lieu of canopy replacement or securities retained to enable funds to be used towards enhancement of the urban forest beyond tree planting on public land (e.g., to fund tree maintenance rebates for private trees, invasive species removal, habitat restoration etc.)
- Increasing permit fees (except for hazardous or diseased tree removals) to reflect the cost of administering the permits.

Good Design

The Vision

- Oak Bay is close to nature. Lush, gorgeous treed streets, gardens and wild places are integral to our community's sense of identity. Our urban forest is a diverse and healthy mix of native and non-native trees and plants with a special place provided for the Garry oak as our namesake and the keystone of our native ecosystems. The urban forest supports desirable birds, insects and wildlife and provides places for children to play and for people to connect with nature. Our community has protected, enhanced and restored the distribution of trees and greenery throughout our neighbourhoods, even as they have changed with urban development, preserving and renewing Oak Bay's urban forest legacy for future generations.