Urban Forest Strategy

Prepared for:

District of Saanich

Parks and Recreation Department

Prepared by:

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October 14, 2010

This report has been prepared by LEES + Associates Landscape Architects in cooperation with Dunster & Associates Environmental Consultants Ltd.

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EXECUTIVE SUMMARY

Introduction

The Saanich Urban Forest Strategy is divided into two parts: Part 1 provides an overview of the purpose, process, consultation, benefits, vision, goal, strategies, and the relationship between this strategy, the Sustainable Saanich Official Community Plan and the Saanich Strategic Plan 2010-2014. Part 2 details action items for the strategies identified in Part 1 and ends with a section that identifies the necessary resources and suggested timelines to see the Urban Forest Strategy implemented.

Purpose of the Strategy

The Urban Forest Strategy provides a long–term plan for achieving a sustainable urban forest in Saanich. It is one of the tools that Council, staff and the community will be able to use in conjunction with the Sustainable Saanich Official Community Plan 2008 (OCP), Saanich Strategic Plan 2010, and other municipal bylaws, plans and policies.

Definition

Saanich's urban forest is the sum total of all trees and their associated ecosystems within the municipality. It is the entire collection of trees growing in parks and private lands, on commercial and institutional lands, along highways, roads, trails and paths, as well as throughout open spaces in the community. The urban forest is a critical component of the functional green infrastructure system in Saanich, within both the Urban Containment Boundary and in Rural Saanich. The urban forest is more than just individual trees, it also includes a series of intact and fragmented ecosystems.

Benefits

A healthy urban forest has numerous benefits relating directly to policy outlined in the Sustainable Saanich OCP (2008). Urban forests play an important role in contributing to the environmental integrity and climate change resiliency of Saanich – they reduce our carbon footprint by sequestering carbon, filter air and water, protect our watersheds, create shade, provide habitat, and slow wind and stormwater. Urban forests contribute to the social well-being of Saanich by providing healthy and enjoyable recreation opportunities, moderating local climate, shading homes and businesses to conserve energy, and are critical to mitigate the urban heat island effect. Urban forests contribute to the economic vibrancy of Saanich through increased property values and encouraging business on tree-lined streets.

Saanich Urban Forest Setting

In 2008 the Urban Forest Stewardship Initiative (UFSI) mapped the patterns of changing tree canopies and impervious surfaces that occurred in the Capital Regional District between 1986 and 2005. The UFSI identified the critical state of the urban forest in the Capital Regional District and the need for urban forest strategies. The UFSI identified 36% tree canopy cover over the municipality in 2005 – that included both rural Saanich and land within the Urban Containment Boundary. The study highlighted an overall canopy cover decrease of 12.6 percent from 1986 to 2005.

The protection and enhancement of the urban forest in Saanich warrants immediate action, based on the UFSI results, concerns over climate change, population and development pressures, and policies outlined in the OCP.

Process

The Urban Forest Strategy is the result of extensive consultation with Council Committees, staff and the community. It is based on a review of existing applicable policies, research and bylaws in Saanich, recent urban forest initiatives in the City of Victoria and other municipalities, the Urban Forest Stewardship Initiative (UFSI), and the professional judgment of district staff.

An online public questionnaire was completed by over 200 residents, and provided valuable information regarding the community's opinion of the state and future of the urban forest. A framework of preliminary strategies covering urban forest policy, management, regulation and practice was presented at a public open house that was held at the Pacific Forestry Centre in June 2009.

Consultation Key Findings

Key findings of the consultations were:

- The community views the urban forest as more than just "trees" – it encompasses a much greater ecosystem component;
- There is a general concern in the community over net loss of the canopy cover in Saanich. Threats to the urban forest were expressed as development within the Urban Containment Boundary, land clearing in Rural Saanich, efficacy of the Tree Preservation Bylaw, invasive species and climate change.;
- Conflicts between the urban forest and other infrastructure requirements such as hydro lines and stormwater regulations were also expressed.
- Ongoing care for trees including tree planting, preserving soil quality and quantity, tree maintenance, hazard tree risk assessment and mitigation, food security and quality of life were also seen as important by those that participated in the consultations and the web survey.

Saanich Urban Forest Vision

The Saanich Urban Forest Vision is:

"The urban forest in Saanich is a highly valued asset comprised of a rich and diverse forest that is widely recognized and appreciated for the contribution that it makes to our community and to our sustainable environment."

Goal

One overarching goal emerged during the development of this Strategy. This goal supports the OCP and related plans and bylaws that Council has adopted. It also supports related management and planning initiatives anticipated within the next 5 years such as the Climate Action and Climate Action Adaptation Plans, Integrated Watershed Planning, Stormwater Management Bylaws, Parks Natural Areas Action Plan, the Parks Priorities Guide and the Saanich Parks and Recreation Master Plan.

The following goal underpins the Urban Forest Strategy:

"Protect and Enhance the Urban Forest"

Strategies

Seven strategies have been developed that support the Saanich urban forest goal:

- Grow the Urban Forest Canopy;
- Amend the Tree Preservation Bylaw;
- Develop Urban Forest Design Guidelines;
- Integrate the UFS with other Saanich and Regional Initiatives;
- Inventory the Urban Forest;
- Develop an Urban Forest Operations Program, and
- Engage the Community.

Action Items

Each of the above strategies is supported by actions. Incorporating the following action items into Sustainable Saanich plans will help to attain Saanich's goals of Environmental Integrity, Social Well-Being and Economic Vibrancy:

Grow the Urban Forest Canopy

- Action - Develop a "No-Net Loss" Canopy Policy

- Action - Develop a Green Infrastructure Contribution Fund
- Action - Develop a Comprehensive Urban Forest Planting Program

Amend the Tree Preservation Bylaw

- Action - Engage the Community in a public process to amend the Tree Preservation Bylaw

Develop Urban Forest Design Guidelines

- Action - Formulate and implement Design Guidelines
- Action - Collaborate with other Municipal Departments, CRD and Regional Municipalities, BC Hydro and Ministry of Transportation & Highways in the formulation of Design Guidelines

Integrate the UFS with other Saanich and Regional Initiatives

- Action - Form an inter-departmental working group to address tree-related issues
- Action - Establish a Memorandum of Understanding between the urban forest-related departments within the District

Inventory the Urban Forest

- Action - Following measurement of the extent of canopy cover in Saanich, establish canopy cover targets based on typologies
- Action - Invest in a comprehensive urban forest inventory of individual trees in Saanich

Develop Urban Forest Operations Program

- Action - Develop Urban Forest “Best Practices” Maintenance Manual
- Action - Train/ educate District staff and the public

Engage the Community

- Action - Maximize public awareness about the urban forest
- Action - Foster community partners’ involvement in the urban forest

Next Steps

The implementation of the Urban Forest Strategy will be referred to in Strategic and Departmental Plans as well as the budget review process. We will then develop more detailed information that identifies resource requirements and timing that will establish implementation priorities.

Appendices are attached to this Strategy. They include:

- Benefits of urban forests;
- Consultation key issues, and
- A summary of the online questionnaire.

PART 1 – URBAN FOREST VISION

Purpose of the Strategy

The purpose of the Urban Forest Strategy is to provide a comprehensive suite of strategies and actions – supported by the public - that will enhance the urban forest over time, and address the risk management and design issues that face the community. These policies provide a framework within which planning, design, budget and risk management decisions can be made.

> *"Urban forestry is the sustained planning, planting, protection, maintenance, and care of trees, forests, green space and related resources in and around cities and communities for economic, environmental, social and public health benefits." (Canadian Urban Forest Strategy 2004-2006)*

The Urban Forest Strategy provides a long–term plan for achieving a sustainable urban forest in Saanich. It is one of the tools that Council, staff and the community will be able to use in conjunction with the Sustainable Saanich Official Community Plan 2008 (OCP), Saanich Strategic Plan 2010, other municipal bylaws, plans and policies.

The management of trees and their associated ecosystems are integrally linked to the OCP, as it is critical to plan, regulate, protect and enhance the urban forest in order to address climate changes issues and ensure healthy green infrastructure.

From the Sustainable Saanich OCP:

> The Urban Forest Strategy should "retain where possible existing tree cover, promote additional tree planting, and acknowledge the importance of contiguous tree cover."

Additionally, the OCP gives direction to:

> "Retain and plant trees along boulevards and municipal properties, in parks and on private lands, to expand the urban forest and act as a mitigation measure in regards to climate change."
>
> "Promote and encourage the protection and designation of indigenous, significant trees and wildlife trees."
>
> "Review and amend the "Tree Preservation Bylaw" to include measures to support climate change initiatives and improve the retention of our urban forest.

The urban forest is a key element of green infrastructure. Without a healthy urban forest, Saanich would not achieve its sustainable goals of environmental integrity, social well-being and economic vibrancy.

> **Green infrastructure** – the ecological processes, both natural and engineered, that act as the natural infrastructure. It includes ditches, creeks, wetlands, parks, open space, trees, green roofs, gardens, working lands, aquifers and watersheds that supply drinking water.
>
> *(From: West Coast Environmental Law Research Foundation)*

Urban Forest Definition

"Saanich's urban forest is the sum total of all trees and their associated ecosystems within the municipality."

It is the entire collection of trees growing on parks and private lands, on commercial and institutional lands, along highways, roads, trails and paths, as well as throughout open spaces in the community.

The following types of trees and associated ecosystems are part of the urban forest:

- Distinct ecosystems such as Garry oak and Coastal Douglas fir;
- Native and non-native trees (all tree species);
- Single trees, trees in small groves and trees in larger forests;
- Trees on private lands: residential, commercial and institutional;
- Habitat (Wildlife) trees;
- Riparian area trees and forest;
- Trees on both rural and urban lands, and
- Trees in both natural and developed parks.

Treed landscapes are grouped into typologies for planning purposes into typologies. Typologies that have emerged during the creation of this strategy are shown on the following page. They are helpful in determining canopy cover, aesthetic goals and maintenance regimes.

Saanich Urban Forest Typologies

Urban Containment Boundary

Street trees

Street trees are District maintained trees that line streets and boulevards. They are often in conflict with utilities, hydro lines, roads and sidewalks for growing space. They can be spaced at regular distances or be clustered in natural groupings.

Parks and public open space trees

Park trees are found in both natural (forested) and developed parks. They can include environmentally sensitive areas, as well as non-native shade trees lining sports fields. They typically have sufficient space to grow to a mature size.

Private trees

Private trees are privately owned trees on a variety of land-use types, typically low density single family residential. There is no inventory of private trees. A significant opportunity exists for tree planting on privately owned lands, particularly for localized food production.

High density mixed development trees

These trees are in parking lots and in developments where there is very little space for tree planting due to conflicts with large building envelopes, underground parking and retail signage. They are typically smaller species and shorter lived.

Institutional trees (schoolyards, cemeteries)

These trees are typically located on institutionally-owned spacious lands. They are large-growing species that grow to old age. Due to healthy growing conditions, they can positively benefit local ecosystems and biodiversity.

Rural

Public rural trees

Private rural trees

Rural trees in Saanich are typically on privately owned rural lands and generally of a large size. Trees can be in a forest stand left from ages ago, or newly planted windbreaks for farming and agricultural purposes.

The Tree Preservation Bylaw (#7632) currently contains different regulations specific to Rural Saanich trees.

Distinct Ecosystems

Distinct ecosystems span both the Urban and Rural areas of Saanich and include such landscapes as Coastal Douglas fir and Garry oak and associated ecosystems.

Distinct ecosystems require special protection and management. These are landscapes that create the character of place in Saanich and also have an important role on a global scale.

Related Saanich Ecosystem Policy

Larger environmental issues that relate to the urban forest include environmentally sensitive areas, riparian landscapes, species at risk, habitat, natural areas, and parks. These issues are addressed in this strategy and are also addressed in the following Saanich policy documents and initiatives:

- Sustainable Saanich Official Community Plan, 2008;
- Saanich Strategic Plan, 2010;
- Stormwater Management Bylaw;
- Integrated Watershed Planning;
- Regional Green/ Blue Spaces Strategy, CRD, 1997;
- Saanich Environmentally Significant Areas Atlas and Inventory, DOS, 1999;
- Development Permit Area Guidelines;
- Riparian Area Regulations;
- Recovery Strategy for Garry Oak and Associated Ecosystems;
- Species at Risk in Canada, GOERT, 2002;
- Parks & Recreation Master Plan, 2001;
- Saanich Climate Action Plan 2010;
- Saanich Climate Change Adaptation Plan 2011;
- Parks Priorities Guide, DOS, 2010;
- Schedule B Watercourse, Floodplains, Steep Slope Areas, and
- Rural Saanich Local Area Plan, 2007.

Urban Forest Benefits

Healthy urban forests provide numerous benefits relating directly to policy outlined in the Sustainable Saanich OCP (2008). Urban forests play an important role in contributing to the environmental integrity and climate change resiliency of Saanich. They filter air and water, create shade, provide habitat, and slow wind and stormwater. Urban forests contribute to the social well-being of Saanich by providing healthy and enjoyable recreation opportunities, moderating local climate, shading homes and businesses to conserve energy, and are critical in mitigating the urban heat island effect. Urban forests contribute to the economic vibrancy of Saanich through increased property values and encouraging business on tree-lined streets.

Environmental Benefits

A healthy urban forest will:

- Improve air quality;
- Uptake and sequester carbon;
- Improve resiliency to climate changes;
- Conserve energy – produce shade in summer, shelter buildings from winds in winter, and cool urban heat islands;
- Minimize stormwater runoff and control erosion;
- Improve water quality;
- Cool the air through transpiration, and
- Provide ecological integrity, ecosystem and connectivity for wildlife.

Social Benefits

A healthy urban forest will:

- Reduce stress and mental fatigue;
- Enhance recuperation rates (from injury to improved mental health);
- Enhance community pride;
- Heal and restore communities;
- Increase recreational opportunities;
- Contribute to First Nations culture. Mature trees and by-products of the west coast forest and remnants within Saanich's urban forest are significant First Nations cultural features;
- Add beauty to spaces, particularly in the urban environment, and contribute to local community character;
- Screen unwanted views of commercial and industrial areas, and
- Contribute to local food production.

Economic Benefits

A healthy urban forest will:

- Reduce costly investments in public infrastructure by reducing the amount of runoff, creating less of a need for stormwater infrastructure;
- Increase residential and business property values;
- Increase the community's tax base by attracting tourists, business and residential property owners;
- Increase rental of apartments and offices, therefore reducing vacancy rates;
- Encourage shoppers to linger longer at retail establishments;

- Defer maintenance of materials that are degraded by heat (e.g. pavement), and
- Create useful by-products (e.g. signs, benches).

Primary source of benefits information: *Municipal Specialist Certification Study Guide- ISA 2008. See Appendix A for complete list of benefits.*

The Saanich Setting

The District of Saanich is characterized by a landscape setting where Garry oak meadows and west coast rainforest meet the ocean shore. A network of forests and ocean edges forms a fabric of open space across the region and within the Coastal Douglas Fir Biogeoclimatic zone ecosystem - one of the mildest and most productive ecosystems in Canada.

In order to manage growth in Saanich, preserve farmland and support the unique sense of place that occurs as a result of the interwoven mix of rural and urban landscapes, the Urban Containment Boundary was created. Roughly half of the District of Saanich lies outside of the Urban Containment Boundary.

In 2008 the Urban Forest Stewardship Initiative (UFSI) mapped the patterns of changing tree canopies and impervious surfaces that occurred in the Capital Regional District between 1986 and 2005. The UFSI identified the critical state of the urban forest in the Capital Regional District and the need for urban forest strategies to be developed to address the situation. Maps produced in the study were used in the development of this strategy and others of its kind in the region. The change in tree cover density and impervious surface density in Saanich are highlighted in the two tables below:

> "In Canada, Garry oak ecosystems are only found on southeastern Vancouver Island, the Gulf Islands, and two small patches in the lower Fraser Valley."
> *(Garry oak Restoration Project*

> "Saanich, meaning "place of fertile soil" in the language of the [Coast Salish First Nation]. The Saanich complex includes seaside parkland, dry forest, rock outcrop, and wetland habitats and contains many rare plants...
>
> Garry oak parkland is perhaps the most unusual ecosystem in the Saanich group. In dry sites with deep soils, Garry oaks form an open tree cover above a carpet of grasses and colourful spring flowers, including blue Camas, shooting star, Easter lily, chocolate lily, and satin flower. These habitats may also harbour rare, endangered plants such as golden Indian paintbrush and deltoid balsamroot."
>
> *(BC Ministry of Forests, 1999, Ecology of the Coastal Douglas Fir Zone)*

Table E3. Change in Tree Cover Density by Municipality – 1986 and 2005

Municipality	Area of the Municipality (ha)	1986 Tree cover density >50% (ha)	2005 Tree cover density >50% (ha)	Change (ha)*	% Change from 1986	Change as a % of the municipality
Saanich	11,136	4,620	4,037	-583	-12.6%	-5.2%

Table E5. Change in Impervious Surface Density by Municipality – 1986 and 2005

Municipality	Area of the Municipality (ha)	1986 Impervious >50% (ha)	2005 Impervious >50% (ha)	Change (ha)	% Change from 1986	Change as a % of the municipality
Saanich	11,136	911	1,023	112	12.3%	1.0%

Change in tree cover density and impervious surface density in Saanich from 1986 to 2005 (Source: Urban Forest Stewardship Initiative)

According to the UFSI study, the Saanich 2005 tree canopy cover consisted of 4,037 hectares of trees, or 36% of cover over the municipality – including both rural Saanich and land within the Urban Containment Boundary. UFSI mapping indicates that nine percent of the community consists of impervious surfaces.

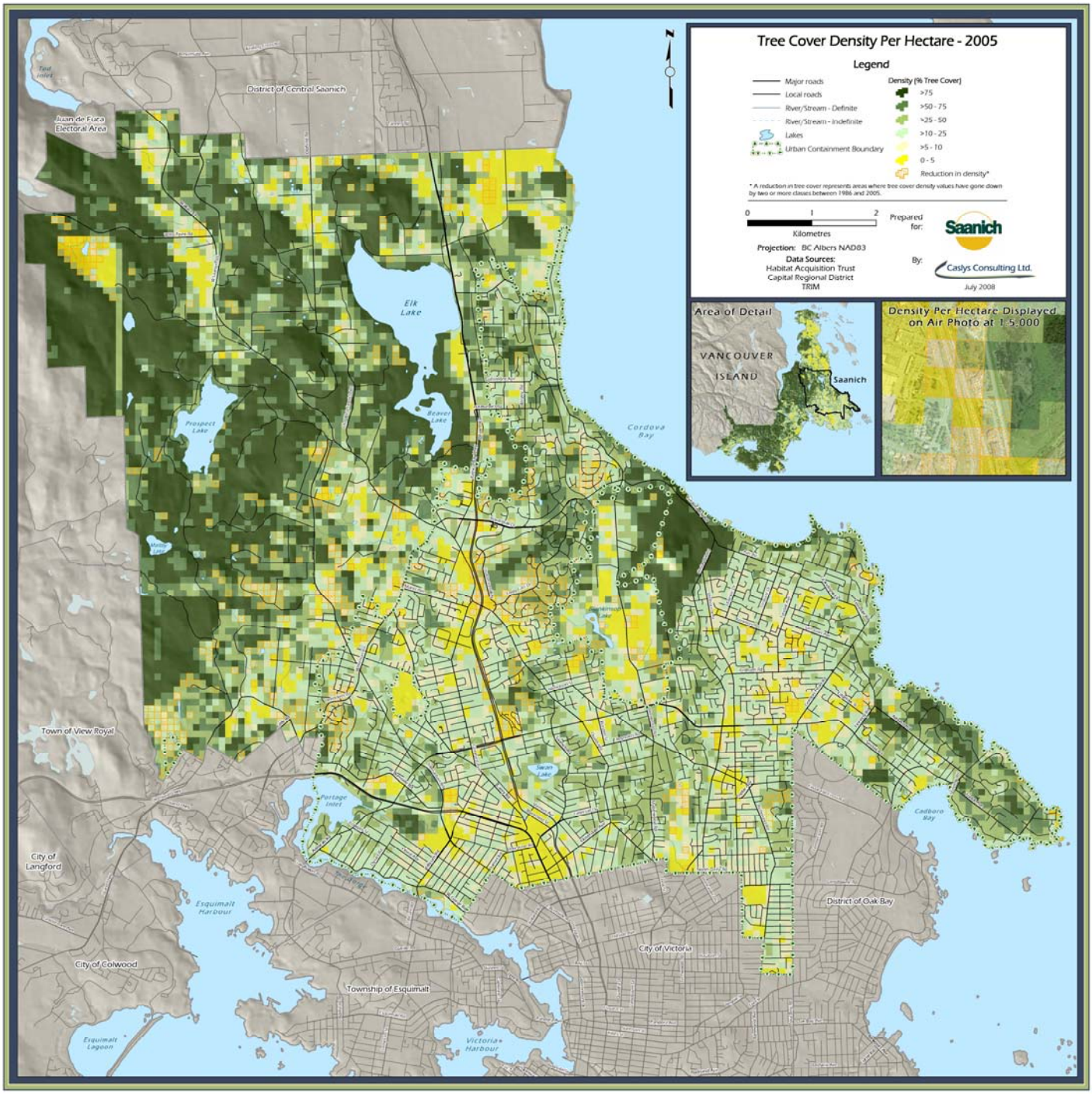
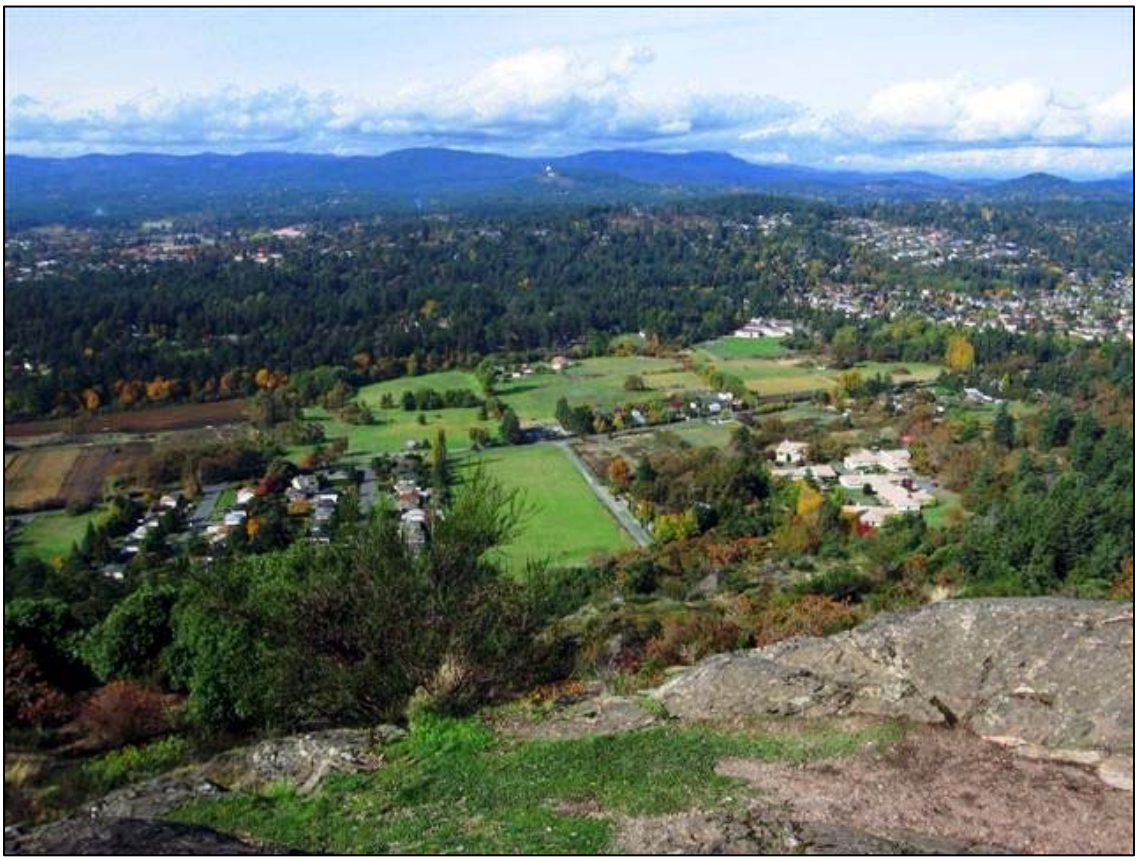


Image of tree cover density per hectare in Saanich showing that canopy cover is greatest in Rural Saanich and decreases towards the urban centres. (Image: Caslys Consulting)

The urban forest is a critical component of the functional green infrastructure system. With planning, protection and site preparation, trees contribute significant benefits to the environmental, social and economic aspects of sustainable Saanich. The urban forest is more than just individual trees, it also includes a series of intact and fragmented ecosystems. Therefore, its management needs to be synchronized with other Saanich and regional initiatives that address other ecosystem elements. These include habitat and ecosystem planning of public and private landscapes in both the Urban Containment Boundary and in Rural Saanich.



Saanich's urban forest from the summit of Mt. Doug. (Photo: District of Saanich)

The District of Saanich is already engaged in a number of actions related to urban forest management. Beyond using the Tree Preservation Bylaw and covenants to protect groups of trees, supporting Saanich's Tree Appreciation Day and supporting the role of the Significant Tree Committee in identifying and protecting trees of significance in the community, the District presently:

- Creates regulations at the time of Development Permit and/ or Rezoning that protect and enhance the urban forest, such as tree covenants or natural state covenants;

- Reduces impervious surfaces during re-development, construction of new infrastructure and other activities that disturb or compact the soil and roots around trees;
- Works with the Garry Oak Ecosystem Recovery Team (GOERT) and the Garry Oak Restoration Project (GORP) to optimize their knowledge and advocacy;
- Educates the public in managing and eradicating invasive species and the alternate use of native species through community partners and educational information, e.g. nursery programs; workshops at gardening centres;
- Participates with invasive species control, tree planting, and other activities in community programs, such as: Naturescape, Evergreen Canada, Garry Oak Ecosystems Educator's Guide, Native Plant Salvage Program, Corporate Invasive Species Strategy, Our Backyard Newsletter, Staff Training Programs, Natural State Covenants, Ecological Restoration Programs, Parks Volunteer Program and Saanich Environmental Protocol;
- Engages the public in land-use planning and policy development that impact the urban forest, such as Local Area Plans, and
- Meets and strategizes regularly with District schools, GORP, SCAN, Friends of Mount Douglas, Provincial agencies, businesses, nonprofits, the media, and others that derive benefit and have a role in the urban forest.

The UFSI study highlighted an emerging pattern of urban forest canopy decline in Saanich. It is clear from the results of the UFSI, concerns over climate change, population and development pressures, and the policy outlined in the Sustainable Saanich OCP that protecting and enhancing the urban forest in Saanich warrants immediate and ongoing action.

Process

The Urban Forest Strategy is the result of extensive consultation with Council Committees, the community and staff. It is based on a review of existing applicable policies, research and bylaws in Saanich, recent urban forest initiatives by the City of Victoria and other municipalities, the Urban Forest Stewardship Initiative (UFSI), and the professional judgment of staff in the Parks and Recreation Department.

The UFSI study was the impetus for the creation of the Saanich Urban Forest Strategy, and was used extensively in the development of this Strategy.

WHO WAS INVOLVED?

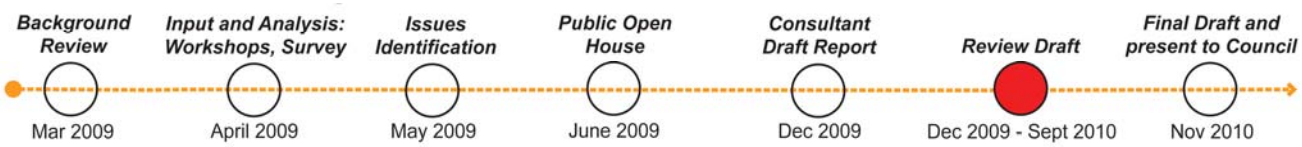
-Council Advisory Committees
-Technical Review Committee
-Park Operations Staff
-Tree Care companies
-Urban development representatives
-Community Associations/ NGOs
-Environmental Educators Network
-Students
-The community via a Public Survey and Open House
-BC Hydro

Consultation with District staff, the general community and a range of stakeholders resulted in the identification of issues and opportunities related to planning and management of the urban forest. Individual consultation sessions were held with Staff (professional and operational staff from Parks, Engineering, Planning, Risk Management, Legal and Development), Council committees, Saanich Community Association Network (SCAN) and other N.G.O.s with interests in the urban forest.

An online public questionnaire was completed by over 200 residents, and provided current information regarding the community's opinion of the state and future of the urban forest.

A framework of preliminary strategies covering urban forest policy, management, regulation and practice was presented at a public open house, held at the Pacific Forestry Centre in June 2009. In December 2009 the first draft of the UFS was reviewed by Council Committees and staff and was placed on a web site for public review and comment.

The survey text and survey results are included in Appendix B. Issues identified in the consultations are included in Appendix C.



Consultation Key Findings

During the consultations with Council Committees, staff and the public, recurring issues were heard and common threats to the urban forest in Saanich were identified. The online survey conducted as part of this strategy revealed that respondents felt that growth and development, concerns for climate change, and competition with underground and overhead utilities threaten the health of Saanich's urban forest. It was also clear from the consultations that the health of ecosystems, community character, invasive species threats, food security, and recreation created by trees and forests in Saanich were considered highly important.

What do you value most about the urban forest in Saanich?

"The public services trees provide the community: such as air and water purification, carbon sequestration, shade which cuts cooling costs, soil stability/ stormwater retention, wildlife food and habitat, and of course the aesthetics!"

(community member feedback from Saanich on-line urban forest questionnaire, 2009)

The following is a list of common issues expressed regarding the current state of the urban forest in Saanich. These are not shown in order of priority.

- The urban forest is more than just the "trees" – it encompasses a much larger ecosystem component that supports ecological integrity and wildlife habitat;
- The value of the urban forest as a municipal asset needs to be established. There is a lack of detailed inventory data. Planning for the urban forest is difficult without knowledge of what Saanich has. There is no monetary value of this asset;
- The ratio of trees being removed to those successfully established each year is not equal, resulting in a continuous depletion of the urban forest. This is largely due to increased urbanization and development both in the Urban Containment Boundary and in Rural Saanich;
- There is generally a lack of importance attributed to trees and associated ecosystems within the overall infrastructure due to conflicting demands for limited space. The retention of mature trees and the planting of trees in relation to layout of roads, bike lanes, and sidewalks needs to be made a priority in order to reduce conflict for space with underground utilities and overhead power lines;
- The Tree Preservation Bylaw, 1997, No. 7632 is not protecting a sufficient number and quality of trees. In particular, it is not protecting the young or semi-mature trees which will compromise long term Urban Forest succession. Insufficient age and species diversity can leave the urban forest vulnerable to

What do you value most about the urban forest in Saanich?

"Trees create beauty and quiet, shade, carbon sink, shelter for animals, prevent erosion, increase habitat for deer. Bird shelters, keep balance of nature, encourage water falling gently to the ground, instead of a deluge."

(community member feedback from Saanich on-line urban forest questionnaire, 2009)

pests and diseases;

- Climate change and other environmental changes are expected to change the geographical distribution and hardiness zones for species currently on the edge of a distribution or hardiness boundary. Invasive species will become more evident;
- Distinct ecosystems such as Garry oak and Coastal Douglas fir and their associated ecosystems are under threat. Loss of local ecosystem biomass is leading to increased fragmentation of these distinct landscapes;
- Risk abatement for trees in parks can compromise the park experience and ecological integrity;
- Coordination and communication between municipal departments and throughout municipalities in CRD is crucial in urban forest management on a municipal and regional scale;
- There is a lack of a formalized District-wide tree planting plan, and formalized maintenance guidelines and procedures for the care of young or mature trees, and
- Many residents want to be involved in managing their environment and undertaking gardening and other practices that affect the urban forest, but don't always know how. Public education regarding the importance of the urban forest is critical in enhancing the canopy cover on privately owned land.

What do you value most about the Urban forest in Saanich?

"They provide opportunities for 'back to our roots' contact with nature and an escape from the frenetic pace of modern life."

(community member feedback from Saanich on-line urban forest questionnaire, 2009)

What do you value most about the Urban forest in Saanich?

"It is a great place for all sorts of activities, from walking dogs to mountain biking."

(community member feedback from Saanich on-line urban forest questionnaire, 2009)

The urban forest needs to be planned, managed and designed to mitigate long term threats due to climate change and shorter term threats that arise due to disease or insect infestations. The land base upon which the existing and future urban forest grows needs to accommodate edible products as well as meet environmental, aesthetic and economic needs.

(general feedback from public consultation process, 2009)

Saanich Urban Forest Vision

The following vision of the urban forest in Saanich emerged during the consultation process:

> **"*The urban forest in Saanich is a highly valued asset comprised of a rich and diverse forest that is widely recognized and appreciated for the contribution that it makes to our community and to our sustainable environment.*"**

As the urban forest grows over the years we will see:

- A variety of tree species that span a range of age classes, with a native species focus;
- Ecological connections of treed and intact ecosystem corridors and links to larger parks and environmentally sensitive areas emerge throughout the district;
- Evidence of species chosen to tolerate changing climates - some of these may be non native species;
- Trees planted for agriculture and food purposes on public and private land;
- Community understanding of the values and benefits of trees and forests;
- A forest planned and integrated with neighbourhood and urban development as well as transportation systems that is formalized in plans, bylaws and policies;
- Loss of forest canopy steadily decreasing to the point of no net loss, and evidence of an increase in canopy cover over the next 10 years;
- Tree planting and forest management practices that are fully integrated with the road and piping infrastructure;
- A high survival rate for newly planted trees that reflects the application of best forest tending and protection practices, and
- Evidence of fewer invasive plant species, which enhances tree-based habitats and the entire urban forest ecosystem.

Urban Forest Goal

The urban forest goal was identified and discussed with participants and Municipal Staff at the open house and during the consultation process. This goal supports the OCP and related plans and bylaws that Council has adopted. It is also intended to support related management and planning initiatives anticipated within the next 5 years such as the Climate Action and Climate Action Adaptation Plans, Integrated Watershed Planning, Stormwater Management Bylaw, Natural Areas Action Plan in Parks, the Parks Priorities Guide and the Saanich Parks and Recreation Master Plan.

The following goal underpins the Urban Forest Strategy:

"Protect and Enhance the Urban Forest"

The urban forest should be protected from loss due to cumulative effects of tree removal during development, tree mortality (disease and old age) and land clearing. Trees should be planted and tended with a long-term vision of tree and ecosystem survival and a thriving population of established trees.

The District of Saanich **Official Community Plan** states:

"Review and amend the Tree Preservation Bylaw No. 7632 to include measures to support climate change initiatives and improve the retention of our urban forest." *(Sustainable Saanich OCP, July 2008, p. 4-7)*

The District of Saanich **Rural Plan** states:

"The preservation of vegetation, particularly trees, is important to the residents of Rural Saanich." *(Saanich Rural Plan, June 2008, p. 22)*

Performance Indicators:

- Canopy cover expansion as measured in 5 year increments based on the results of an urban forest inventory process;
- The ratio of area of distinct ecosystems protected and enhanced compared to area disturbed;
- Reduced inventory of invasive species within the urban forest;
- Increased number of trees planted and established on private property;
- Increased participation in volunteer programs including invasive species removal, habitat restoration, natural areas restoration, Tree Appreciation Day, and other local planting and preservation programs;
- Increased survival rate of newly planted trees and
- Reduced number of tree related complaints and calls-for-service to city staff.

Strategies to protect trees and enhance the Urban Forest are:

- Grow the Urban Forest Canopy;
- Amend the Tree Preservation Bylaw;
- Develop Urban Forest Design Guidelines;
- Integrate the UFS with other Saanich and Regional Initiatives;
- Inventory the Urban Forest;
- Develop an Urban Forest Operations Program, and
- Engage the Community.

Outline of Strategies

Seven strategies have been identified to support the urban forest goal. Detailed actions are presented in the implementation section of this document.

Grow the Urban Forest Canopy

The 2008 Urban Forest Stewardship Initiative demonstrated a continuous decline in Saanich's urban forest since 1986. Actions are required to stem that decline and set in motion bylaws, policies, planting, maintenance and community engagements that strengthen the critical role of the urban forest in the District's green infrastructure system. When trees are not preserved and planted, wildlife habitat is threatened and community character suffers. In order to enhance the Urban Forest we must grow the Urban Forest canopy. Starting with a policy to ensure a "no net loss" canopy requires that an equal number of trees (or more) are planted than are lost.

Amend the Tree Preservation Bylaw

The Tree Preservation Bylaw protects trees on private lands in Saanich, and includes requirements regarding tree size and species. It relates to both rural and urban Saanich. If the Tree Preservation Bylaw were to be amended to protect trees of a smaller size, a greater number of trees in Saanich would be retained, and it would encourage urban forest succession (ensuring that the smaller trees eventually grow into large trees without being cut or removed prematurely).

Develop Urban Forest Design Guidelines

Development and construction processes need to be reviewed to maximize tree preservation and creation of long term urban forest cover. Trees and associated ecosystems require best management practices (BMPs). These BMPs should provide criteria for determining species, tree sizes and planting locations, integration of road, sidewalk and overhead/ underground infrastructure requirements as well as aesthetic, sun, shade and ecosystem criteria. Urban forest typologies and the targets arising from the inventory should form the basis of the design guidelines.

Integrate the UFS with other Saanich and Regional Initiatives

Urban forest management practices should be adaptable and integrate best/ next practices and science related to climate change, invasive species control, diseases, food production and wildlife needs. Existing policies and documents that focus on or relate to urban forest issues need to be reviewed and amended to synchronize with

> "For trees, climate change means that climate may change faster than species natural ability to adapt. It is reasonable to anticipate increased disturbances from wildfire, flooding, wind and storm damage, insect damage, and invasive species. Plants will likely face increased seasonal drought stress."
>
> *From Oregon Wild website.*

this Strategy. Meet with local municipality's representatives to share information on a regional basis.

Inventory the Urban Forest

It is impossible to establish tree canopy targets in the absence of a sound understanding of the current canopy cover or number of trees in Saanich. While the UFSI study provided an overview of canopy cover levels in the Capital Regional District, it was not sufficiently detailed. An inventory of canopy cover and individual trees (located on streets, boulevards, park frontages, medians and developed parks within Saanich) is required. A detailed inventory will allow staff to develop a long term maintenance plan to ensure adequate maintenance of the managed trees.

Develop an Urban Forest Operations Program

Arboriculture, as practiced by Saanich staff and private tree care companies, should be based on consistent, high standards of tree planting, aftercare and long term maintenance and risk management. Trees that are properly maintained increase the tree canopy cover, optimize the initial investment in tree purchase and planting, lead to long term structural strength and address disease, insect and other management issues in a timely manner.

Engage the Community

Saanich is regarded as a leader in citizen engagement for its parks and environmental services. As one of the first municipalities with a tree bylaw covering private land, Saanich has neighbourhoods where forests are integral to the area's character. Saanich also has large areas of forested parkland throughout the municipality. Opportunities currently exist for community members to engage in the urban forest's development. Extending further opportunities for community involvement would enhance the quality of the urban forest as a community benefit.

PART 2 – URBAN FOREST IMPLEMENTATION

Introduction

Part One of this Strategy established the overarching Goal of “Protecting and Enhancing the Urban Forest.” Part Two details the seven strategies with individual actions to support and achieve the Goal. Next steps, addressing required resources and funding, are identified at the end of Part Two.

Saanich Urban Forest Strategies

Grow the Urban Forest Canopy

The 2008 Urban Forest Stewardship Initiative demonstrated a continuous decline in Saanich’s urban forest since 1986. Actions are required to stem that decline and set in motion bylaws, policies, planting, maintenance and community engagements that strengthen the critical role of the urban forest in the District’s green infrastructure system. When trees are not preserved and planted, wildlife habitat is threatened and community character suffers. In order to enhance the Urban Forest we must enhance and grow the Urban Forest canopy. Starting with a policy to ensure a “no net loss” canopy requires that an equal number (or more) of trees are planted than those lost. Three mechanisms to achieve this strategy include Developing a “No-Net Loss” Canopy Policy, creation of a Green Infrastructure Contribution Fund, and the development of a Comprehensive Tree Planting Program.

Action - Develop a "No-Net-Loss" Canopy Policy

Engage staff and the community in a process to develop a policy to ensure at a minimum that every public or private protected tree is replaced with a minimum of one tree. This will require that the language contained in several existing Bylaws be amended to reflect tree replacement as a requirement.

Action - Develop a Green Infrastructure Contribution Fund

Establish a Green Infrastructure Contribution Fund to create an ongoing revenue stream that funds the protection and planting of trees. Contributions to this fund could occur in lieu of tree planting, when penalties for tree policy and tree bylaw accrue, and by donation or bequests. The Fund will be used for the planting, establishment, tending and management of the urban forest.

Potential sources of funds include:

- Amenity contributions up to and including the Appraised Value for Public and Tree Preservation Bylaw protected trees that are removed as a result of development. Many communities, including Victoria, have language in their bylaws that allow the Municipality

to charge a fee at the Building Permit stage equal to the appraised value of a public boulevard tree that requires removal for development. (Under the Local Government Act / Community Charter, Green Infrastructure is a category of Development Cost Charge);

- Sureties forfeited by property owners to the municipality when required replacement trees under Tree Preservation Bylaw cannot be planted on lot, and
- Grants or bequests.

Action - Develop a Comprehensive Urban Forest Planting Program

Develop a tree planting program that aims at planting a minimum of one replacement tree for every tree removed on public lands and protected trees on private lands. The principle of the "Right Tree, Right Place" should prevail. Tight, difficult growing sites are best for small trees. Larger, more open sites are best for trees that have the potential to become the significant trees of the future. Determine appropriate planting locations based on best management practices and industry standards.

A comprehensive tree planting program will include the following actions:

- ☐ Create a database of suitable planting sites and areas that is linked to the urban forest inventory. The database should be based on gap analyses obtained through the tree inventory and on individual tree and canopy cover goals;

- ☐ Follow design guidelines to be developed as Priority Strategy 4, in order to balance tree requirements with other infrastructure requirements;

- ☐ Minimize invasive species, insects and disease damage to newly planted trees by diversifying the species mix in the urban forest. Do this by using the results of the tree inventory to identify over and underrepresented species and in partnership with educational institutions and the urban forest advocates, develop long term urban forest diversity goals;

- ☐ Initiate 'greening projects' in designated Town Centers and Villages, along street boulevards, on municipal properties, in parks and on private lands;

- ☐ Provide design professionals with design and planting guidelines and apply best practices in terms of suitable soil types, volumes and technologies. Guidelines will be dictated by tree locations;

- ☐ Nurture existing community partnerships and promote new partnerships with NGO's, community groups and homeowners to partner in the planting and maintenance of newly planted boulevard trees;

- ☐ Identify planting locations where distinct ecosystems could be restored or enhanced on public lands and integrate those landscapes in parks, boulevard, municipal land and related site plans;

- ☐ Explore financial incentives in the form of tax relief, or other means to help manage individual significant distinct ecosystems that are on private property;

- ☐ Enhance the supply of Garry oak seedlings by collaborating with local nurseries, considering use of District nursery space as a growing centre and collaborating with educational institutes, and

- ☐ Introduce a native seed distribution program to stimulate planting of native species. Provide native species sources, listing sources of native trees and plants to accompany the list of invasive species that is found on the District web-site.

Amend the Tree Preservation Bylaw

The comments heard during consultations included specific recommendations for amendments to the Tree Preservation Bylaw. The revisions will require a public involvement and review process supported by sound data and rationale for changes. Streets and Traffic, Rezoning, Subdivision and Development Permit bylaws may require revision based on revisions to the Tree Preservation Bylaw. Adherence to the Tree Preservation Bylaw should be encouraged via education and community support.

Action - Engage the community in a public process to amend the Tree Preservation Bylaw.

Form a committee to develop an internal and public process to review proposed changes to the Tree Preservation Bylaw. This committee, or special working group, should consist of staff from the Parks Division, members of the appropriate Council Advisory Committees and other affected municipal departments, including planning and legal Staff. Stakeholders such as the development community and private arboriculture consultants and practitioners should be consulted.

The process should consider the relevance, effect, and implementation costs of the proposed changes. Consider comments heard during the consultation process for this Urban Forest Strategy review. Those comments included specific recommendations for amendments to the Tree Preservation Bylaw, including:

- Explore incentives for tree protection that tie urban forest objectives to other benefits, concessions and infrastructure / amenity contributions such as density transfers. For example, retention of a protected private tree or ecosystem that could otherwise be removed should be viewed as an asset to the community just as a public tree would. In this way, increased density on a smaller portion of the land will allow a developer to realize the profit potential for the land while retaining valuable canopy cover;
- Prohibit the removal of Distinct Ecosystem trees such as Arbutus, Garry Oak, Pacific Yew, and Pacific Dogwood as seedlings;
- Western Red Cedar, Douglas fir, and Big Leaf Maple should be protected at 30 cm DBH to ensure succession;
- Require 1:1 replacement of protected trees requiring removal that are inside the building envelope of properties in the Urban Containment Boundary. Require 2:1 replacement for any protected tree removed outside of the building envelope;
- Create defined building envelopes when rural properties are developed;
- In monitoring compliance, continue the use of stop-work orders as a legitimate part of the District Arborist's range of appropriate actions. This action needs to be vetted with the Building Permits and Licenses office and the Municipal Solicitor to ensure proper protocols are met, and
- Address greater flexibility to retain trees.

Develop Urban Forest Design Guidelines

The development of Urban Forest Design Guidelines will relate primarily to new development in the Urban Containment Boundary. Design of new or re-designed residential, commercial and industrial developments, roads, sidewalks and bike paths, trails and parks should be adapted for tree retention and planting. Collaboration with the CRD and regional municipalities and outside agencies such as BC Hydro and the Ministry of Highways will be a crucial element in developing the design guidelines.

Action - Formulate and implement Design Guidelines

The ongoing pattern of planning, design and management decisions should be informed by the targets arising from a comprehensive inventory. Guidelines should

be developed with planning and engineering staff to ensure both aesthetic and infrastructure criteria are matched with best urban forest practices. Planting opportunities during sidewalk, road and utility installations should be maximized. Recognize that goals for tree age, size, species and life expectancy differ within the Urban Containment Area, where trees and their associated ecosystem are balanced with other urban land-uses.

- ☐ Research, develop and apply design standards for street tree installation and tree well construction that will ensure healthy soil and space for best tree growing conditions, create sufficient soil capacity that matches the desired ultimate size of the tree and use continuous tree pits, structural soils, soil cell technology and other mechanisms;

- ☐ Protect soil integrity and drainage patterns to optimize soil for healthy tree development;

- ☐ Adopt criteria for species selection including appropriate understory species that maintain and enhance ecosystems and address the impact of climate change on the urban forest, and

- ☐ Integrate watershed planning, stormwater drainage, sidewalk design and adjacent site drainage to create sufficient space and optimal water regimens.

Action - Collaborate with BC Hydro and Ministry of Transportation & Highways in the formulation of Design Guidelines

Design common utility trenching and roadside tree planting guidelines to minimize tree root and canopy damage during construction or maintenance of underground infrastructure. District staff will meet with representative of BC Hydro on a semi-annual basis to discuss work plans and initiatives.

- ☐ Refine the tree planting guidelines to ensure the right trees are planted in the right places in or near BC Hydro Rights of Way in order to optimize these corridors. This could mean using some Rights of Way as plantations, more frequent “rotations” of trees, or using these areas for fruit producing trees;

- ☐ Establish and implement standards and protocols with BC Hydro to ensure the integrity of the Saanich Urban forest is sustained when trees are pruned by BC Hydro contractors, and

- ☐ Explore the feasibility of underground power-line installation along designated streets and green corridors, as the opportunity arises.

Saanich Road is an example of incorporating a treed boulevard into the streetscape. (Photo: District of Saanich)

Integrate the UFS with other Saanich and Regional Initiatives

It is critical that clear lines of communication exist for the planning and daily or operational issues related to the urban forest. This strategy seeks to establish coordinated direction by the departments within Saanich that have impacts on the urban forest. Clear direction and shared intentions across all departments will result in a viable urban forest, reduced costs and liability, and enhanced benefits.

Action - Form an inter-departmental working group to synchronize tree-related initiatives

Many of the actions in the Saanich Urban Forest Strategy will require successful interaction within and between the departments to research, review and implement. An inter-departmental urban forest working group should be established to address tree-related issues. Urban forestry staff or a consultant should chair a committee of department representatives including:

- Planning (including Subdivision, Sustainability Coordinator and Environmental Services);
- Development;
- Engineering, including Public Works;
- Legal Services;
- Risk Management;
- Finance;
- Parks and Recreation, and
- Fire/ Police.

Enhanced management of the urban forest through effective inter-departmental communication should encompass the following:

☐ Coordinate bylaws, policies and regulations so that the urban forest is consistently referenced, planned, enhanced and maintained. Coordinate the following Saanich initiatives:

- Stormwater Management Bylaw
- Integrated Watershed Planning;
- Climate Action and Climate Adaptation Plans;
- Natural Areas Action Plan;
- Environmentally Sensitive Areas Inventory Atlas;
- Riparian Area Regulations;
- Program to Respond to Invasive Species and Noxious Weeds;

- Integrated Pest Management Policy;
- Food Security;
- Subdivision Bylaw;
- Boulevard Management Bylaw;
- Boulevard Tree Policy;
- Park Tree Policy;
- Tree Preservation Bylaw, and
- Parks and Recreation Master Plan.

Coordination of specific Saanich initiatives includes:

- District stormwater management and integrated watershed plans need to reflect urban forest strategies to provide more consideration to trees and flexibility in applying alternate stormwater conveyance, detention and retention installations;
- Distinct ecosystems, including Garry oak and Coastal Douglas fir, are managed through a number of policies and procedures. These policies should by synchronized with the Saanich Urban Forest Strategy;
- Invasive species are addressed in the Natural Areas Action Plan and 2010 Strategic Plan whereby the Parks and Recreation Department will lead, with support from Planning and Engineering, in the development of a program to address invasive species and noxious weeds on both public and private lands;
- Address the impact of climate change on the urban forest. As recommended in the Climate Action and Climate Action Adaptation Plan, support and initiate additional education opportunities in the community regarding climate change and energy reduction initiatives, particularly determination of trees species suited to reflect the current science on climate-change resilient species, and
- Incorporate food production opportunities in the District. As with other planting initiatives in this strategy, the planting of edible fruit and nut trees should occur deliberately and according to a District wide plan.

☐ Engage other jurisdictions within the CRD to harmonize Tree Bylaws, design guidelines, canopy cover benchmarks and other policies identified in the Urban Forest Strategy;

- ☐ Circulate an urban forest Annual Work Plan to other Departments to keep staff informed of operations and capital works in the planning stages or to be undertaken in the coming year;

- ☐ Collaborate with the Saanich Fire Department and other Emergency Response Centre planners to devise procedures to maximize public safety within the urban forest "Interface Zone" during significant storm or fire emergencies;

- ☐ Maintain habitats for birds and insects in the urban forest. Incorporate habitat aspects of the urban forest as part of the Development Review Process. Wildlife habitat impacts should be assessed as part of the Environmental Impact requirement;

- ☐ Integrate principles and standards in the design guidelines with Local Area Plans as they are updated;

- ☐ Integrate the urban forest as an asset in the Municipal Asset Management program. Determine the value of the urban forest as a tangible asset using established appraisal methods. Include green infrastructure values of the urban forest. Refine the full cost of planting, establishing and maintaining trees from year 1 to 10 and from year 10 onwards. Integrate with replacement costs and depreciation/ appreciation values. Use this information to inform annual capital and operating budgets, and

- ☐ Promote and encourage the protection and designation of Significant Trees. Inventory Significant Trees and share this information with the public. Incorporate the Significant Trees into walking tours and tree awareness issues.

Action - Establish a Memorandum of Understanding between the urban forest-related departments within the District

An integrated urban forest management delivery service should be established, including inter departmental liaison. The MOU between Planning, Parks and Engineering will enable a common focus on the value of trees as part of the full realm of municipal infrastructure. The Memorandum of Understanding should be used to update ongoing responsibilities and articulate lines of communication and coordination.

- ☐ Define roles and responsibilities across departments that detail planning, management and maintenance and reporting functions in annual Work Plans, and

- ☐ Develop a Tree Operations Protocol for Parks, Engineering and Planning to utilize when addressing tree issues in the field, and during the development process.

Inventory the Urban Forest

A tree inventory is not an end but rather a means to effective urban forest management. The inventory will support the management of the urban forest by allowing quick access to information as well as timely updates. The urban forest inventory should include two parts: canopy cover and individual trees. Targets for future tree canopy hinge on the outcome of the inventory and the community, neighbourhood and biodiversity goals that have yet to be defined.

Gap analyses from the tree inventory will result in the identification of viable tree planting locations and areas that will accommodate a range of tree species. Once up to date, the urban forest inventory information should be integrated into the District's Integrated Watershed Planning, Natural Areas Action Plan, Environmentally Sensitive Area's Inventory Atlas, and Climate Action Plan and Climate Action Adaptation Plan initiatives in order that all are supported by the Urban Forest Strategy.

Action - Following measurement of the extent of canopy cover in Saanich, establish canopy cover targets.

Develop an accurate baseline of current canopy cover for each Saanich typology identified in Part 1 (e.g. street trees, private trees, parks and open space trees, rural, etc.), and decide upon what type of canopy is appropriate for each typology. Following this, establish canopy cover targets.

- ☐ Form a working group to research how other jurisdictions have inventoried portions of urban forest and engage appropriate providers of software to determine the scope of this action item and budgetary requirements for various models.

Action - Invest in a comprehensive urban forest inventory.

Within the Urban Containment Boundary, invest in a comprehensive urban forest data program that can be updated, analyzed, maintained and shared in order to conduct an inventory of individual trees located on streets, boulevards, park frontages, medians and developed parks within Saanich.

Design a sampling system that is commensurate with the District's ability to pay for both the inventory and the management of the data arising. Cities such as Kelowna, Kamloops and North Vancouver have gone through this process and should be

contacted for further information. Integrate existing tree data, Significant Tree lists, other regional and provincial sources, and Rural Saanich tree data. Link the urban forest inventory with existing GIS data, the CRD's Natural Areas Atlas, and aerial photographs to provide comprehensive analysis opportunities. Monitor inventory change over time. Ensure that the software package is fully compatible with all other District applications.

The inventory should include the trees identified in the tree typologies in Part 1. It should focus on providing detailed data to address the following issues:

- Species distribution;
- Age class structure;
- Tree diameter;
- Health factors (present condition, any structural issues);
- Ownership (land use);
- Ecosystems and tree cover implications;
- Site conditions;
- Location by coordinates and street address;
- Wildlife trees;
- Significant trees;
- A risk assessment component, and
- Maintenance requirements.

In addition, the inventory will become a powerful management tool to assist decision making in the following areas:

- Safety – evaluate risk associated with trees, hazardous trees, methods of abatement, and a system to prioritize treatment;
- Maintenance assessment – allows for maintenance plans to be developed and budgeted, and allows for effective work scheduling;
- Work history – tracking service requests and regular tree maintenance work for risk management;
- Urban forest value of each tree – this can then be linked into the municipal asset management program, and
- The identification of Wildlife and Significant Trees.

Within the forested parks and rural stands, forest cover mapping (from air photo interpretation) should suffice, although significant trees in parks should be inventoried on a stem by stem basis.

Develop an Urban Forest Operations Program

Equally important to planting trees and increasing the number of preserved trees is the ongoing care for trees. In addition to species selection and the ongoing maintenance of trees, the structural training of young trees is one of the most cost effective actions that the District can undertake in increasing/ maintaining canopy cover. As the District models Best Management Practices, residents and tree care companies are more likely to follow suit. The Urban Forest Operations Program should include an Urban Forest Maintenance Manual and urban forest education for staff and the public.

Action - Develop Urban forest "Best Practices" Maintenance Manual

Formulate an Urban Forest Maintenance Procedures Manual to improve aftercare of trees and their associated ecosystems. Ensure long-term success of newly planted trees by building on existing specifications that guide all planting. Standardize maintenance practices across all municipal departments with responsibility for the urban forest. Make municipal maintenance practices consistent with ANSI or ISA standards and BMPs. Engage local municipal representatives and share the information contained in the manual towards a goal of having regional guidelines.

- ☐ Emphasize conservation of canopy cover in District forestry operational practices by incorporating a regular, frequent maintenance cycle to prevent hazards and improve tree health (eg. watering for the first five summers, mulching, fertilizing, cabling, bracing).

- ☐ Develop urban forest risk assessment criteria:

    - Comply with WorkSafe BC requirements regarding work with, in and around hazardous trees;
    - Undertake a review of the Wildlife Tree assessment and management approach that builds on criteria contained in the "Wildlife/ Danger Tree Assessment Course module Developed for Parks and Recreation Sites" (August 2008), and that balances the goal of protecting staff and the public with preserving trees for wildlife habitat;
    - Create a hazard tree reporting system as per the ISA/ Worksafe BC Certified Tree Risk Assessors protocols. Ensure that staff can overrule and retain trees if they determine that they are not a risk;
    - Develop and implement records input and management for

hazardous tree and regular tree maintenance works, including documenting work that is done and reassessment intervals;

- Decide upon areas of risk priority within all municipal lands - integrate a risk assessment program for trees near playgrounds and high occupancy areas;
- Consult with the Municipal Solicitor to integrate the District's wider municipal risk management objectives in this Strategy, and
- Create a brochure outlining the actions above and place it on the Saanich website for public knowledge.

☐ Develop criteria for species selection. Develop a tree selection database for recommending and selecting species appropriate for given conditions. Species selection criteria including, but not limited to the following, should be considered:

- Available space;
- Pedestrian traffic;
- Conflicts with utilities;
- Microclimate;
- Aesthetics;
- Horticultural criteria;
- Immediate context;
- Suitability for the Urban Containment Boundary and / or Rural Saanich, as well as other land uses;
- Desired habitat characteristics;
- Enhancing Ecosystems;
- Utilizing native species
- Watering, maintenance, pruning needs that match the ability (via the District, private homeowner or NGO) to provide that work, and
- Opportunity to enhance food security.

Tree lined street in Cadboro Bay (Photo: District of Saanich)

☐ Identify best practices that optimize soil for healthy tree development:

- Consider the inclusion of subsurface and planting soil quality, irrigation and drainage standards during the development approval process;

- Update the Tree Preservation Bylaw, 1997, No. 7632, and design guidelines to reflect best/ emerging practices around protecting tree roots both during construction but also during establishment and for trees that will be affected by nearby disturbance (parking on tree roots, placing a sidewalk or walkway; playground or tennis court etc);
- Introduce irrigation requirements for notable trees prior to, during and post development;
- Saanich arborists should host a workshop on the use of enhanced rooting environment techniques to bring together forestry and engineering professionals from the CRD to share their knowledge and techniques.

☐ Utilize Best Practices for pruning as per PNW ISA Standards**.** Base best practices on industry standards (ISA, ANSI, TCIA, or similar). Emphasize structural pruning of young trees, and

☐ Use updated best available research to refine best management practices for work in and around distinct ecosystems on public lands.

Action - Train/ educate District staff and the public

Train staff in best planting, maintenance and removal practices per ISA Best Management Practices manuals and ANSI standards. Research and provide ongoing training and education for environmental best management practices.

☐ Incorporate Certified Tree Risk Assessor requirements in appropriate parks job descriptions. Provide on-going tree risk assessment and hazard tree abatement training to operations staff using current Worksafe BC/ PNW ISA Certified Tree Risk Assessor standards coupled with Wildlife/ Danger Tree Assessment standards;

☐ Establish private tree care company operating requirements**.** In order to enhance the quality of tree care across the District, regularize arboricultural work on public land and minimize risk to the District. It is recommended that tree care companies, providing services to trees on public lands, possess:

- A District of Saanich Business License;
- Proof of comprehensive and general liability insurance, with the District as a named insured, to limits of $2 million Comprehensive General Liability (or at the appropriate amount as determined by District policy) and
- Proof of certification including at a minimum: ISA Certified Arborist to be supervising professional; PNW ISA Certified Tree Risk

Assessor and submission of CE documentation annually.

- ☐ Provide a short seminar each year for tree care companies intending to offer arboricultural services for trees on public land that:

    - Orients operators to the above requirements;
    - Explains the District's Tree Preservation Bylaw,1997, No. 7632, this Urban Forest Strategy and related District bylaws and policies, and
    - Provides emergency contact phone numbers.

- ☐ Participate in the apprenticeship program for Municipal arborists when that program becomes available.

Engage the Community

Sustaining the quality and quantity of urban forests in Saanich requires ongoing involvement across the community. Urban forest stewardship needs to be fostered by engaging residents, businesses, builders and homeowners to plant trees and to care for their growth and development. Public education needs to focus on why trees are needed, where, when, and how they are planted, established and tended.

Action - Maximize public awareness about the urban forest

Increase public awareness about threats to the urban forest, best forest management practices, the forest ecosystem and tree conservation. A multi-pronged strategic approach for promoting Saanich's Urban Forest Strategy should highlight its objectives, initiatives, key concepts and community benefits.

- ☐ Print media, web media, schools, recreation programs, Community Associations and other educational institutions such as Camosun College, UVIC and Royal Roads should be enlisted in the campaign;

- ☐ Integrate educational information about the benefits of the urban forest, issues (e.g. invasive species), threats, and related projects into public programs;

- ☐ Provide incentives that encourage homeowners to plant trees, preserve existing trees and implement best urban forest management practices in tree care:

    - Expand current Environmental Advisory Committee Award categories to include the recognition of properties that have

achieved success in conserving / protecting / restoring the urban forest;

- Offer tax incentives for homeowners to have portions of their property established (possibly under covenant) in order to protect native plants and ecosystems on private property, (e.g. Garry oak settings);
- Create planting incentive programs (e.g. trees from the District nursery or discounts on trees at local nurseries), and
- Consider Permit "credits" when owners go over-and-above protection measures for trees on private lands during development.

☐ Create an online atlas of volunteer activities:

- Planting trees and providing maintenance for the post-planting period;
- Teaching citizens proper tree planting, watering and maintenance skills;
- Assisting in the removal of invasive species, and
- Maintaining an up-to-date list of volunteer opportunities related to urban forest programs.

Action - Foster community partners' involvement in the urban forest

Nurture existing community partnerships and promote new ones. Encourage community partners to remain/ become engaged in urban forest stewardship by formulating outreach and educational programs regarding the environmental, economic and social benefits of the urban forest.

☐ Work with representatives from local First Nations to facilitate cultural use of Saanich urban forest materials and to engage the Nation in urban forest resource management initiatives wherever possible;

☐ Continue to collaborate and partner with Swan Lake & Christmas Hill Nature Sanctuary to expand on volunteer and educational opportunities;

☐ Encourage the development community to actively steward the urban forest:

- Revise brochures and other District communications for building associations and developers to explain their roles in protecting and enhancing the urban forest through best development & construction practices. Outline the importance of the urban forest;
- Provide tangible incentives or rewards to the associations (e.g. profit, sell-ability of projects, or incentives), and

- Meet with realtors and agents to extend community education regarding urban forest benefits and best management expectations.

☐ Continue to collaborate with advocates, volunteers and scientists in the care, planning and management of distinct ecosystems, including supporting their work with educational efforts, brochures and web based information distribution. Incorporate Parks Department initiatives such as the Natural Areas Program and the Garry Oak Restoration Program (G.O.R.P.);

☐ Budget for staff and materials to accommodate academics, advocates and others that bring forward urban forest public awareness initiatives, and

☐ Engage local Service Clubs in reforestation projects. Identify additional funding (possibly through the Green Infrastructure Contribution Fund) to ensure their viability.

Shelbourne War Memorial Tree Planting, 2010 (Photo: District of Saanich)

NEXT STEPS

To date, the District of Saanich has paid close attention to its tree resource and has provided operating and capital funds to the arboriculture program as part of annual

budgets. Staffing levels have been maintained, thus providing a good quality of service to the residents of Saanich - Community Satisfaction Surveys rank the work of Saanich Parks as high.

The implementation of the Urban Forest Strategy will be referred to in Strategic and Departmental Plans as well as the budget review process. The District will then develop more detailed information that identifies resource requirements and timing to establish implementation priorities.

Dependable resources (funding, staffing, volunteer capacity and equipment) are necessary to ensure the sustainability of the urban forest. Recognizing that the competition for resources will increase over time, it is important that the urban forest program adapts and becomes more self-supporting. This will mean the engagement of corporate partners, ENGO's, individual citizens and others to supplement the resources necessary to realize the long-term vision for the urban forest. It also means the consideration of additional regulations and fees to reduce the municipal subsidy.

Incorporating the inventory of municipal trees into the municipal tangible asset management system will benefit planning, permits and bylaw activities by establishing a reasonable monetary value to the urban forest. As well, knowing the value of the resource - and of program activities that support the urban forest - can help set funding priorities during budget discussions. Perhaps most importantly, establishing a monetary value of trees helps raise public consciousness of the urban forest and develops an appreciation of trees as an important community resource.

In order to leverage the investment of taxation funded urban forest initiatives and to optimize the good will and enthusiasm of urban forest advocates in the community, it will be important to explore financing mechanisms that will supplement existing funding for urban forest programs. These include:

- The use of increased Tree Permit fees and – as appropriate: penalties and security deposits for urban forest projects;
- The establishment of a Green Infrastructure Fund, a DCC (development cost charge) category to be used to fund programs that benefit the urban forest;
- The establishment of financial partnerships with local and regional agencies, foundations, service clubs and businesses to fund urban forest-related projects, and
- The maximization of funding opportunities through Infrastructure Grants, Forests for Tomorrow grants, Climate Action Grants and others that emerge through inter-governmental or private agencies.

Adequate resourcing of the urban forest program will lead to a system of sustainable protection, management and arboricultural practices - within an engaged community - that is responsive to climate change and the evolving community in the coming years and decades. The action items in the Urban Forest Strategy provide direction to establish urban forest program priorities as budgets and resources allow.

APPENDIX A - Urban Forest Benefits

The 2008 Urban Forest Stewardship Initiative *Urban Forest Canopy Cover Mapping and Analysis in the CRD 1986 – 2005* included benefits of the urban forest in Saanich that were determined using the CITYgreen software. CITYgreen assesses how urban forest cover manages stormwater runoff, water quality, air quality, and carbon storage and sequestration. The following are Saanich findings from the CITYgreen analysis:

- Pounds (lbs). of air pollution removed per year: 1,159,026
- Dollar value of air pollution removed each year: $2,606,305
- Total tons of carbon stored: 559,503
- Total tons of carbon sequestered (annually): 4356
- Stormwater water quantity (runoff) total savings: $192,333,068
- Annual stormwater costs based on payments
  (over 20 years at 6% interest (per year): $16,768,473
- Water quality (contaminant loading) was also assessed, with a range of improvements to a variety of contaminants.

The numbers above highlight quantified benefits that Saanich receives from the urban forest. The environmental, social and economic benefits are a result of the rural woodlands, upland groves, avenues of street trees and other treed landscapes in Saanich. A number of benefits relate directly to policy in the OCP:

Environmental Benefits

1. Improve air quality - Vegetation improves air quality by intercepting particulate matter and absorbing gaseous contaminants through the stomata in leaves Includes: Sulfur dioxide, Nitrogen oxides, Ozone, smog and particulates.

   A healthy urban forest will support OCP policy 4.1.2.14 regarding Sustainable Ecosystems to "initiate and support actions that improve air quality, such as … increasing our urban forest cover…"

2. Carbon uptake and storage – This occurs through photosynthesis (storing carbon as sugar) and later carbon is accumulated as wood and as such is sequestered. Carbon is not released until the wood decomposes.

A robust urban forest will help the District reach the goal of being carbon neutral in respect of municipal operations by 2008 (OCP policy 4.1.1), through carbon sequestration, a natural process of tree growth.

The urban forest will benefit OCP policy4.1.2.8 by encouraging the use of native species and climate change resistant plants for landscaping on both public and private lands.

3. Energy conservation (direct benefits) - Properly locating trees in the landscape produces shade in the summer and shelters buildings in the winter from winds, thereby reducing heating costs.

4. Energy conservation (indirect benefits) - Urban Heat Islands – Urban areas are known to be up to 5.5 degrees celsius warmer than adjacent rural areas. This is due to an increase in smog and the heating of the asphalt and concrete surfaces in urban areas. Properly placed trees along roads and in parking lots will produce shade and thereby reduce the temperature reducing cooling costs in the summer months. This cooling of impervious surfaces and reduction of direct sunlight also prolongs the life of the paved surfaces and reduces pollution. The more extensive the tree canopy the greater the benefit.

   A healthy urban forest will benefit OCP policy 4.1.1 of creating complete, compact and more energy efficient communities by creating more aesthetically pleasing and enjoyable landscapes and street environments that would encourage shopping (retail) and general high quality of life enabling people to work and shop near to where they live.

5. Stormwater runoff and erosion control – Tree canopies intercept rain, snow and other forms of precipitation. They reduce the velocity of rain hitting the ground. Leaf litter on bare soil has the same effect. This reduces the amount of rainfall entering the stormwater system during periods of moderate rainfall thereby reducing the capacity requirements of the stormwater system.

   The urban forest will contribute to OCP policy 4.1.2.16 regarding aquatic habitat and water quality by managing surface water, drainage and groundwater.

6. Improve water quality.

7. Cool the air through transpiration.

8. Provide habitat [and connectivity] for wildlife – Groups of trees and their understory provide habitat for wildlife, including amphibians, reptiles, mammals and birds.

    Urban forest policy will assist in OCP policy 4.1.2.3 regarding Environmentally Sensitive Areas by protecting and restoring habitats that support native species of plants and animals and address threats to biodiversity such as invasive species.

    Urban forest policy supports OCP policy 4.1.2.4 to protect and restore rare and endangered species habitat and ecosystems, particularly those associated with Garry oak and associated ecosystems.

    Urban forest policy will support OCP policy: 4.1.2.5 to preserve "micro-ecosystems" as part of proposed development applications, where possible.

Social Benefits

1. Reduce stress and mental fatigue - Many people have a strong emotional attachment to trees. Mental fatigue is relieved by green space.

    The urban forest supports OCP Policy 4.2.4.1 regarding Neighbourhoods by "ensuring adequate green space, including play areas, meeting places, tree cover and natural areas."

2. Enhance mental health - Humans respond positively to nature, green space and landscape plantings. Additionally, well treed areas are shown to create greater job satisfaction.

    The urban forest supports OCP Policy 4.2.3.2 regarding Centres and Villages by providing "publicly accessible open space that complements the public realm, and creates identifiable focal points within each Centre/ Village; setting aside land for public open space in the form of natural areas, parks; create or enhance the node's unique "sense of place."

    The urban forest supports OCP Policy 4.2.3.3 regarding Centres and Villages by "considering use of … covenants… to secure public amenities such as; open space… landmarks, focal points."

3. Enhance recuperation rates - This includes quicker recovery time from injury to improved mental health.

4. Reduce psychological precursors to crime.

5. Enhance community pride.

    The urban forest supports OCP Policy 4.1.2.24 regarding environmental stewardship through education that would "foster and support public awareness, engagement, and participation in community environmental stewardship initiatives."

    Urban forest initiatives enhance OCP Policy 4.1.2.27 to "work with the community to build awareness on the impact of invasive species; mitigation measures; and opportunities to participate in volunteer eradication programs".

6. Heal and restore communities - Leaders of volunteer based tree groups add that restoration extends beyond the individual and encompasses the neighbourhood and the community.

7. Increase recreational opportunities.

8. Cultural uses - Mature trees and by-products of the west coast forest and remnants within Saanich's urban forest are significant First Nations cultural features.

9. Add beauty to spaces, particularly in the urban environment, and contribute to local community character. The edges of the forest and clearings in the woods are just two forest conditions of many that are enjoyed for rest and recreation, and enjoyment of natural ecosystems.

    The urban forest supports OCP Policy 4.1.10.36 regarding utilities by "working with BC Hydro to support the retention and planting of large scale street trees within public right of ways."

10. Screen unwanted views of commercial and industrial areas.

11. Fruit and nut trees contribute to local food production.

The urban forest supports OCP Policy 4.2.5.2 regarding Rural Saanich through "maintaining farming, food production, and large lot residential as the predominant land use on rural lands."

Economic Benefits

1. Reduce costly investments in public infrastructure - Reducing the amount of runoff creates less of a need for stormwater piping.

   The urban forest supports OCP Policy 4.2.10.7 regarding public infrastructure by "Encouraging the use of sustainable servicing practices, green infrastructure, and energy and resource recovery".

2. Increase residential and business property values - Well treed residential properties are estimated to have a 5% higher value than properties that are not treed.

   Protection and enhancement of the urban forest supports OCP Policy 4.2.2.1 re: Urban Design that: "… works with the topography and protects the natural environment; reflects our west coast setting; enhances a "Sense of Place"; respects local history and heritage structures and landscapes…"

3. Increase tax base for the community by attracting tourists, business and residential property owners - A healthy, attractive urban forest enhances the economic stability of a community by attracting visitors, businesses, and new residents.

   The urban forest supports OCP policy 4.1.2.25 because many urban forest trees are on private lands, tying in with "work with private land owners to encourage stewardship that protects, preserves, and enhances natural systems and, where appropriate, enter into conservation covenants or provide incentives to protect riparian or environmentally significant areas."

4. Increase rental of apartments and offices and reduce vacancy rates - Apartments that are surrounded by trees tend to rent quicker and have lower vacancy rates.

5. Encourage shoppers to linger and spend more - Research has shown that people tend to linger and shop longer on streets that are shaded by trees.

6. Defer the maintenance of materials that are degraded by heat such as pavement.

7. Create useful by-products - Food, construction material, firewood, craft and art supplies, garden mulch, and compost are useful products that arise during the management of the urban forest.

Primary source including many of these benefits: *Municipal Specialist Certification Study Guide-ISA 2008*

APPENDIX B - Consultations Key Issues

		KEY DISCLOSURES
PHILOSOPHICAL	1	In planning the Urban Forest, the whole ecosystem must be considered, not just the trees.
	2	There is a need to define the value of private trees as a public resource.
	3	The value of the Urban Forest includes environmental benefits (carbon sequestration, rainwater management, and ecosystem health), economic benefits and social benefits.
	4	Threats to a healthy Urban Forest include urbanization, climate change, competition with utilities, homeowner attitudes and invasive species.
	5	Quantitative and qualitative Performance Measurement Indicators are required (eg. tree canopy cover and ecosystem health) to assess goal achievement.
POLICY	6	The planning of the Urban Forest is integrally linked with development patterns, increased density, the Urban Containment Boundary and designated Rural areas.
	7	The importance of Saanich's Garry oaks and associated ecosystems is critical.
	8	There is concern over a reduction in forest biomass (the ratio of trees being removed to those planted each year is not equal).
	9	Site coverage requirements (incl. sub-surface) in development infill sites leaves little space for planting trees.
	10	Guidelines are required for planting trees in relation to layout of roads, bike lanes, and utilities.
REGULATIONS	11	Forest succession (protection of young trees along with the old trees) is not being addressed in the present Tree Preservation Bylaw.
	12	There is little flexibility in current regulations to save trees that are within building footprint / driveway layout.
	13	Invasive species are of particular concern in Saanich.
	14	The Schedule F Bylaw - Standards for Storm-water Collection Sytems - gives little consideration to trees and offers limited flexibility in trying alternative designs.
	15	The Surety Fund is a potential source of funding for care of the urban forest.
	16	Farm Tax Credits do not favour or encourage tree protection in rural areas.
PRACTICE	17	There is a limited level of communication between municipal departments regarding tree protection and management.
	18	Proper tree planting aftercare in a healthy growing medium is critical to tree survival.
	19	Risk management practices need to be finessed, including storm risk abatement and hazard trees in proximity to park assets.
	20	The role of community stewardship is undefined (role of homeowner, continuation of volunteerism into the future).

APPENDIX C - Survey Summary