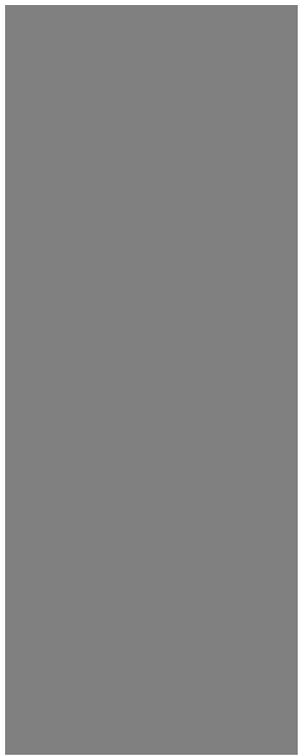
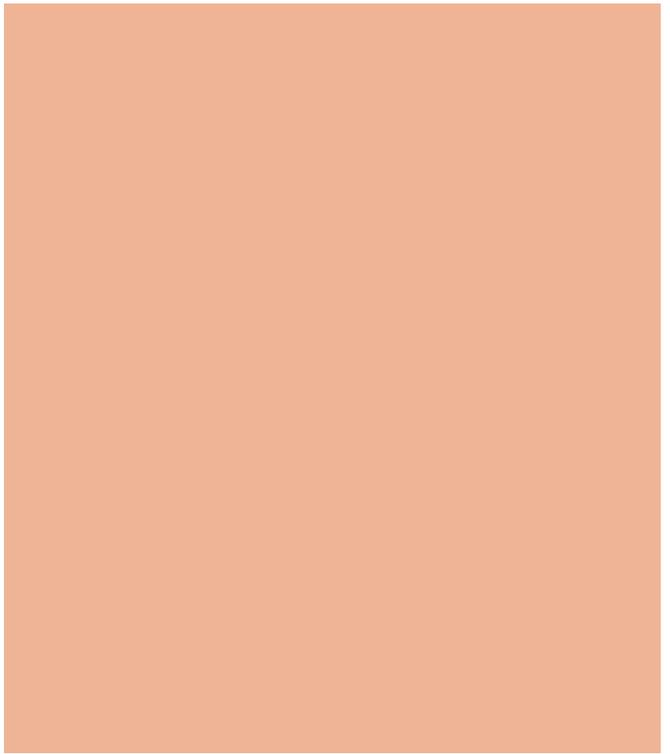


City of Edmonds

Urban Forest Management Plan

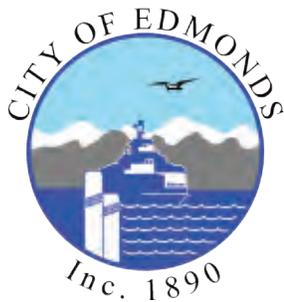
July, 2019





City of Edmonds

Urban Forest Management Plan July, 2019



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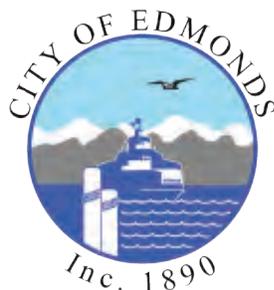


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Executive Summary

Background & Purpose

Urban forest simply means the trees in an urban area. An urban forest management plan is a long-term plan for managing trees in a city.

The purpose of the City of Edmonds Urban Forest Management Plan is to provide guidance for managing, enhancing, and growing trees in the City of Edmonds over the next 20 years. Special emphasis is placed on managing trees on public property and along the public rights-of-way.

Public Involvement in Process

Public involvement has been part of developing and finalizing the Urban Forest Management Plan. The involvement has included open houses, website postings, informal survey, press releases, and submitted public comments, as well as formal public meetings by the Tree Board, Planning Board, and City Council.

Plan Overview and Conclusions

Edmonds, like many cities in the Pacific Northwest, once had large stands of old-growth trees that included Douglas fir and Western red cedar. Most of these were logged off years ago and development of streets, homes, businesses, schools, churches, and additional settlement followed. In some places, new trees have grown up or been planted. For Edmonds today, tree canopy coverage is estimated to be about 30.3% of the total city area.

Trees have many benefits, but also some challenges. Selecting the right tree for a particular location makes a difference in how the tree will perform and thrive. Appropriate planting methods and tree care are important too.

The City has a program of planting and caring for trees in public places—such as City parks and along various streets. In addition, the City has regulations about certain aspects of trees on private property. Notably, Edmonds is certified as a “Tree City USA” city and supports an active Citizens Tree Board. The Tree Board, as well as City staff, helps provide public education and participation in volunteer events to plant trees. Throughout the community, many residents also value and take care of trees on their property.

To promote future sustainability and urban forest health, thoughtful planning and actions are needed. The Plan identifies five long-range goals to help the City move forward. The goals are:

1. Maintain or enhance citywide canopy coverage
2. Manage public trees proactively
3. Incentivize protecting and planting trees on private property
4. Provide resources to the community to educate/inform on tree planting and care
5. Promote “right tree, right place”.

Specific action strategies are identified to address each of the Plan’s long-range goals. These would be implemented over time, as resources are available, to address priority needs. Furthermore, the Urban Forest Management Plan should be reviewed every five to ten years and updated as needed.

Overview

The plan includes long-range goals and action strategies to promote sustainability, species diversity, and greater canopy cover. Publicly-managed trees along streets, in parks, and at City facilities are collectively referred to as the community urban forest. Privately owned trees are also considered part of the urban forest in this plan because of their function and contribution to the sustainability of the overall urban forest in Edmonds; however, the City recognizes that it has a limited role in the care of private trees.

Recognizing the significance of environmental and socioeconomic benefits provided by trees and their relationship with a high quality of life, the UFMP aims to:

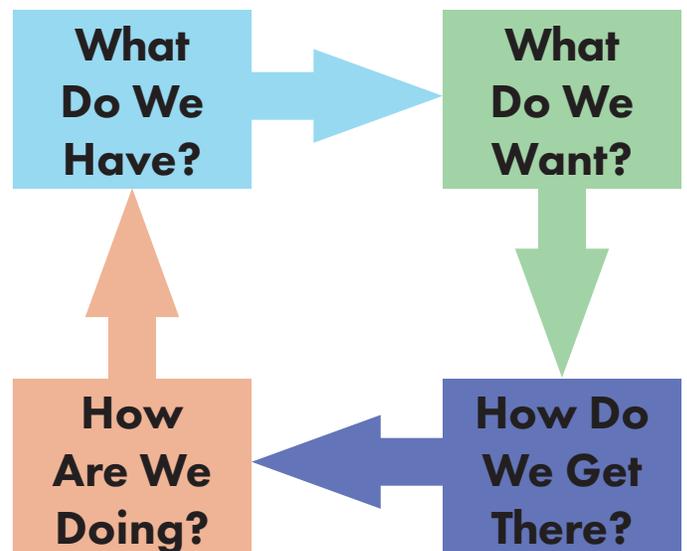
- ◆ Illustrate the value and benefits of trees.
- ◆ Promote shared vision and collaboration between community residents.
- ◆ Establish benchmarks and metrics to monitor the long-term success of management strategies.
- ◆ Enhance the health and sustainability of the community urban forest.
- ◆ Increase the vital benefits that the trees provide to Edmonds and the region.
- ◆ Ensure that resources are in place to support the care and management of the community’s trees.

This UFMP includes goals and action strategies for the long-term and short-term in support of this purpose. It identifies appropriate resources to adequately manage community trees. It is intended to remain flexible and dynamic, allowing for the exploration and implementation of the actions as funding and resources permit.

The development of the UFMP included a comprehensive review of existing policies and regulations, current funding and maintenance levels, analysis of the extent, condition, and composition of the existing tree resources, stakeholder concerns, and community input.

Plan Foundation

Spending any amount of time outdoors in Edmonds will reveal the abundant and diverse natural resources found within City parks and surrounding residences and businesses. Besides the obvious amenities available to a city on the coastline of the Puget Sound, another abundant natural wonder in Edmonds is its trees. Interspersed amongst the buildings and roads, trees provide the City with the shade, fresh air, and softened landscape that help people achieve the unique experience referred to as; “an Edmonds kind of day.” All of the trees in Edmonds make up the City’s urban forest tree resource. Without active management, this urban forest is at risk.



In December 2016, the City adopted a Comprehensive Plan that formally recognized that the community places a high value on the conservation of the urban forest. This Urban Forest Management Plan (UFMP) is intended to be an element that aligns in support of the Comprehensive Plan. In particular, this UFMP aligns with the intentions of, “providing a framework for moving the Edmonds community toward a sustainable future that integrates and responds to environmental, economic, and social needs in a way which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Comp Plan, 2016).

The following principles for urban forest management set the framework for the UFMP:

- ◆ Optimize the ecosystem services provided by trees.
- ◆ Control tree maintenance costs to the community.
- ◆ Create pathways to stable and predictable funding.
- ◆ Mitigate risks and liabilities associated with trees.

The structure and organization of the UFMP are based on the understanding of what we have, what we want, how we get there, and how we are doing. This structure, referred to as adaptive management, is commonly used for resource planning and management (Miller, R.W., 1988) and provides a good conceptual framework for managing community forest resources.

The plan development process involved a comprehensive review and assessment of the existing community tree resource, including composition, value, and environmental benefits. The process explored community values, existing regulations, and policies related to community trees. In addition, there were multiple stakeholders, internal and external, who played a role in the planning, design, care, and advocacy around the community forest. These stakeholders include the general public, City departments, the Citizens’ Tree Board, and Snohomish Public Utility District (PUD). Each of these stakeholders contributed to the development of this Plan.

What Do We Have?

Edmonds was founded along the coast of the Puget Sound in 1890. Similar to the rest of the region, Edmonds had forestlands that were logged and waters that were fished. As Edmonds has grown in population, the forest has been urbanized and divided for parks, homes, and businesses. Recognizing the role of trees in the community and the necessity to manage them, the City drafted a Streetscape Plan in 2002 that included tree planting guidelines as part of the general aesthetic goals for the community. Revised in 2006 and again in 2015, elements of this Plan introduced tree care policy that has since been the source for many of the City’s tree management decisions.

In terms of regulations, the care for the urban forest is generally understood to be required by the Growth

Table 1: Benchmark Values (2017)

The City	
Acres	6,095
Population	41,840
Land Cover	
Tree Canopy	30%
Grass & Vegetation	27%
Impervious Surfaces	34%
Bare Soils	2%
Open Water	7%
Tree Canopy Cover	
Maximum Potential Canopy	57%
Investment	
Tree Care Per Capita	\$7.74

Management Act of 1990. Guidance is provided by the City’s Comprehensive Plan (2016), the Parks, Recreation and Open Space Plan (2016), and the Streetscape Plan (2015). These primary documents define the reach of existing regulations and policies within which care for the urban forest is mandated:

- ◆ *Comprehensive Plan (2016) - Environmental Quality Goal A* - “...Protect environmental quality within the Edmonds community through the enforcement of community-based environmental regulations.”
- ◆ *Parks, Recreation and Open Space Plan (2016) - Natural Resource and Habitat Conservation Goal 4* – “Preserve and provide access to natural resource lands for habitat conservation, recreation, and environmental education.”
- Objective 4.5 - Expand the urban forest and increase tree canopy in Edmonds.
- Action Plan 4.G - Steward the urban forest using appropriate maintenance of street and park trees, clear removal and replacement policies and providing information about urban forestry to property owners.
- ◆ *Streetscape Plan (Revised 2015) - Celebrate Sustainable Practices*. In redesigning the corridor, it is critical that the new interventions improve the street’s performance. This includes enhancing the street environment and gateways for pedestrian benefits through an Urban Forestry program in the Downtown/Waterfront area.

The urban forest is a combination of both public and private trees. Any trees that the City has direct control of and responsibility for are defined as the community tree resource. This includes public trees in parks, along rights-of-way, and around City facilities. Managing any resource begins with defining what is being managed and establishing benchmarks along with clearly defined goals and expectations. While public trees along major arterials and high-profile areas are well-known and routinely cared for by City staff, other public street trees are expected to be maintained by the adjacent property owner. Aside from individual development applications, the

City does not have a method to take an inventory or track the history, status, or location of public trees. In addition, providing adequate care for trees requires a level of knowledge and a skill set that many property owners do not have.

The planning process for this UFMP included an assessment of tree canopy. The results of the study provide a clear picture of the extent and distribution of tree canopy across Edmonds, benchmarking the average tree canopy cover at 30.3%. Analysis of historical change estimates that the City has lost 114 acres of its tree canopy since 2005. In 2005, there was an average tree canopy cover of 32.3%.

The primary challenges and opportunities for urban forest management are:

- ◆ Private owners control the majority of tree canopy (83.0%) with few regulations to limit tree removal, except when the trees are associated with development or are within an environmentally critical area.
- ◆ There is limited knowledge about the condition of trees in the urban forest.
- ◆ There is an estimated 1,651 acres is theoretically available for planting to expand the urban forest canopy¹.

The views of scenic places are fundamental to Edmonds’ identity as a community and require balanced consideration with the care of the urban forest. Scenic views are highly valued in long-established development. At the same time, appreciation of trees—especially “the right trees in the right place”—is a value shared by most residents.

¹ This estimate is partly based on an analysis of low-lying vegetation areas.

Land Cover

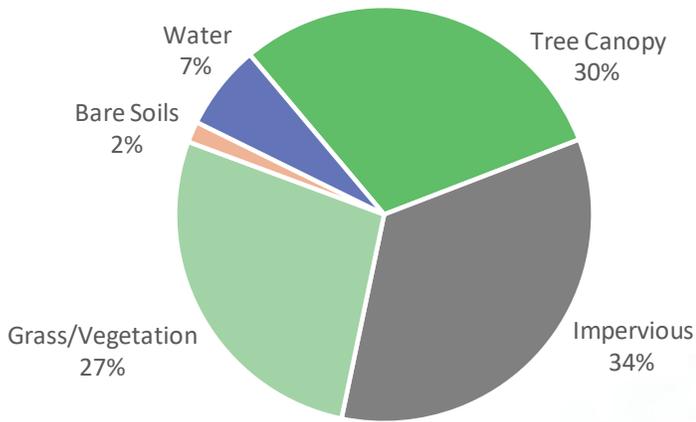


Figure 1: Land Cover

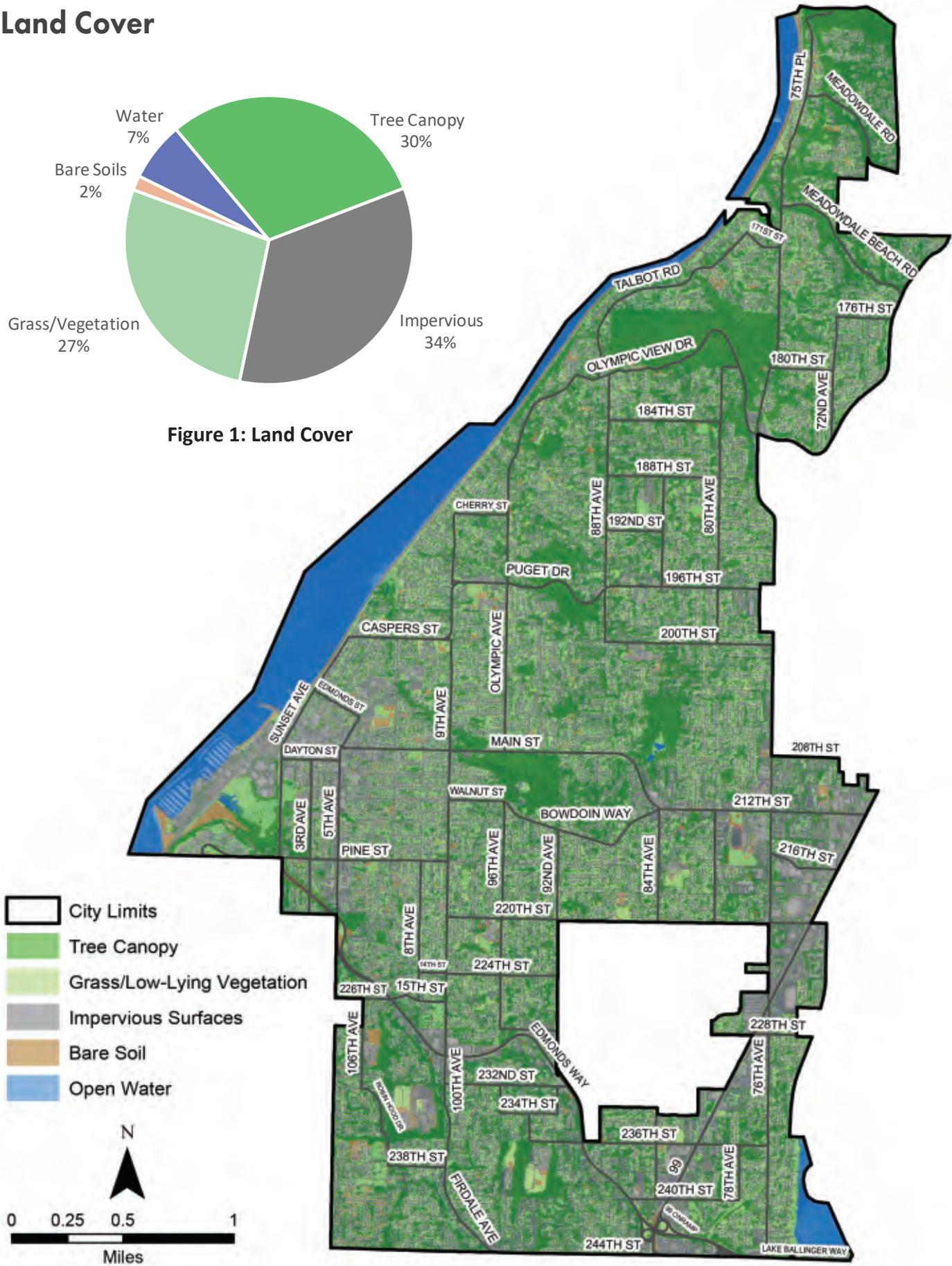


Figure 1: Land Cover

What Do We Want?

The plan development process included substantial outreach to public stakeholders, residents, and non-profit agencies. The process provided a broad perspective of the challenges that face Edmonds' urban forest. Through open house forums and public meetings, the City has found an engaged set of residents with varying opinions on matters pertaining to the care of the urban forest.

City Staff were also consulted during plan development, with City code and public safety being the main considerations when making tree care decisions. City Staff will often take a reactive approach to tree management by performing work on trees as problems are discovered, but they also look for opportunities to plant trees in strategic public places.

In general, stakeholders from both the community and City Staff share the following desired outcomes for the UFMP:

- ◆ Preservation and Enhancement of Tree Canopy
- ◆ Sustainability, Health, and Safety of the Community Tree Resource
- ◆ Preservation and Enrichment of Wildlife and Habitat
- ◆ Increased Outreach and Education
- ◆ Increased Collaboration with Volunteers and Non-profit Groups
- ◆ Strategies and Policies to Minimize Potential Tree Conflicts



Open house forums and public meetings provided perspective on community interests and concerns about the urban forest.

How Do We Get There?

The long-range strategic goals provided in this Plan are proposed to address the three components of a sustainable urban forestry program through specific actions:

- ◆ Urban Forest Asset Actions - which are intended to improve the urban forest resource over the next 20 years by developing detailed expectations for the urban forest.
- ◆ Municipal Resource Actions - which are intended to drive improvements in City policy and practices by developing efficiency and alignment of efforts within City departments.
- ◆ Community Resource Actions - which are intended to build stronger community engagement and public participation in urban forest stewardship.

How Are We Doing?

The UFMP presents opportunities to care for the urban forest in Edmonds by providing an overarching framework for urban forestry operations, policies, and programs. It presents a high-level review of urban forest management in the City, including historical context and an exploration of the benefits of Edmonds' trees. Building upon that information, the Plan connects the community's vision for the urban forest with appropriate goals and actions.

This Plan provides various goals to pursue along a 20-year timeline concluding in 2038. These short and long-term goals will be achieved by adapting the Plan according to a five-year cyclical review of operational objectives. The success of the UFMP will be measured through the realization of goals and will be demonstrated through the health of the urban forest and increased environmental benefits. Ultimately, it will lead to an enhancement of tree canopy throughout the City. Furthermore, the greatest measurement of success for the UFMP will be how successful it is in meeting community expectations for the care and preservation of the community tree resource.

Urban Forest Management Plan Goals

Goal 1 - Maintain citywide canopy coverage

Goal 2 - Manage public trees pro-actively

Goal 3 - Incentivize protecting & planting trees on private property

Goal 4 - Provide resources to the community to educate/inform on tree planting and care

Goal 5 - Promote "Right tree, right place"



Youth volunteers helping with tree resource management.

Introduction

Trees play an essential role in the community of Edmonds, providing numerous tangible and intangible benefits to residents, visitors, neighboring communities, businesses, and wildlife. Research demonstrates that healthy urban trees can improve the local environment and lessen the impact resulting from urbanization and industry (U.S. Forest Service, Pacific Southwest Division, 2017). Trees can improve air quality, reduce energy consumption, help manage stormwater, reduce erosion, provide critical habitat for wildlife, and promote a connection with nature.

In addition to these direct improvements, healthy urban trees increase the overall attractiveness of a community. In Portland, Oregon, street trees were found to add an average of \$8,870 to homes' sales price as well as reduce time on the market for home sales by 1.7 days (Donovan et al., 2010). Studies on the business benefits of trees have shown how retail districts promote longer and more frequent shopping and greater sales (Wolf, 2007). Urban trees support a more livable community, fostering psychological health and providing residents with a greater sense of place (Kuo, 2003). Community trees, both public and private, soften the urban hardscape by providing a green sanctuary and making the City of Edmonds a more enjoyable place to live, work, and play. The City has emphasized the importance of trees within the Comprehensive Plan (2016), so much so that public trees are defined as a valued community resource, a critical component of the urban infrastructure, and a part of the City's identity.



Edmonds' trees are a valued community resource

Community

Early settlements were built in the City to access natural resources, where shingle mills became the primary industry. Although construction of the Great Northern Railway along the waterfront was expected to be the main source of growth in the City, most growth occurred due to its proximity to Seattle. Passenger ferry service has also helped the town grow and prosper.

Edmonds' population, from 2017 State estimates, is 41,260 people and covers a land area of 8.9 square miles. It is the third largest city in the county after Everett and Marysville. By 2035, the population is expected to be 45,550.

The urban forest in this community is defined by its public and privately managed trees. Through parks and public rights-of-way, the City maintains a diverse population of trees intended for city streetscapes (typically nursery grown hardwoods), as well as native trees (naturally regenerating conifers and deciduous trees). Privately managed trees may be remnant forest trees connected with early logging history, naturally growing native trees and even invasive hardwoods.

Community Vision for the UFMP

Edmonds' Comprehensive Plan provides a vision of the City as an attractive, sustainable community for all ages. It specifically recognizes the value of trees as contributing to that vision and directs that an urban forest management plan be used as a guide for decisions on managing the forest resource, especially focusing on public land and rights-of-way. For private lands, the UFMP would guide education and incentives to encourage good tree management practices.

Benefits and Challenges of the Urban Forest

Urban and natural forests work constantly to mitigate the effects of urbanization and development, which protects and enhances lives within the community.

In general, there are five (5) important ways in which trees provide benefits: Water Quality, Carbon Sequestration, Energy Savings, Air Quality, and Socioeconomic benefits.

Water Quality

Urban stormwater runoff is a major source of contamination for the Puget Sound and riparian areas throughout Edmonds, threatening both human health and wildlife, including salmon populations. Requirements for surface water management are becoming more stringent and costly for both developers and the City.

By incorporating the right mix of urban trees into stormwater management planning, runoff volumes, peak stream flows and flooding incidents may all be reduced; a strategy that may lessen the need for constructing stormwater management facilities and the cost of treatment to remove sediment and other pollutants.

Trees improve and protect water quality by:

- ◆ **Intercepting Rainfall** – Trees intercept rainfall in their canopy, which act as a mini-reservoir. Some water evaporates from the canopy and some slowly soaks into the ground, reducing the total amount of runoff (Xiao, et al., 2000). Canopy interception also lessens soil compaction, which in turn further reduces runoff.
- ◆ **Increasing soil capacity and infiltration** – Root growth and decomposition increase the capacity and rate of soil infiltration by rainfall and snowmelt resulting in slower percolation rates and increasing the filtration of contaminants (Xiao, et al., 2007).
- ◆ **Reducing soil erosion** – Tree roots reduce the flow and volume of stormwater runoff, avoiding erosion and preventing sediments and other pollutants from entering streams, rivers, Lake Washington, and the Puget Sound (WA Department of Ecology, 2011).
- ◆ **Providing salmon habitat** – Shade from trees helps to cool warm urban runoff, which poses a threat to anadromous fish, like salmon. Shade from trees provides lakeside and riparian habitat for salmon and cools water temperatures, increasing dissolved oxygen, which is essential to salmon survival (Puget Sound Partnership, 2012).



Typical overview of waterfront homes in Edmonds.

Carbon Sequestration

As environmental awareness continues to increase, governments are paying particular attention to global warming and the effects of greenhouse gas (GHG) emissions. As energy from the sun (sunlight) strikes the Earth's surface it is reflected back into space as infrared radiation (heat). Greenhouse gases absorb some of this infrared radiation and trap this heat in the atmosphere, increasing the temperature of the Earth's surface. Many chemical compounds in the Earth's atmosphere act as GHGs, including methane (CH₄), nitrous oxide (N₂O), carbon dioxide (CO₂), water vapor, and human-made gases/aerosols. As GHGs increase, the amount of energy radiated back into space is reduced, and more heat is trapped in the atmosphere. An increase in the average temperature of the earth is resulting in changes in weather, sea levels, and land-use patterns, commonly referred to as "climate change." In the last 150 years, since large-scale industrialization began, the levels of some GHGs, including CO₂, have increased by 25% (U.S. Energy Information Administration).

Trees absorb atmospheric carbon, which reduces greenhouse gases. The carbon-related function of trees is measured in two ways: storage (total stored in tree biomass) and sequestration (the absorption rate per year) (Jo, et al., 1995). Urban trees reduce atmospheric carbon dioxide (CO₂) in two ways:

- ◆ Directly – Through growth and the sequestration of CO₂ as wood and foliar biomass.
- ◆ Indirectly – By lowering the demand for air conditioning, thereby reducing the emissions associated with electric power generation and natural gas consumption.



Stormwater runoff from streets needs to be controlled. Trees will slow and intercept stormwater, reducing the burden on stormwater infrastructure.

Energy Savings

Electric and gas utilities develop energy conservation solutions to keep rates low for their customers, reduce their need to build new lines, and, ultimately, to be good environmental stewards. Energy services delivered to Edmonds residents are provided by Snohomish County Public Utility District (SNOPUD). This organization recognizes how trees can reduce energy consumption and encourages Edmonds residents to consider trees as a cooperative strategy for improving energy conservation (SNOPUD, 2017). Urban trees and forests modify the environment and conserve energy in three principal ways:

- ◆ **Shade dwellings and impervious surfaces** – Impervious surfaces in 2011 were assessed as 34% of the total land base (Edmonds, 2017). Shade from trees reduces the amount of radiant energy absorbed and stored by these impervious surfaces, thereby reducing the urban heat island effect, a term that describes the increase in urban temperatures in relation to surrounding locations (Simpson & McPherson, 2000). Shade from trees also reduces the amount of energy used to cool a structure (Simpson, 2002).
- ◆ **Transpiration** – Transpiration releases water vapor from tree canopies, which cools the surrounding area. Through shade and transpiration, trees and vegetation within an urban setting modify the environment and reduce heat island effects. Temperature differences of more than 9°F (5°C) have been observed between city centers without canopy cover and more forested suburban areas (Akbari, et al., 1997).
- ◆ **Wind reduction** – Trees can reduce wind speeds by up to 50% and influence the movement of air and pollutants along streets and out of urban canyons. By reducing air movement into buildings and against conductive surfaces (e.g., glass, metal siding), trees can reduce conductive heat loss.

Air Quality

Urban trees improve air quality in five fundamental ways:

- ◆ Reducing particulate matter (e.g., dust and smoke)
- ◆ Absorbing gaseous pollutants
- ◆ Shade and transpiration
- ◆ Reducing power plant emissions
- ◆ Increasing oxygen levels

They protect and improve air quality by intercepting particulate matter (PM₁₀), including dust, ash, pollen, and smoke. The particulates are filtered and held in the tree canopy where they are eventually washed harmlessly to the ground. Trees and forests absorb harmful gaseous pollutants like ozone (O₃), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). Shade and transpiration reduces the formation of O₃, which is created during higher temperatures. Scientists are now finding that some trees may absorb more volatile organic compounds (VOC's) than previously thought (Karl, T. et al 2010; Science NOW, 2010). VOC's are a class of carbon-based particles emitted from automobile exhaust, lawnmowers, and other human activities.

By reducing energy needs, trees also reduce emissions from the generation of power. And, through photosynthesis, trees and forests increase oxygen levels.

Aesthetic, Habitat, Socioeconomic, and Health Benefits

While perhaps the most difficult to quantify, the aesthetic and socioeconomic benefits from trees may be among their greatest contributions, including:

- ◆ Beautification, comfort, and aesthetics
- ◆ Shade and privacy
- ◆ Wildlife habitat
- ◆ Opportunities for recreation
- ◆ Reduction in violent crime
- ◆ Creation of a sense of place and history
- ◆ Reduced illness and reliance on medication and quicker recovery from injury or illness

Some of these benefits are captured as a percentage of property values, through higher sales prices where individual trees and forests are located.

In addition, trees and forests have positive economic benefits for retailers. There is evidence that trees promote better business by stimulating more frequent and extended shopping and a willingness to pay more for goods and parking (Wolf, 2007).

Trees and forestlands provide important habitat (foraging, nesting, spawning, etc.) for mammals, birds, and fish and other aquatic species, along with limitless opportunities for recreation, offering a healthful respite from the pressures of work and everyday stress.



The needles of these douglas fir trees help improve air quality.

Tree Selection related to Location and Other Factors

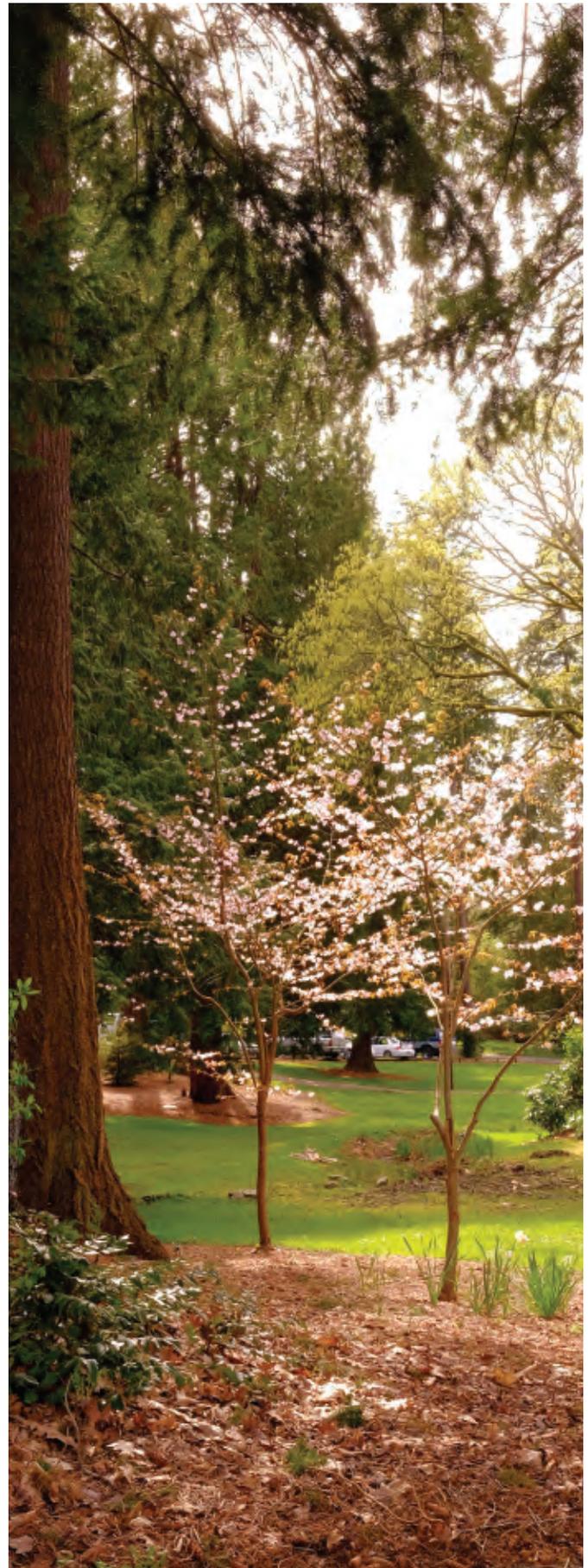
Selecting tree species that are appropriate for the expected functions, maintenance requirements, and locations in which they are planted is important. Generally, native trees should be considered for planting or replacement whenever practical.

Along City streets, relatively compact trees that add color and interest, without tending to upheave pavement, are typically desirable. An example is the Bowhall maple, which has been used in numerous street-side locations in Edmonds. When street trees are planted on the same side of the street as SnoPUD overhead power lines, additional caution is needed in selecting appropriate species. These poles also usually carry major communication lines. Such facilities are often located at the very edge of the City's rights-of-way or in planter strips between the sidewalk and the curb. Trees should be selected that do not result in the need for frequent topping or heavy pruning to keep them underneath the communication space on PUD poles, which can be as low as 15 feet above ground level.

In large spaces, native coniferous trees may be very appropriate. Some of these species (such as Douglas fir) can grow very tall (up to 200 feet) and wide (30 feet). They are well-suited to the Pacific Northwest climate and have needles year-round. Also, various types of deciduous trees, including maple and oak, may be appropriate in large spaces.

In view areas and in many relatively small spaces, lower-growing or less-spreading trees may be a good choice. For example, vine maples have colorful leaves in autumn and at mature height are generally no more than 15 feet tall. However, the branches of this species can spread wide, up to 20 feet. Other species, even fruit trees and small specimen trees, may fit well in settings where tree height or width needs to be limited.

In critical areas where wildlife habitat exists, native trees should generally be chosen for planting. Depending on the type of habitat and space availability, such trees could include Western red cedar, Douglas fir, alder, and dogwood.



A mix of large and small trees in a park.

Right tree, right place

Planting a tree is something that provide a sense of accomplishment and something to admire for decades. However, it is not a decision that should be made without careful consideration. When considering what tree to plant and where to plant it, one should remember the widely used phrase “Right Tree, Right Place.” Choosing the right tree depends on many factors including soil type, climate, and the amount of space the tree will have both underground and overhead.

It is important to choose a tree that does not require more space in the future than a site can provide. To avoid any conflicts with overhead obstructions (e.g., power lines, utility poles, buildings) or underground obstructions (e.g., pipes, building foundations), consider the tree’s height, root growth, and shape at maturity. While above-ground growth is a little easier to envision, a tree needs plenty of room to grow underground too; tree roots can extend up to two to three times the width of the crown (the leaves and branches of the tree).

Apart from the physical space available for a tree to grow, one may consider whether the property is in a view shed and how the tree at maturity will impact the views.

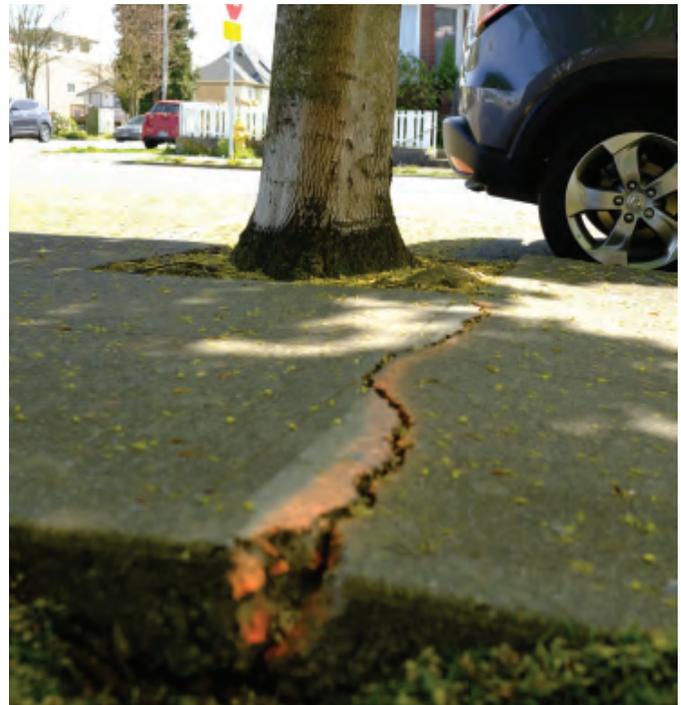


Trees in streetscapes can grow into conflict with sidewalks.

Factors to consider when selecting a tree to plant.

1. The tree’s purpose will impact the suitability of different tree species, whether used for shade, aesthetic beauty, wind protection, screening, or other purposes.
2. Size and location of the tree, including available space for roots and branches, affects the decision on which species to plant.
3. Crown form or shape varies among species, including round, oval, columnar, V-shaped, or pyramidal shapes. Consider how the shape of the tree works in the space available.

Note on Native Trees: Edmonds was once covered in forests of old growth Douglas fir, western red cedar, and western hemlock. While these trees were once the right tree in the right place, they often may not be appropriate for urban environments. In natural conditions, a Douglas fir can grow to more than 200 feet in height with a diameter of five to eight feet. While the City’s parks and the larger zoned properties (12,000 – 20,000 square foot minimum lot size) primarily located in north Edmonds may provide sufficient growing space for these large native species, they may not be appropriate landscape trees within the Edmonds “bowl area” with its more dense development and view concerns.



Tree roots lifting a sidewalk.

Trees and Views

To some people, trees are the view and to others, trees block the view. The City of Edmonds is blessed with magnificent views of Puget Sound and the Olympic Mountain range. These views add to the quality of life here, as well as to property values. When views become obstructed, enjoyment of one's property as well as property values may be impacted. The City's Comprehensive Plan has many policies recognizing the protection of public views (views from parks or view corridors down streets and at street ends), but does not specifically address private view protection.

Not all areas of Edmonds have views of Puget Sound and the Olympics. While a view shed study of the City of Edmonds has not been completed, the primary view areas are located in the Bowl and the properties on the west facing slopes of north Edmonds. When considering planting trees in these view areas, lower growing trees will help preserve the views of neighboring properties.

Topping of trees for views is often the first consideration of landowners. However, topping is not generally recognized as good arboricultural practice. A topped tree requires periodic maintenance to maintain its reduced size. That can become expensive in the long-term. Also, conifers will often form a



An example of skirting-up; the lower limbs on this tree have been removed to provide drivers with a clearer view.

weakened top as the side branches all try to grow up. In addition, the cut top often becomes an entry site for decay organisms that weaken the tree and increase the danger of a top breaking in high winds. For broad-leaved trees such as maple, madrone or oaks, severe topping is even more damaging. It can seriously harm the tree's health and cause various safety hazards.

While views are important, other factors such as critical areas must also be taken into consideration. The north Edmonds view shed is associated with significant slopes (potential landslide hazards are slopes 40% and greater) as well as a historic landslide area that has specific regulations that apply to development in that area (Chapter 19.10 ECDC – Earth Subsidence and Landslide Hazard Areas) in addition to critical area regulations. The mechanical and hydrogeological benefits which trees and other vegetation provide to maintain slope stability and reduce erosion are well documented. Tree maintenance activities that maintain the health of existing trees will also help maintain slope stability.

A landowner should explore alternative options to tree removal or topping. Below is a list of several trimming practices derived from Vegetation Management: A Guide for Puget Sound Bluff Property Owners (Ecology Public 93-31) which can be used in combination to create views without compromising tree health or slope stability.

View-enhancing Pruning Alternatives for Conifers

1. Windowing
2. Interlimbing
3. Skirting-up

- ◆ **Note:** In any pruning practice or combination, 60% or more of the original crown should be retained to maintain tree health and vigor. The removal of too much live foliage can reduce the tree's ability to supply food to the roots, thereby weakening them.
- ◆ **Windowing.** This pruning practice allows a view "window" through the existing foliage of the tree's canopy. In pruning major limbs and

branch whorls, sections that obscure a view are removed. Many people find that this technique creates an aesthetically pleasing effect.

- ◆ **Interlimbing.** The removal of entire branch whorls or individual branches throughout the canopy allows more light to pass through, as well as reducing wind resistance of the tree. This practice can be used in conjunction with windowing to improve views.
- ◆ **Skirting-up.** Limbing the tree up from the bottom allows a clear line of sight. Instead of an obscuring mass of foliage, the tree trunk is the only object between you and the view. This technique is useful when the tree in question is located high on the bluff face or upon the tableland. Relatively more branches can be removed with this technique because the lower branches contribute less nutrients to the tree than higher branches.

Pruning Broad-leaved Trees

Pruning and trimming of broad-leaved trees is usually more complicated, especially for trees grown in the wild. Generally, short-lived species such as alder, willow and Bitter cherry are not worth pruning, while trees like madrona, white oak, bigleaf maple, and vine maple will warrant the expense. Crown reduction is one of the most common methods that arborists use to control the size of the tree and keep its shape perfect. This method involves reducing the foliage of the tree while still preserving the general structure of the crown; doing this successfully trims the overall shape of the tree and controls its size. In a general sense, limbs that are located on the uppermost portion of the tree canopy are cut shorter in order to decrease the tree's height. However, they are only removed to the next lateral growth to be able to ensure that they heal faster and grow again properly. It is highly recommended that only 20% or less of the tree's canopy should be cut at once in order to avoid the tree from suffering.

Properties owners should consult a certified arborist prior to undertaking any tree maintenance activity.

Challenges

Developing and caring for a healthy urban forest requires the coordination of many different stakeholders, with a clear vision, and dedicated resources. As such, the urban forest intersects with many other elements of the city. This can result in conflict or challenges including:

- ◆ **Conflicts with Buildings and Infrastructure -** Roots and branches of trees can damage nearby sidewalks, utility lines, and buildings.
- ◆ **Hazard Trees -** Trees can create hazards to the community. Storm events, accidents, improper maintenance, and the natural death of trees can all create structural weaknesses for trees and the surrounding area.
- ◆ **View Issues -** Edmonds is known for the majestic views of the Puget Sound. It is possible for trees to block these views if they grow too large or were planted in improper locations.
- ◆ **Maintenance -** Trees are living infrastructure. As such, they require active and regular maintenance. Structural pruning, irrigation, and the management of pests and diseases are some critical maintenance practices that must occur to ensure a healthy and vibrant urban forest.
- ◆ **Choice of Tree Species -** Different tree species have different needs, growth patterns, and resistances to pests and diseases. A diverse palette of species improves the resilience of the urban forest.



A tree with multiple stems may become a hazard without proper care.

What Do We Have?

To effectively manage the urban forest, it's essential to have knowledge and understanding of what exists today. This section lays the groundwork for the UFMP with historical context, current policies and practices and understanding about the existing state of the urban forest.

History of Urban Forestry in Edmonds

Trees have been an important part of the City's character and economy since its founding. However, to understand and manage the urban forest has depended upon which trees are being considered and where the trees were located. This is evident from the various locations where trees are referenced in the City code as well as the variety of departments whose staff oversee tree related matters. Edmonds had been designated by the National Arbor Day Foundation as a Tree City USA since 2011, but has had city staff in different departments managing tree issues within the City for decades.

Recognizing the role of trees in the community and the necessity to manage them, the City drafted a Streetscape plan in 2002 that included tree planting guidelines as part of the general aesthetic goals of the community. Revised again in 2006 and 2015, elements of this plan introduced tree care policy which has been the source for much of the City's tree management decisions ever since.

In 2010, the City formed the Edmonds Citizens' Tree Board to assist in the development of tree ordinances and to encourage the planting and maintaining of trees. This is an early example of the City taking steps towards management of tree resources as an integrated ecosystem of both public and private trees. In 2015, one of the efforts of this board was a proposal to the City for updated tree-related municipal ordinances. These proposed tree codes, through a public comment period, were

rejected in part due to public concerns about private property rights, but also because the City felt that it had insufficient tree policy direction to warrant the recommended codes.

From these related events, it's clear that the community has assumed an increasing level of care for the urban forest that would benefit from long-term strategic planning. Increasing regulations from the State and Federal Government for environmental stewardship requirements have also played a significant role in defining the level of care for the urban forest that exist in Edmonds today.

Of special note are three policy sources that directly influence the management of urban forestry and land use in Edmonds; The Washington State Growth Management Act (1990), the Edmonds Comprehensive Plan (2016), and the Edmonds Parks Recreation and Open Space (PROS) Plan (2016) (The PROS Plan is also an element of the Comprehensive Plan.) Their backgrounds, roles, and influences on the development and operation of Edmonds urban forest are discussed below.



Big trees were common in Edmonds before its settlement.

Growth Management Act (1990)

In 1990, the State Legislature adopted the Washington State Growth Management Act (Chapter 36.70A RCW) on the basis that uncoordinated and unplanned growth posed a threat to the environment, sustainable economic development and the overall quality of life in Washington. Unique among states, the Act requires that municipalities prepare their own comprehensive plans that provide for growth and development in a manner that is locally and regionally consistent, achievable, and affordable. All cities and counties in Washington are required to adopt critical areas regulations by the Growth Management Act (GMA). The GMA defines critical areas as:

“Critical areas” include the following areas and ecosystems:

- a. Wetlands;
- b. Areas with a critical recharging effect on aquifers used for potable water;
- c. Fish and wildlife habitat conservation areas;
- d. Frequently flooded areas; and
- e. Geologically hazardous areas.

The state of Washington requires the City of Edmonds to manage and protect it's critical areas.



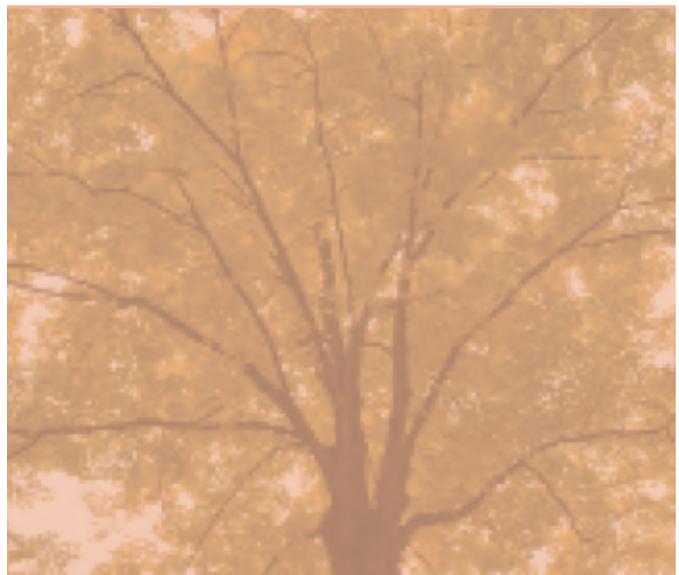
Common ground vegetation in wetland areas

Cities are required to include the best available science in developing policies and regulations to protect the functions and values of critical areas. Further to that end, jurisdictions must review, evaluate, and, if necessary, revise their critical areas ordinances per an update schedule.

Edmonds has an outstanding inventory of critical areas and protection of these critical areas overlaps with the protection of the urban forest. The trees in the urban forest increase soil security to protect wetlands, waterways and flooded areas, and the branches and canopy provide ample real estate for wildlife to call home. It is important that the City plan for all the trees in the urban forest as a whole, not just critical areas.

This notion is reinforced in Washington Administrative Code (365-190-060(1)) which specifies when classifying forest land resources that “Cities are encouraged to coordinate their forest resource lands designations with their county and any adjacent jurisdictions. Counties and cities should not review forest resource lands designations solely on a parcel-by-parcel basis.”

Edmonds has established environmental quality goals in support of the legislation and in order to protect critical areas. Since the critical areas regulations must be consistent with the Comprehensive Plan, the Comprehensive Plan sets forth the underlying policies for the jurisdiction’s critical areas program.



Trees help protect the function and benefits from critical areas.

The Comprehensive Plan (2016)

As an overarching guiding document, the Comprehensive Plan aggregates other city visions and plans into one cohesive document. The Comprehensive Plan is structured by element, then goals, then policies.

The Comprehensive Plan contains 9 elements. These elements include goals and policies that can be directly supported through this UFMP. These are the community sustainability elements of the plan and include goals and policies associated with:

- ◆ Sustainability
- ◆ Climate Change Goals and Policies, including support for the Kyoto Protocol and the US Mayor's Climate Change Agreement
- ◆ Community Health
- ◆ Environmental Quality

The urban forest is a key component of the community sustainability element. Goal A in this element seeks to protect environmental quality and sets the first policy (A.1) as to: Ensure that the city's natural vegetation, especially native vegetation, associated with its urban forests, wetlands, and other wildlife habitat areas are protected and enhanced..." A.2 sets to protect and retain the urban forest, native vegetation, and wildlife habitat areas. This includes techniques such as tree retention, which should be integrated into land use and development codes. As the urban forest grows, so too does the habitat and environmental quality.

The community culture and urban design element's implementation involves tree policy as well. In this element, the streetscape section defines the many ways that trees enhance the community: "Trees are an asset to the community. They help absorb stormwater, provide habitat for wildlife, clean pollution from the air, and give both summer shade and aesthetic pleasure." In this way, the Comprehensive Plan addresses the policy commitment to Community Health, through the preservation and expansion of the urban forest.

Street trees are further explored in the Streetscape Plan developed in 2002 by the Parks, Recreation, and Cultural Services Department and updated in 2006.

The Streetscape Plan includes a Street Tree Plan for the downtown corridor. In 2011 the City adopted a "Complete Streets" program which accommodates the needs of all users along streets, including a safe space for pedestrians which necessitates a tree management component. This section concludes with Actions A.1 and A.2, which state that Edmonds should update the Street Tree Plan and develop an Urban Forest Management Plan by the end of 2017.

The community sustainability element also includes two other sections that are interconnected with the urban forest; Climate Change and Critical Areas.

Recognizing the importance of addressing the issues surrounding the environment and climate change, the City of Edmonds formally expressed support for the Kyoto Protocols, adopted the U.S. Mayors Climate Protection Agreement by Resolution No. 1129, and joined the International Council for Local Environmental Initiatives (ICLEI) by Resolution No. 1130. A crucial component of these climate change policies is the reduction of greenhouse gases with several benchmarks:

1. By 2020, reduce overall emissions of green-house gases in the state to 1990 levels;
2. By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;
3. By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year.

The Edmonds urban forest is vital to the success of meeting these benchmarks. Trees reduce carbon through many ways including; reducing energy demand for shaded buildings, acquiring carbon dioxide for the photosynthesis, and sequestering carbon. The potential for carbon sequestration is determined by maximum tree sizes, lifespans, growth rates, and tolerances to urban stress. Therefore, growing long-lasting and healthy trees directly contributes to the success of Edmonds Comprehensive Plan climate change goals.

The PROS Plan (2016)

The Parks, Recreation and Open Space (PROS) Plan provides comprehensive guidance on the management and development of Edmonds' parks, recreation and open spaces, and the services provided by the Parks, Recreation and Cultural Services Department. The PROS plan has been regularly updated (1996, 2001, 2008, and 2014) to remain relevant to Edmonds as the city evolves.

Edmonds updates the PROS Plan and Community Cultural Plan on a six-year cycle, in alignment with the requirements of the Washington State Recreation and Conservation Office (RCO) to maintain eligibility for federal and state grant programs. To this end, the PROS plan contains detailed data on numerous species and habitats in the city. The PROS Plan is also an important tool in meeting Washington's Growth Management Act (GMA) requirements and achieving the important citywide goals outlined in the Strategic Action Plan (April 2015). The PROS Plan defines seven goals, of which Goal 4.0 specifically addresses urban forestry.

Goal 4.0 (Natural Resource and Habitat Conservation) seeks to preserve and provide access to natural resources for habitat conservation, recreation, and environmental education. The eight objectives discuss preserving and protecting areas with critical habitats and natural resources. Of special importance to the UFMP is Objective 4.5, which states "Expand the urban forest and increase tree canopy in Edmonds". Under each goal, the PROS Plan recommends projects and initiatives. A recommended project (4.G) under Goal 4 is: "Steward the urban forest using appropriate maintenance of street and park trees, clear removal and replacement policies and providing information about urban forestry to property owners." This demonstrates the value of the urban forest to the people of Edmonds as manifested through existing official documents addressing the urban forest and urban tree canopy.

Purchasing of Forested Properties

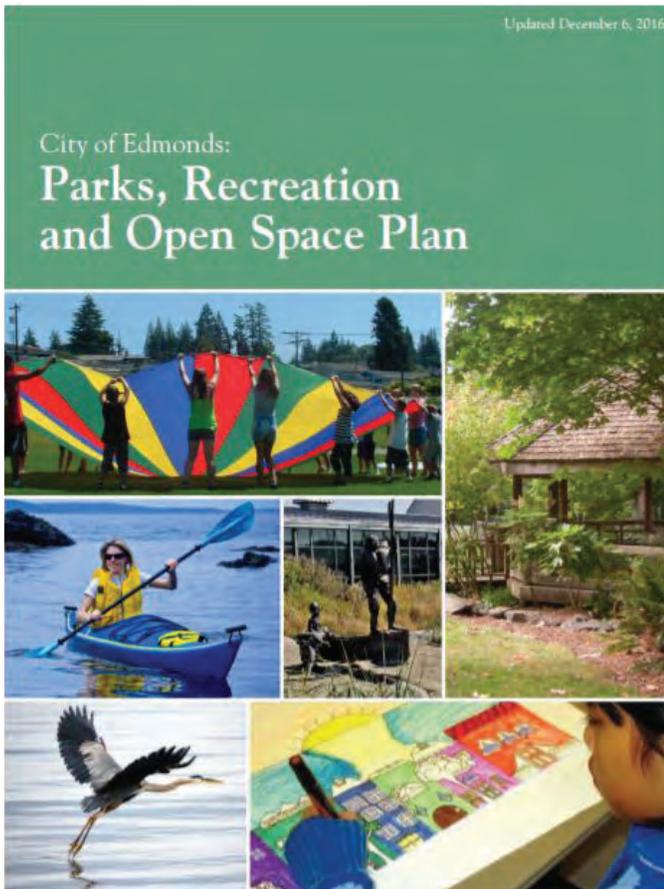
The City's policies with regard to the acquisition of open space (including the potential purchase of forested properties) are contained within the Parks, Recreation and Open Space (PROS) Plan. Land acquisition is included in the capital project budget and the PROS plan notes that "expansions of the parks system will target the gaps identified in this plan and take advantage of opportunities as they emerge. Due to the constrained nature of Edmonds, this approach will require vigilance and proactive pursuit of potential land acquisition opportunities for both parks and open spaces. The City's inclusion of this item in the capital projects list recognizes the importance of swift action when rare property acquisition opportunities become available." A specific policy addressing the purchase of forested properties could be considered for adding to the PROS plan to recognize the potential of maintaining the City's tree cover through the selective purchase of forest properties as opportunities arise.



Forested properties can be valuable acquisitions to maintain City's tree cover.

Summary Considerations for Planning

These documents demonstrate the existing regulations and policies within which care for the urban forest is mandated. It is clear from the scope defined within these documents that the values of the Edmonds community, and Washington State at large, require that urban forest management include strategies to improve the care and conservation of all trees. This includes updating the Street Tree Plan, consideration for improving and preserving trees near waterways, critical areas, habitats, and on private parcels. Equipped with this policy background and mandate to manage the urban forest, it's essential to plan with as much knowledge about the community tree resource as possible.



The PROS plan (2016) has specific goals for the City to steward the urban forest.

Community Tree Resource

Trees belonging to the public, in parks, along rights-of-way and around City facilities are the community tree resource. These trees can be the most actively managed population by the City and provide the best indicators to showcase its vision of a well-managed and sustainable urban forest condition. A well-managed urban forest is healthier and more resilient to pests, disease, and climate fluctuations. As a result, a well-managed urban forest is also more cost-efficient. As urban forests evolve over time, managers revise their strategies for individual tree species based on past performance and emerging prospects. Because trees are relatively long-lived organisms, urban forests, like those in Edmonds, are often a combination of well-adapted, high-performance species mixed with some species that may be less desirable and require more attention.

There is a widely accepted guiding rule in tree resource management that no single species should represent greater than 10% of the total population, and no single genus more than 20% (Clark et al, 1997). Achieving a diverse population of trees can help to minimize detrimental consequences in the event of storms, drought, disease, pests, or other stressors that can severely affect an urban forest and the flow of benefits and costs over time. Catastrophic pathogens, such as Dutch elm disease (*Ophiostoma ulmi*), emerald ash borer (*Agrilus planipennis*) are both examples of unexpected, devastating, and costly pests and pathogens that highlight the importance of diversity and the balanced distribution of species and genera.

Current operations in the City that care for the community trees do not keep suitable records of their tree resource to summarize within this UFMP. Public trees along major arterials or high-profile areas of the City are well-known and routinely cared for by City Staff, but as an overall management tool, the City does not maintain data about these trees as a collective inventory of their green infrastructure assets. Managing for appropriate tree species can help control maintenance costs, reduce damage to infrastructure, and manage the need for pest and disease control measures.

Tree Canopy Cover

The amount and distribution of leaf surface area is the driving force behind the urban forest's ability to produce benefits for the community (Clark et al, 1997). As canopy cover increases, so do the benefits. Tree canopy is the layer of leaves, branches, and stems of trees and other woody plants that cover the ground when viewed from above.

Understanding the location and extent of tree canopy is critical to developing and implementing sound management strategies that will promote the smart growth and sustainability of Edmonds' urban forest and the invaluable benefits it provides.

In addition to understanding the tree canopy as a whole, the quality of the urban tree canopy is often categorized by the amount of fragmentation. Often, the health and diversity of the overall canopy will vastly improve when there is less fragmented canopy, and there are more linkages between multiple patches of forest. These categories of canopy include:

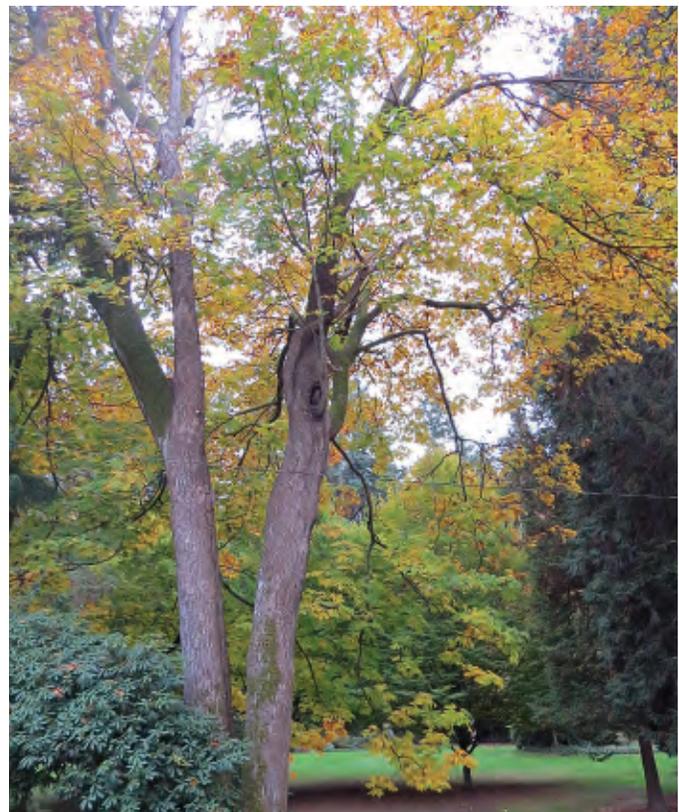
- ◆ **Core Canopy** - Tree canopy that exists within and relatively far from the forest/non-forest boundary (i.e., forested areas surrounded by more forested areas).
- ◆ **Perforated Canopy** - Tree canopy that defines the boundary between core forests and relatively small clearings (perforations) within the forest landscape.
- ◆ **Patch Canopy** - Tree canopy of a small-forested area that is surrounded by non-forested land cover.
- ◆ **Edge Canopy** - Tree canopy that defines the boundary between core forests, and large core forests and large non-forested land cover features, approximately 328 feet. When large enough, edge canopy may appear to be unassociated with core forests.

The City of Edmonds completed a canopy assessment in June 2017 using a heads-up digitizing approach and high resolution (4.8 inch), leaf-on aerial imagery captured on August 7th, 2015. The overall assessment does not distinguish between publicly-owned and privately-owned trees because trees provide benefits

to the community beyond property lines. The results of the study provide a clear picture of the extent and distribution of tree canopy within Edmonds.

The data developed during the assessment becomes an important part of the City's GIS database. It also provides a foundation for developing community goals and urban forest policies. With these data, managers can determine:

- ◆ The location and extent of canopy over time (tracking changes)
- ◆ The location of available planting space (potential planting area)
- ◆ The best strategies to increase canopy in underserved areas
- ◆ The data, combined with existing and emerging urban forestry research and applications, can provide additional guidance in two ways:
 - ◆ Finding a balance between growth and preservation
 - ◆ Identifying and assessing urban forestry opportunities.

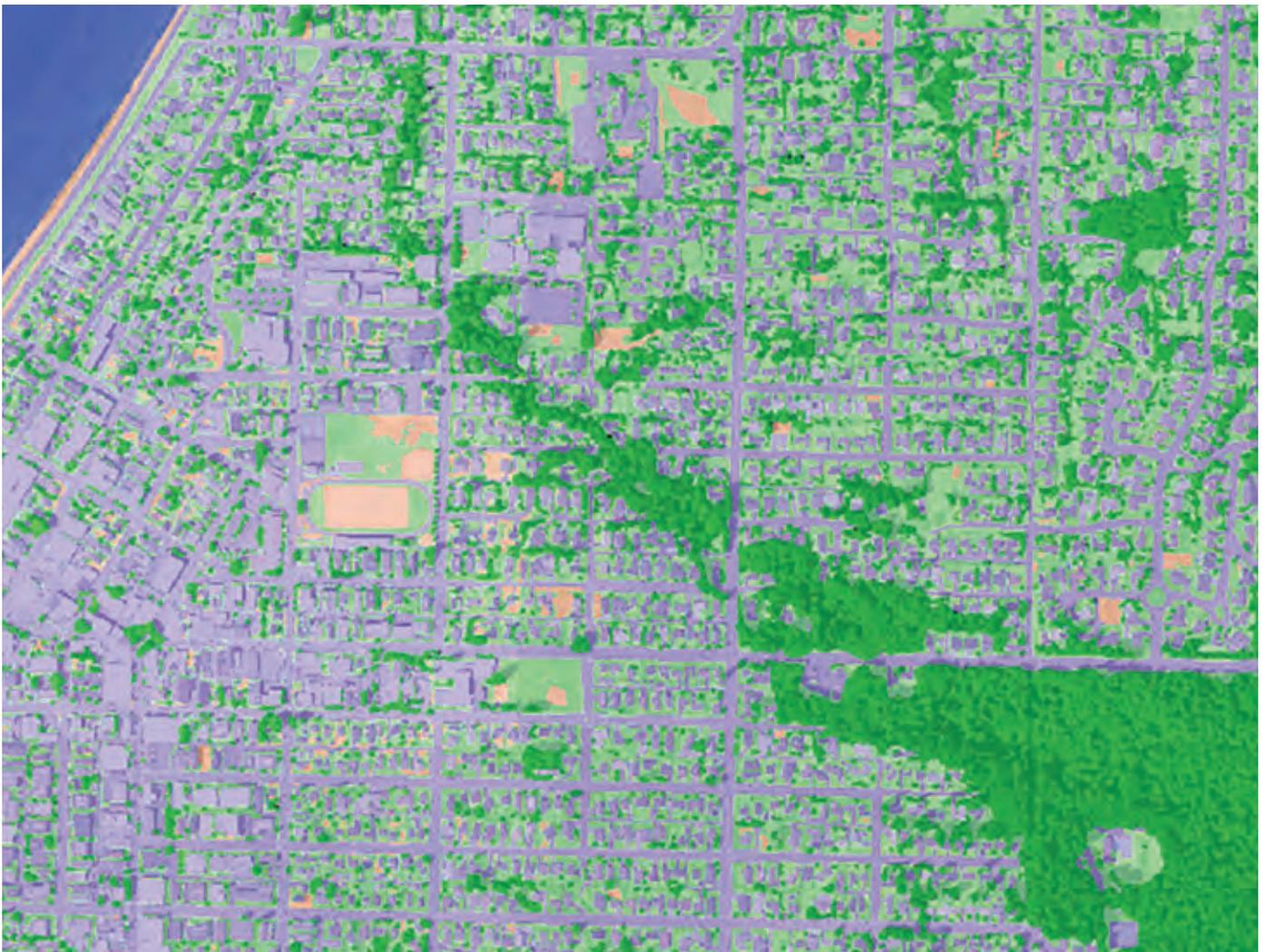


An example of perforated canopy in a park setting.

Canopy Cover Summary

The City of Edmonds encompasses a total area of 9.5 square miles (6,095 acres) with 1,844 acres of tree canopy (Figure 1). This total area includes 8.9 square miles of land and 0.6 square miles of water. By analyzing high-resolution aerial imagery, Davey Resource Group (DRG) determined the following land cover characteristics within the City of Edmonds:

- ◆ 30.3% existing canopy, including trees and woody shrubs (525 acres)
- ◆ 1.6% (99 acres) dry vegetation and bare ground
- ◆ 6.6% (402 acres) open water, where tree canopy is unfeasible
- ◆ 27.4% (1,670 acres) of grass and low-lying vegetation
- ◆ 34.1% impervious surfaces, including roads, parking lots, and structures (2,080 acres)
- ◆ From 2005 to 2015 tree canopy decreased from 32.3% to 30.3%
- ◆ Total potential canopy is 57.4%, considering suitable planting sites (1,651 acres) and the existing canopy (1,844 acres), for a total of 3,495 acres
- ◆ Private residential properties have most of the canopy (83.0%), followed by public (12.9%), and commercial (4.1%) properties.
- ◆ Among parks in Edmonds, Southwest County Park has the most canopy cover (117 acres) followed by Yost Memorial Park (44 acres) and Meadowdale Beach Park (26 acres)



Detail image of canopy cover in portion of the Edmonds “bowl” area.

Land Cover

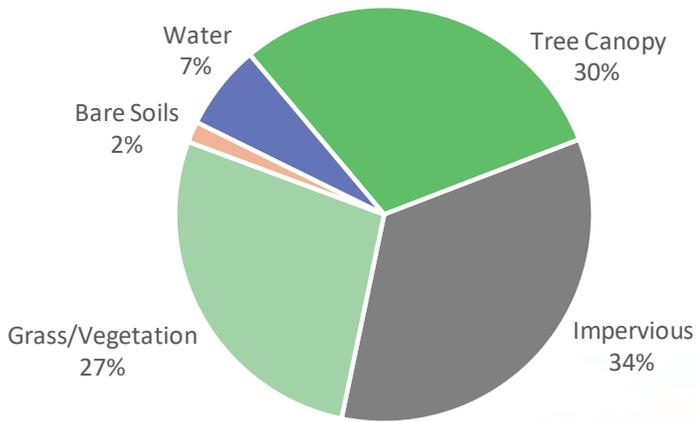


Figure 1: Land Cover

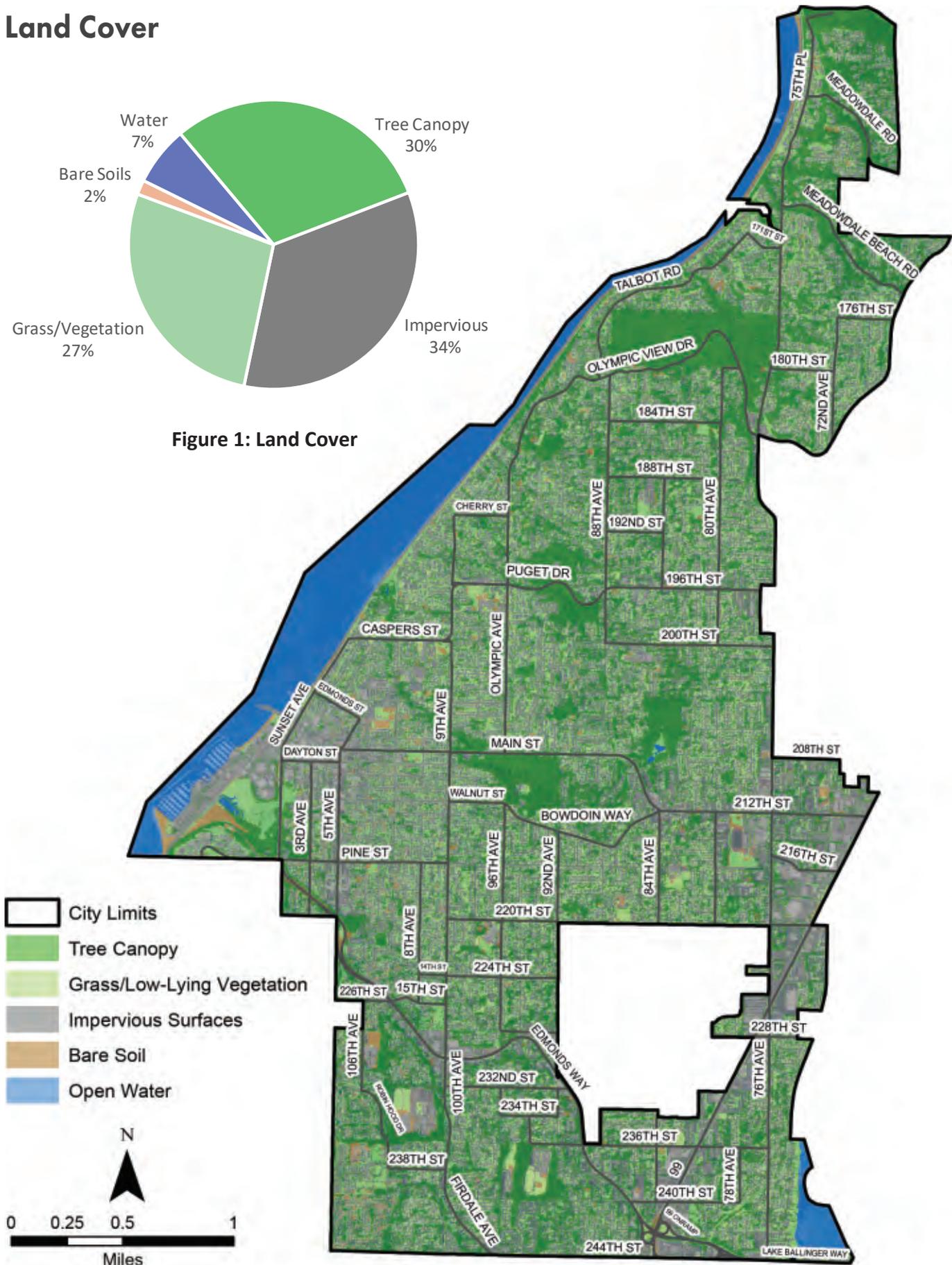


Figure 1: Land Cover

Canopy Fragmentation

As a part of the UTC assessment, Edmonds' existing UTC was analyzed for fragmentation to discover the distribution of canopy (Figure 3). The overall health of the urban ecosystem is highly dependent on the ability of the trees, plants, wildlife, insects, and humans to interact collectively as a whole.

Often, the health and diversity of the overall canopy will vastly improve by creating linkages between multiple patches of forest.

Canopy fragmentation data serves as a valuable management tool due to the importance of Edmonds' critical areas and environmental stewardship. The analysis found that Edmonds' urban forest includes the following:

- ◆ 10.3% (190 acres) of Core Canopy
- ◆ 8.2% (151 acres) of Perforated Canopy
- ◆ 55.5% (1,023 acres) of Patch Canopy
- ◆ 26.0% (480 acres) of Edge Canopy

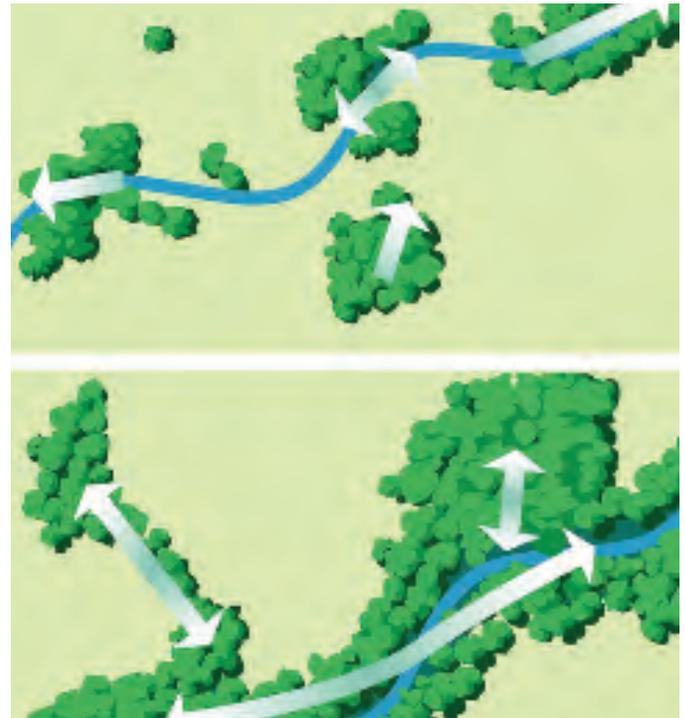
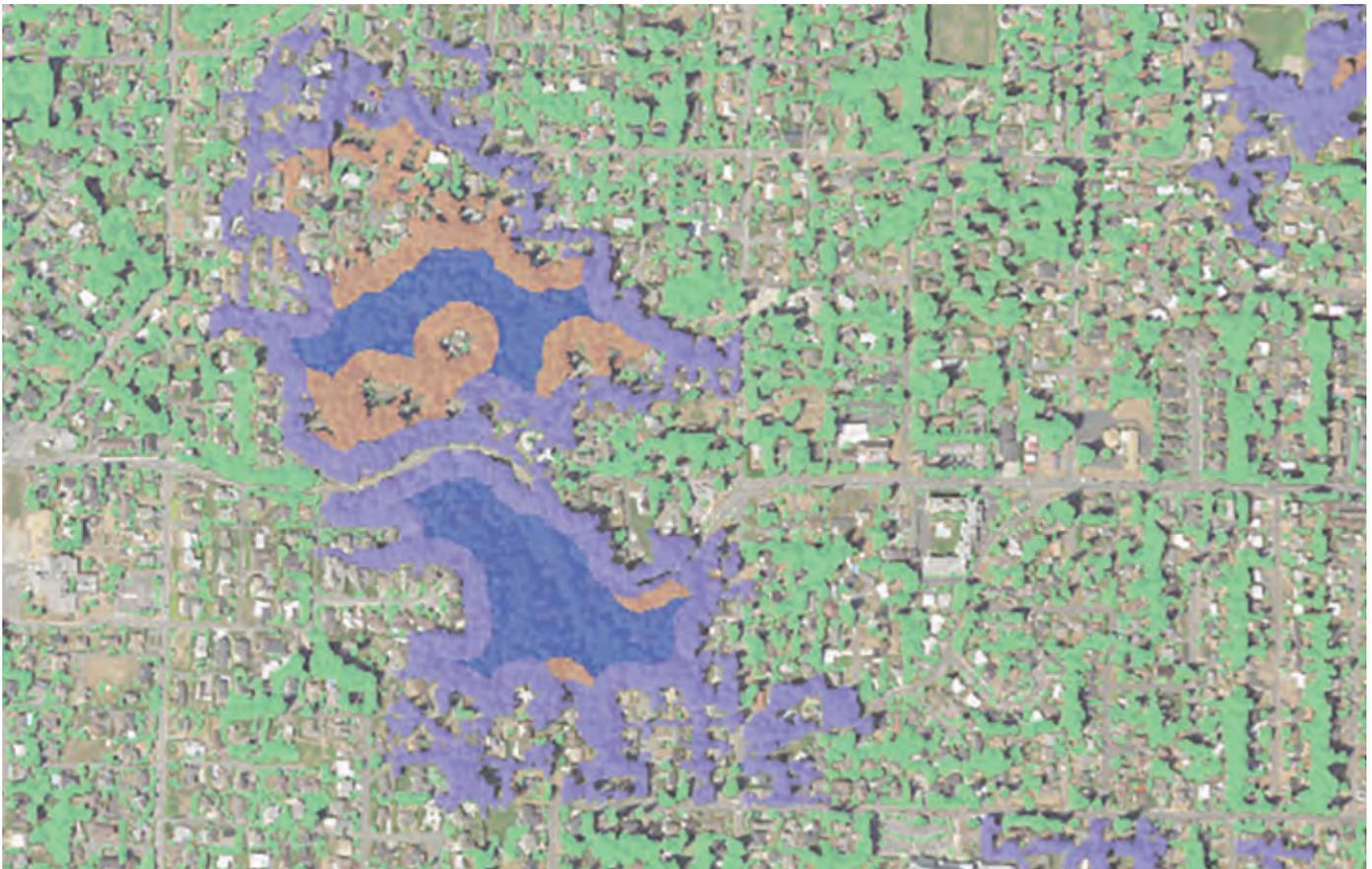


Figure 2: Fragmentation Comparison

Wildlife corridors (bottom) link habitats and lead to improving habitat quality while fragmentation (top) leads to isolation and declining habitat quality.



Detailed image of canopy fragmentation showing canopy categorized as core, perforated, edge and patch forest.

Forest Fragmentation

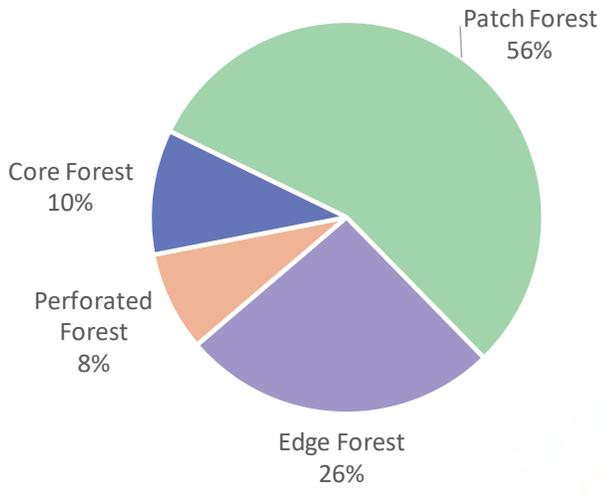


Figure 3: Forest Fragmentation

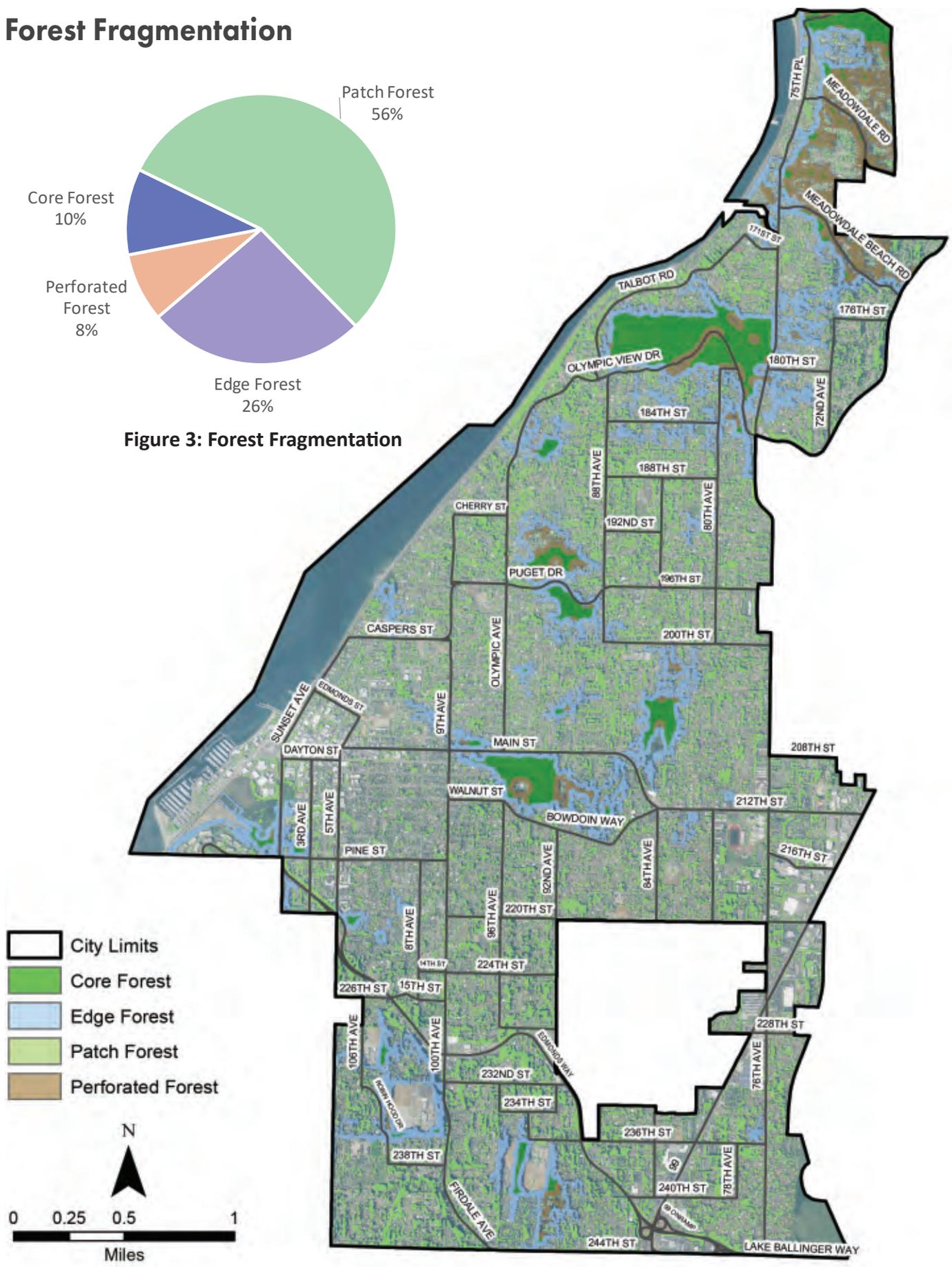


Figure 3: Forest Fragmentation

Park Canopy Cover

The City of Edmonds includes 47 parks covering 344 acres (5.6% of all land area) (Figure 4). Edmonds' parks have an average tree canopy cover of 44.1%. Within those parks, canopy varied depending on site and size. Edmonds' largest park, Southwest County Park (119 acres), has 117 acres of tree canopy and an average canopy cover of 98.7%. The second-largest, Yost Memorial Park (44 acres) has 41 acres of canopy cover, which represents 93.5% of the land area. The high canopy cover of Yost Memorial Park reflects that it is one of the few areas of native vegetation that remain in Edmonds. The park contains mixed stands of douglas fir (*Pseudotsuga menziesii*), sitka spruce (*Picea sitchensis*), western red cedar (*Thuja*

plicata), red alder (*Alnus rugosa*), bigleaf maple (*Acer macrophyllum*) and western hemlock (*Tsuga heterophylla*), which offer a glimpse into the natural history of the area. Centennial Plaza is the smallest park (less than 0.1 acres) with 0.02 acres of canopy (9.9 % canopy cover).

Of the four largest parks (Southwest County, Yost Memorial, Meadowdale Beach, and Pine Ridge), all have high tree canopy potential (greater than 96.7%). However, of these parks, only Pine Ridge Park is not currently near maximum potential canopy.

An acceptable strategy is to focus attention on the parks where there is a much larger gap between current canopy cover and potential canopy cover. The 5 biggest parks are listed in Table 7 of this section .



Canopy cover in Yost Park.

Tree Canopy By Park

Table 2: Tree Canopy of 5 Largest Parks

Park Name	Total Acres	Canopy Acres	% Canopy	% Potential Canopy
Southwest County Park	118.55	117.05	98.73	99.47
Yost Memorial Park	44.14	41.28	93.53	97.45
Meadowdale Beach Park	25.54	25.16	98.50	99.77
Pine Ridge Park	23.78	21.36	89.83	96.66
Edmonds Marsh	23.37	5.66	24.21	24.91

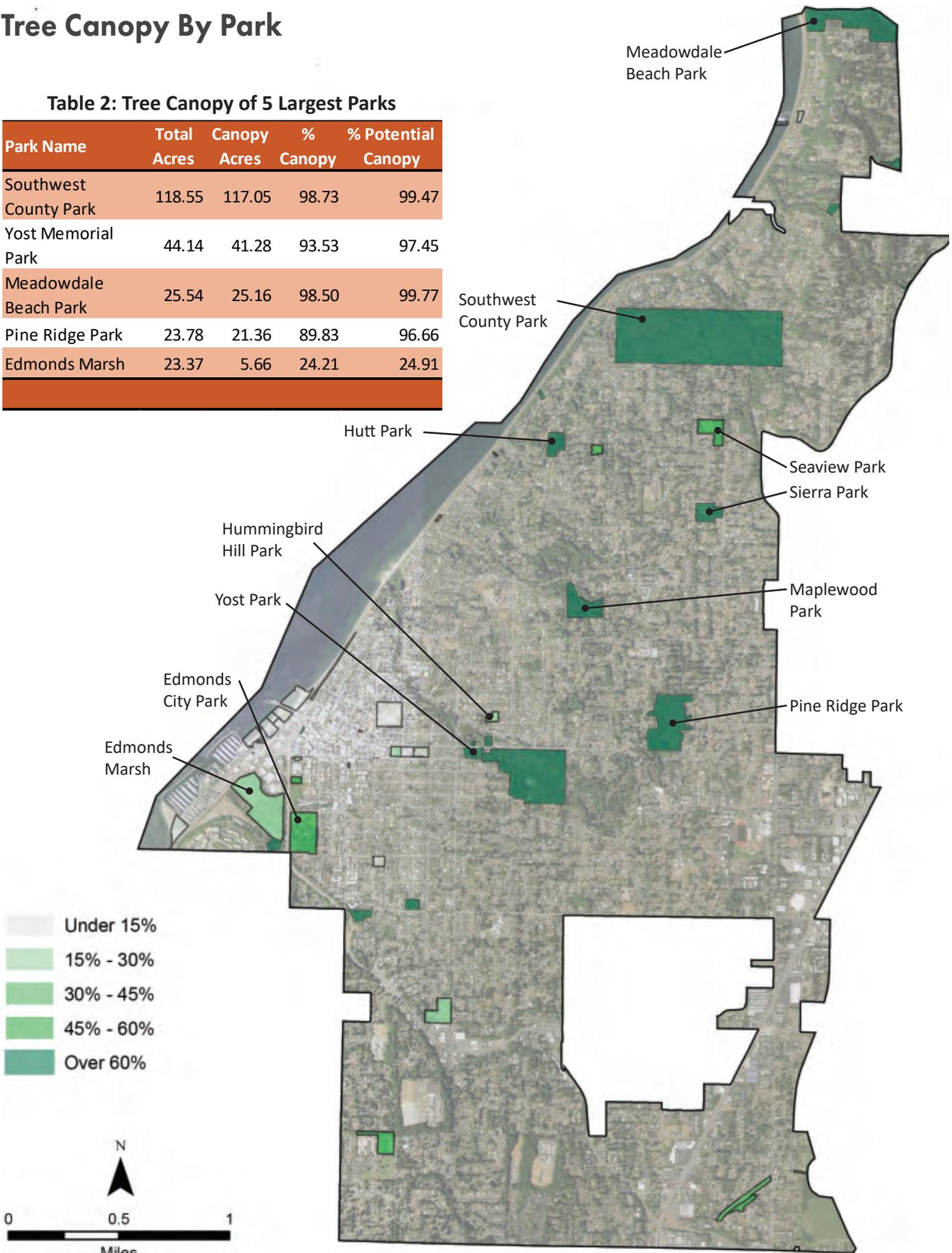


Figure 4: Tree Canopy by Park

Critical Areas

The Washington State Growth Management Act (GMA) mandates that all cities and counties in Washington are required to adopt critical areas regulations. The GMA states that critical areas include the following categories and ecosystems:

- ◆ Wetlands
- ◆ Areas with a critical recharging effect on aquifers used for potable water
- ◆ Fish and wildlife habitat conservation areas
- ◆ Frequently flooded areas; and
- ◆ Geologically hazardous areas

Analysis of critical areas in conjunction with tree canopy can reveal the important relationship that trees provide in the conservation and protection of these environments. Two critical area designations are especially important to urban forest management in Edmonds; fish and wildlife habitat areas and steep slopes (Tables 8 & 9).

Fish and wildlife habitat areas include high priority habitats and species that have been identified for conservation and management.

DRG analyzed the relationship between forest fragmentation and the following priority habitat and species list categories:

- ◆ Biodiversity and Corridor Areas (Breeding and Refuge)
- ◆ Nesting Habitat (great blue heron)
- ◆ Sensitive Aquatic Habitat (Trout/Salmon)
- ◆ Sensitive Habitat (bald eagle)
- ◆ Wetlands Area

Biodiversity areas and corridors, identified by the Washington Department of Fish and Wildlife, are areas of habitat that are relatively important to various species of native fish and wildlife. In Edmonds, most of the biodiversity areas and corridors are in core (58.6%) or edge (21.4%) forest. This is congruent with what theory would suggest, because corridors are continuous areas of habitat.

Nesting habitat for the great blue heron is comprised of several elements; the nesting colony, year-round and seasonal buffers, foraging habitat, and a pre-nesting congregation area. For a given nesting area, habitats are delineated by a buffer created from the outermost perimeter of great blue heron nests.

In addition, there is a larger seasonal buffer to reduce human noise pollution during the breeding months (February - September). Nesting habitat in Edmonds is located primarily in non-forest areas (58%). This value warrants further investigation to determine optimal canopy levels.

Table 3: Acres of Sensitive Area by Fragmentation

Sensitive Area	Total Acres	Patch Forest Acres	Edge Forest Acres	Perforated Forest Acres	Core Forest Acres	Non Forest Acres
Biodiversity Areas And Corridor	251.82	1.35	53.94	27.09	147.67	21.78
Nesting Habitat Area (Great Blue Heron)	2.55	0.03	0.64	0.00	0.40	1.48
Sensitive Aquatic Habitat Area	118.33	10.52	35.32	4.61	16.53	51.36
Sensitive Habitat Area	77.83	14.46	9.28	0.18	2.70	51.21
Wetlands Area	80.65	5.48	13.56	0.51	1.76	59.36

Sensitive aquatic habitat is determined by in-stream physical characteristics (e.g., temperature, water quantity, structure, substrate conditions, etc.). However, sensitive aquatic habitat is also strongly influenced by watershed processes beyond the waterline. This includes canopy cover, riparian condition, large woody debris, impervious surfaces and stormwater discharge, sediment delivery, road location and maintenance, watershed hydrology, and nutrient dynamics (Washington Department of Fish and Wildlife, 2009). In Edmonds, 43.4% of sensitive aquatic habitat is found in non-forest areas. The second largest forest fragmentation category for sensitive aquatic habitat is edge forest (29.9%).

Nesting habitat for bald eagles is typically defined by areas of large, mature trees close to large bodies of water and generally buffered from human activity (Department of Fish and Wildlife, 2016). This nesting behavior is reflected in the 11.9% of nesting area located in edge type forests of Edmonds.

However, nest trees are often among the largest trees in a forest patch (Department of Fish and Wildlife, 2016). This tree preference is reflected in 18.6% of nesting habitat being found in patch forest.

Around wetlands, the Washington Department of Ecology defines vegetated areas adjacent to aquatic resources as buffers that can reduce impacts from adjacent land uses (Washington Department of Ecology, 2011). These buffers also provide some of the terrestrial habitats necessary for wetland-dependent species that require both aquatic and terrestrial habitats. The quality of these buffers could

be described by their canopy fragmentation, where 73.6% of wetlands were classified in non-forest areas, and 16.8% were classified in edge forest, with only 2.2% in the core forest.

The protection of steep slopes against landslides and erosion is a key benefit of vegetation (Washington Department of Ecology, 2011). Trees provide several benefits to the structural integrity of slopes and the prevention of soil erosion:

- ◆ Foliage intercepts rainfall, causing absorptive and evaporative losses that reduce rainfall available for infiltration.
- ◆ Roots extract moisture from the soil which is lost to the atmosphere via transpiration, leading to a lower pore-water pressure.
- ◆ Roots reinforce the soil, increasing soil shear strength.

It is important to understand the significance of steep slopes because of their influences on local wildlife and habitat quality. For example, increased erosion can negatively impact spawning salmon by increasing sediment and particulates in streams and other water bodies. In this way, riparian vegetation that prevents erosion protects critical habitat for wildlife.

Most steep slopes (66.1%) are in areas with tree canopy. This figure presents an excellent baseline, as trees are a vital tool for securing soil and minimizing erosion. Among all areas with slopes over 12 degrees, 66.1% of the area is canopy, 14.3% is impervious, 19.0% is pervious, and 0.6% is bare soil.

Table 4: Percent of Sensitive Area by Fragmentation

Sensitive Area	Total Acres	% Patch Forest	% Edge Forest	% Perforated Forest	% Core Forest	% Non Forest
Biodiversity Areas And Corridor	251.82	0.54	21.42	10.76	58.64	8.65
Nesting Habitat Area (Great Blue Heron)	2.55	1.36	24.96	0.00	15.73	58.01
Sensitive Aquatic Habitat Area	118.33	8.89	29.85	3.89	13.97	43.40
Sensitive Habitat Area	77.83	18.58	11.92	0.23	3.47	65.80
Wetlands Area	80.65	6.79	16.81	0.63	2.18	73.60

Considerations for Planting Opportunities

Edmonds' existing tree canopy covers 30.3% of the City, and decision-makers can set a target canopy cover goal to pursue. Regardless of the canopy coverage goals established by the City, the following are planting opportunities that may be pursued in order to maintain and potentially increase the existing canopy coverage:

- ◆ Incentivize tree planting on private property.
 - ◆ Increase canopy with tree planting in areas of patch and fragmented canopy to reduce forest fragmentation and improve wildlife habitat and corridors.
 - ◆ Conducting outreach to the community as an important tool for engaging public interest and support.
 - ◆ Define goals and identify actions that will support these goal(s).
 - ◆ Develop clear policies and standards to meet the 30% native vegetation requirement codified by ECDC 23.90.040.C (Retention of Vegetation on Subdividable, Undeveloped Parcels) in undeveloped (or redeveloped) subdividable lands zoned as RS-12 or RS-20, that contain a stream or stream buffer, or a wetland or wetland buffer.
- ◆ Establish and continually update a public tree inventory.
 - ◆ Integrate maintenance cycles with the public tree inventory database.
 - ◆ Study genus/species compositions to ensure best-management diversity recommendations are being followed.

Currently, forestry operations in the City do not document the community tree resource according to industry best management practices. A public tree inventory is important because it provides information on species diversity, forest age, and relative performance of different tree species. An inventory that is maintained with continued updates also facilitates planning and prioritization of tree maintenance duties. Based on this assessment, urban forest managers have the following opportunities:



Park trees in Edmonds.

Existing Urban Forest Practices

There are three departments within the City of Edmonds that have influence over the management of the urban forest; Development Services (DS), Public Works and Utilities (PW), and Parks, Recreation and Cultural Services (PRC). Although they share and communicate any issues related to tree care and urban forest management, decision-making authority is determined based on the location of the trees. There is no specific staff person or leadership team with overarching responsibilities for guiding the management of the entire urban forest in Edmonds.

Tree Maintenance

Tree maintenance is important at all stages of tree life, but is especially critical for young trees as they benefit from early structural pruning and training. Minor corrections, such as removing double leaders or crowded branches, can be conducted at ground

level with minimal cost when a tree is young. However, if left unattended, defects can evolve into very expensive structural issues and increase the risk of failure as trees mature, at which point it may be impossible to correct the issue without causing greater harm.

Over-mature trees require more frequent inspection and removal of dead or dying limbs to reduce the risk of unexpected failure. By establishing a budget for maintenance, urban forest managers can plan the necessary tree care at the appropriate life stage when it is most beneficial and cost-effective.

At the City, tree maintenance is addressed most frequently with reactive tactics. As issues related to trees are identified by City Staff, work is prioritized based on existing and available budgets. Planning associated with tree management on public properties is minimal with priority attention given to ensuring the successful establishment of new tree plantings and responding to hazardous tree conditions. Currently, the Parks Department performs certain routine tree inspections and provides limited proactive maintenance activities (typically associated with the care of trees after planting to encourage successful establishment). Within City rights-of-way, tree issues are uncovered as part of routine safety inspections of sidewalks and streets, where trees are only identified when infrastructure is damaged by roots, or when tree hazards are observed by public works staff. Similarly, in City parks, trees will be prioritized for maintenance when safety concerns are observed through routine park maintenance activities.

Table 5: Decision Matrix for Urban Forest Management in Edmonds

Tree Locations	City Department	Actions
Trees on Private Property	Development Services	Permits for Tree Removal
		Permits for Tree Pruning
		Permits for Tree Planting
Trees in Parks	Parks, Recreation and Cultural Services	Hazardous Tree Inspections
		Tree Pruning
		Tree Removal
		Tree Planting
Trees within City Rights-of-Way	Public Works and Utilities (with Parks' assistance in downtown)	Hazardous Tree Inspections
		Tree Pruning
		Tree Removal
		Tree Planting



Parks trees require routine inspections and maintenance for public safety.

Tree Maintenance Budgets

The majority of tree maintenance costs are accounted for as general line items through the parks department budget. As part of the annual Tree City USA application, departments will summarize their expenses. In 2017, the Edmonds' urban forestry expenditures were \$7.74 per capita, which is more than the minimum \$2 per capita for Tree City USA designation and more than the \$7.50 national average reported by the National Arbor Day Foundation. Documented Edmonds' expenditures have been in the range of \$3 per capita in prior years.

Using the recent Urban Tree Canopy assessment as a benchmark estimate, Edmonds' urban forest produces about \$1,567,000 in environmental benefits and is maintained with a 2017 budget of approximately \$319,542.

Service Levels

To assess current urban forest workload and staffing levels, an estimated 11 city staff members were identified as persons who work with tree issues on at least an intermittent basis every week. From those who are involved with forestry issues or operations on a more regular time basis, 3 individuals were identified with a quantifiable amount of time each week working with trees or tree-related issues.

Table 6: 2017 City Urban Forestry Expenditures

Urban Forestry Items	Expenditure
Tree Planting and Initial Care	\$4,848
Tree Maintenance	\$79,779
Tree Removals	\$37,565
Management	\$62,771
Volunteer Activities	\$134,579
TOTAL	\$319,542
Budget Per Capita	\$7.74
UTC Estimate of Benefits	\$1,567,000

Overall, there is evidence of good interdepartmental cooperation. These general conclusions about the shared responsibilities among staff resources at the City are very important when the City evaluates future staffing needs for urban forestry. Currently, no one single position is designated as a Full-Time Employee (FTE) dedicated to urban forestry.

Table 7: Current Urban Forest Workload and Staffing Levels

City Services	Common Urban Forestry Related Activities	Estimated Hours per Week*
Permit Intake and Review	Development plan review for compliance with tree protection codes	2
	Public inquiries (online, phone, and counter)	
Code Enforcement & Complaint Investigation	Investigating and resolving tree complaints	2
	Investigating and resolving infrastructure damage complaints	
Parks & Public Tree Maintenance	Tree planting and establishment	40-60
	Structural pruning on smaller trees	
	Inspection and identification of hazardous trees	
Contract Management	Managing contract tree crews	1
Emergency Response	Community Service Requests	0
	Response Management	
Comprehensive (Long-range) Planning	Urban Forest Management Plan stewardship	<1
	Federal, state grant procurement	
	Tree City USA applications	
Community Education Action and Outreach	Volunteer events	1
	Coordinated tree planting	
	Neighborhood association support	
	Website content and public education	
Tree Board Meetings	Addressing public issues related to trees	1

Staff Training

The science of arboriculture, and the management of urban forests are domains that are increasingly recognized as special areas of expertise. Credentials are increasingly requested by many municipalities as evidence of competency. Bachelor's degrees in Forestry, Urban Forestry, Environmental Sciences, and Horticulture are often the base requirements for leadership roles in urban forest management. Professional credentials can also demonstrate competency, with the most widely accepted credentials in Washington State coming from the International Society of Arboriculture (ISA).

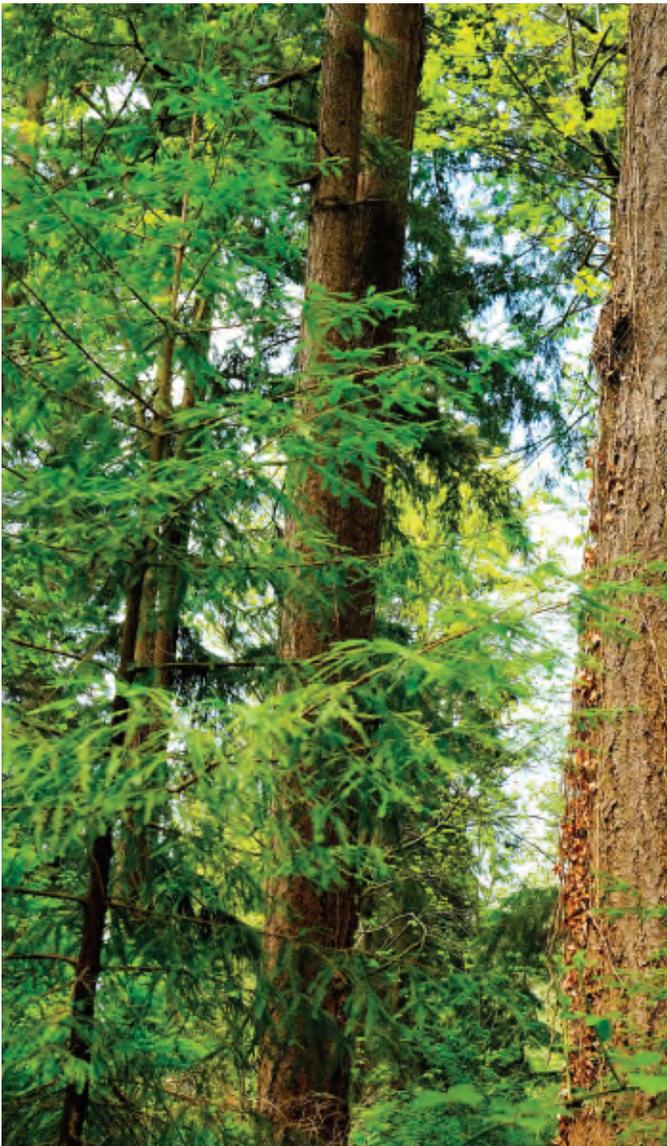


Image of a tree with a co-dominant branch defect (middle stem). The city has access to trained staff qualified to provide expertise for identification of these tree safety risks.

The City provides on-going training to any staff handling tree maintenance equipment, including chainsaw, chipper, and lift-truck safety. Stakeholder interviews revealed that landscape maintenance workers in Edmonds receive no formal training on structural pruning or tree care. The following is a summary description of staff resources and training within individual City departments:

- ◆ In Development Services, staff are trained to interpret ordinances related to trees, but rely on reports by ISA certified arborists when necessary to render decisions. Staff within development services have backgrounds in Urban Planning and one (1) person with has an advanced degree in Forestry. There are no ISA certified arborists within development services staff.
- ◆ The Department of Public Works and Utilities has a director with advanced degrees in Biology and Aquatic Biology. In addition, the department has engineers on staff who can successfully consider relevant tree issues in terms of asset and infrastructure management, but tree care expertise is not required for any staff in this department. Tree related issues are resolved based on previous experiences and through hired consultations with ISA certified arborists when necessary.
- ◆ The Parks, Recreation and Cultural Services Department has two staff members who provide expertise on urban forestry topics. The first is an ISA certified arborist who is referenced by all City departments and citizen groups for opinions on the best practices associated with tree care. There is also a staff member who has an advanced degree in Forest Ecology who works with citizen groups on tree planting and stewardship projects.

Tree Acquisition and Quality Control

The City's approach to acquiring trees is not guided by any formal standard practices that ensure the quality of trees during acquisition. As trees are planted, there is no planned follow-up or warranties managed with new trees.

Tree City USA

The Arbor Day Foundation is a 501c3 nonprofit conservation and education organization founded in 1972 in Nebraska, United States, by John Rosenow. It is the largest nonprofit membership organization dedicated to tree planting. The Foundation offers Tree City USA certification. Cities can earn Tree City USA certification by meeting four (4) core standards of quality urban forestry management: maintaining a tree board or department, having a community tree ordinance, spending at least \$2 per capita on urban forestry, and celebrating Arbor Day.

Currently, the City of Edmonds dedicates \$319,542.20 towards total community forestry expenditure, and with a population of roughly 41,260, has a per capita investment of \$7.74. The Arbor Day Foundation has recognized this per capita investment, as well as recognizing the City of Edmonds' community tree ordinance and observance of Arbor Day.

Native Trees

Trees native to the Pacific Northwest are well-suited to our climate. They also tend to provide good habit for local wildlife. Many native trees, both coniferous and broadleaved, are part of the City's urban forest. They are currently encouraged in public and private plantings but not necessarily required, except in designated critical areas for wildlife habitat and/or wetlands. More information about native trees and their value is likely to be part of an upcoming round of community education in Edmonds.



Cone from a douglas-fir. (Photo by Peter Stevens CC BY)

An example of some native trees for the Pacific Northwest include the following¹:

Broadleaved Trees

- ◆ Big-Leaf Maple
- ◆ Black Cottonwood
- ◆ Oregon Ash
- ◆ Pacific Willow
- ◆ Red Alder
- ◆ Vine Maple

Conifers

- ◆ Douglas Fir
- ◆ Grand Fir
- ◆ Noble Fir
- ◆ Shore Pine
- ◆ Sitka Spruce
- ◆ Western Hemlock
- ◆ Western Larch
- ◆ Western Red Cedar
- ◆ Western White Pine

1 A more comprehensive list can be found in Appendix F



Leaves of a big leaf maple.

Major and Emerging Diseases and Pests

Another important aspect to tree maintenance is staying alert to managing emerging diseases and pests that can be costly to control with individual trees. For sustainability of the entire urban forest, addressing both potential and actual problems is critical. Further information on the pests and diseases that threaten the forest ecosystems in Washington can be found at:

- ◆ USDA's Forest Service website
- ◆ Pacific Northwest Pest Management Handbook
- ◆ Collier Arbor Care website – Top 20 Tree and Shrub Problems in the PNW
- ◆ Washington State Department of Natural Resources, Forest Health

Among the many diseases and pests that affect trees, City Staff and residents should remain alert to the following:

Diseases

- ◆ **Laminated Root Rot (LRR)** is the most important disease affecting Douglas-fir caused by the fungal pathogen *Coniferiporia sulphurascens*. In young stands regenerated following harvesting, dead or missing trees will be associated with large stumps. These decayed trees will serve as an inoculum source for neighboring trees to become infected, as their roots grow in contact with infected stumps/roots. Fungal growth invades the heartwood and sapwood, resulting in reduced uptake of water and nutrients, with weakened support of the upper portion of the tree. Infected trees are susceptible to windthrow, and there may be trees in a group in various stages of decay and dying. Live trees with LRR display symptoms of shortened terminal growth, sparse foliage, smaller needles, chlorosis (yellowing) and stress cone crops. Trees can fall over before developing obvious symptoms, or die standing. The disease is very difficult to manage in an urban setting (USFS, 2017).
- ◆ **Armillaria Root Rot (ARR)** affects the roots of numerous tree species, notably Douglas-fir and other Firs and Pines, as well as many hardwood species. *Armillaria ostoyae* is the primary fungal pathogen in the Pacific Northwest, although *A. mellea* can also be involved in tree decline and mortality. ARR disease is usually associated with stress conditions, particularly drought. The fungus survives for many years in infected stumps, roots and organic matter in the soil. Honey-colored mushrooms are typically produced at the base of infected trees in the fall. Typical symptoms include chlorotic foliage, distress cone crops, significant resin flow, decline and death. The fungus typically produces black shoestring-like structures called rhizomorphs on the bark at the base of the tree or in the soil (OSU, 2018).
- ◆ **Verticillium Wilt (VW)** is a serious disease of many tree hosts, but is especially problematic on Maple species. *Verticillium dahliae* is a soil-borne fungus that persists in the soil for decades. The fungus infects roots and grows into the xylem where it colonizes the vascular elements. Its presence (mycelia and spores) plus defense compounds produced by the host clogs the xylem elements, preventing the flow of water and nutrients in the tree. Wilting results, and is exacerbated during periods of drought. Leaves on one side of the tree affected by VW or on one branch suddenly wilt and die. Subsequently, other branches will wilt as the disease progresses. Excised branches will have vascular discoloration which is diagnostic of the disease. Infected trees may survive for years or die within weeks. Once infected, a tree will not likely recover and will require removal. Tree injections of fungicides are not usually effective (OSU, 2018).
- ◆ **Swiss Needle Cast (SNC)** is the name of the foliage disease of Douglas-fir caused by the fungal pathogen *Phaeocryptopus gaeumannii*. SNC is known as a "cast" disease because it causes the premature shedding of needles (or casting) from the tree, resulting in sparse tree crowns and reduced growth. Although it is

called “Swiss” needle cast, the fungus is native to the Western United States throughout the range of Douglas-fir. SNC disease symptoms include chlorotic needles and decreased needle retention, resulting in sparse crowns and reduced diameter and height growth (OSU, 2017). Mortality from the disease is considered rare, but tree care and maintenance of this disease can be expensive and necessary in an urban setting.

- ◆ **Leaf Blight (LB)** is a serious disease affecting Pacific Madrone caused by the fungal pathogen *Phacidiopycnis washingtonensis*. At least a dozen fungi can cause leaf spots and dead areas on leaves; this is probably the most significant cause of damage to the host. Older, lower leaves are infected by spores disseminated by wind or rain during wet weather in the fall. Trees located in creek bottoms, valleys and the forest understory are most susceptible to LB. If wet weather persists, infection may be severe and result in significant defoliation. Under these conditions, the fungus can also infect green shoots. Pruning dead branches to provide better air circulation and raking and destroying fallen leaves will help to reduce fungal inoculum and subsequent infection (OSU, 2008).
- ◆ **Anthracnose (A)** affects a wide variety of shade trees, especially Maple, Oak and Sycamore. The closely related fungi *Discula* (Maple, Sycamore) and *Apiognomonia* (Oak) are the causal agents of the disease. The disease is favored by warm, wet springs and several rounds of infection can occur, each defoliating the tree, resulting in a tree much more prone to subsequent drought stress. Lesions on the leaves are typically associated and limited by the veins, resulting in discrete necrotic areas. In particularly susceptible trees under ideal environmental conditions, twig cankers can also develop. It is important to rake up and destroy fallen leaves, prune out twig cankers and water trees during dry periods (OSU, 2018).
- ◆ **Sudden Oak Death** was discovered in California in the mid 1990’s, has spread into southern Oregon (2001) and was found

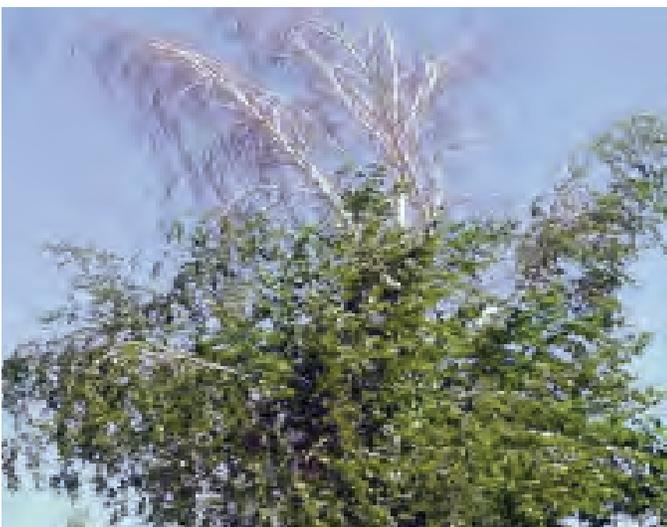
(and has subsequently been contained or eliminated) in a small area in Kitsap County two years ago. The causal fungus *Phytophthora ramorum* primarily infects species of Oaks, but can also infect a wide range of other hosts, including Camellia, Rhododendron, Blueberry and other landscape plants. The fungus is waterborne and can be spread in streams or other forms of moving water. Symptoms on Oaks include bleeding cankers on the trunk, dieback of the foliage and mortality. Symptoms on other plants can vary from leafspots to leaf blight to twig dieback, but do not usually result in death of the host. Quarantines are in place to prevent further spread of SOD, largely from nurseries (COMTF, 2019).

Insects

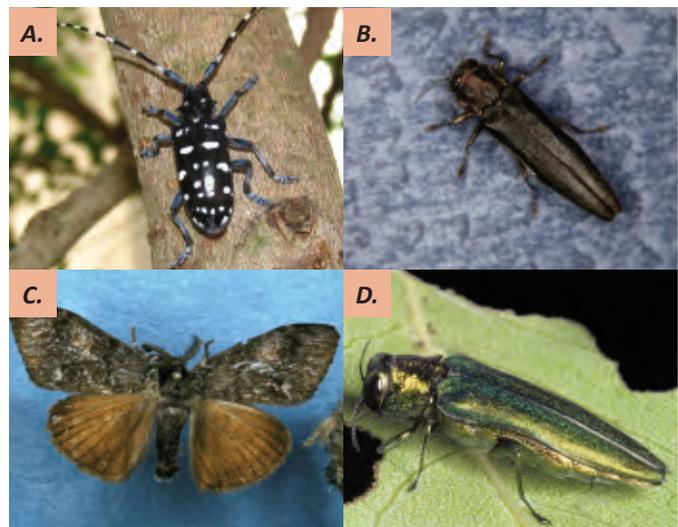
- ◆ **Asian Long-Horned Beetle (ALB)**, is an invasive insect that feeds on a wide variety of trees in the United States, eventually killing them. The beetle is native to China and the Korean Peninsula. Signs of ALB start to show about three to four (3–4) years after infestation, with tree death occurring in ten to fifteen (10–15) years depending on the tree’s overall health and site conditions. Infested trees do not recover, nor do they regenerate. There are a broad number of tree species this insect will feed in and most common deciduous trees in Edmonds are at risk.
- ◆ **Tent Caterpillar (TC)** is a serious defoliator of broadleaf trees and shrubs in most areas of the western U.S. Tree hosts include Red Alder, Cottonwood, Willow, Ash, Pacific Madrone, and many fruit trees. White silky tents appear soon after bud break. As the larvae grow in size, the tents also increase in size. Individual branches near these tents are totally defoliated. Entire trees may be defoliated by TC. After feeding has been concluded, the larvae will turn into moths within a cocoon. Eggs are laid on the twigs and branches where they overwinter in protected masses. Individual tents can be physically removed, preferably in the early morning hours when the larvae are contained in the tent (USFS, 2008).

- ◆ **Cooley Spruce Gall Adelgid (CSGA)** is a serious pest of Spruce and Douglas-fir trees. It swarms in the spring when the new needles emerge. Crawler nymphs form galls at the branch tips. These galls are initially green, becoming red and eventually dry out. These affected branches cease their growth, and if enough branches are affected, the tree may be killed. White cottony specks will also cover the entire branch. Trees with fewer galls may be unsightly and foliage can be discolored and distorted. Most outbreaks of CSGA do not warrant control measures (NRC, 2015).
- ◆ **Pine Bark Adelgid (PBA)** feeds on the bark of pines and spruce. They form cottony or woolly masses on the twigs, branches or trunk. Heavy infestations will turn the entire area white. Small trees will be severely affected, resulting in chlorotic needles and stunting or premature death. Small egg clusters are laid in the early spring by the adults. Crawlers move to other areas of the tree or to other trees nearby. PBA can be removed by hand, preferably done when the infestation has just begun (OSU, 2018).
- ◆ **Bronze Birch Borer (BBB)** is an emerging pest in western Washington that has migrated from eastern Washington in recent years. Periods of extended summer drought have weakened birch trees and made them more susceptible to this pest which can severely damage or kill the trees. Chlorotic leaves and sparse upper branches are the first symptoms that homeowners usually notice from BBB attack. Close examination will reveal lumpy bark and half-moon-shaped beetle exit holes (WSU, 2008).

- ◆ **Douglas-fir Tussock Moth (DFTM)** is a moth found in Western North America. Its population periodically erupts in cyclical outbreaks (Wickman et al., 1998). Outbreaks of the Douglas-fir tussock moth appear to develop almost explosively, and then usually subside abruptly after a year or two. The caterpillars feed on the needles of Douglas fir, true fir, and spruce in summer. Forestry management to prevent tree damage from tussock moth outbreaks include four activities: early detection, evaluation, suppression, and prevention. These four activities must be well integrated to ensure adequate protection from the pest.
- ◆ **Emerald Ash Borer (EAB)** has killed hundreds of millions of ash trees in North America. The EAB is a destructive, non-native, wood-boring pest that exclusively kills both stressed and healthy ash trees 2-3 years after infestation (NASPF, 2005). EAB is a jewel beetle native to Northwestern Asia. EAB larvae feed on the vascular tissue of trees and populations grow exponentially. This pest has been identified as moving slowly into the Western U.S. and is considered a catastrophic pest for ash tree populations.
- ◆ **Other Diseases and Pests.** Information on specific diseases and insects that damage trees in our region have been identified by the Washington State Department of Natural Resources. Current online information is at: www.dnr.wa.gov/ForestHealth.



Symptoms of BBB Include Dying Top



A. Asian Long-Horned Beetle B. Bronze Birch Borer
C. Douglas-fir Tussock Moth D. Emerald Ash Borer

Regulatory Framework

The City of Edmonds provides regulations for several components relevant to urban forestry in the Edmonds City Code and Community Development Code. These regulations are designed to:

- ◆ Authorize the power of government to manage the urban forest
- ◆ Define street trees and, as appropriate, municipal responsibilities for their care
- ◆ Enumerate tree related fees and penalties
- ◆ Create regulations associated with tree clearing on private land
- ◆ Require tree protection during construction
- ◆ Classify critical areas or buffers

These different regulations cover tree related topics on a range of land types, and all influence the direction and management of urban forestry programs. The following summaries outline the chapters and sections of city code.

Authorization of Power

The legitimacy of Edmonds' city government to manage forestry domains and the definition of those domains fall under the authorization of power:

- ◆ **Chapter 18.45** provides for the City's Planning Division Manager to direct and enforce City codes related to land clearing and tree cutting on public land and private property. It exempts Public Works, Parks and Fire Departments in specific situations where safety is an issue.
- ◆ **Chapter 18.85.030** provides for the Director of Public Works to enforce and inspect work done to maintain City street trees in healthy condition, or remove trees from the public right-of-way as necessary.
- ◆ **Chapter 10.95.030** provides for a Tree Board, made up of Edmonds City residents in order

to encourage civic engagement for active stewardship of the urban forest. The powers and duties of the Tree Board are to advise and make recommendations to the Mayor and City Council as appropriate on tree related matters.

Street and Public Trees

The City of Edmonds is ultimately responsible for the planting and maintenance of public trees. These trees are on public property parcels or select locations in the rights-of-way. Other planting strips are the responsibility of adjacent land owners:

- ◆ **Chapter 9.20.060**, for sidewalk construction and maintenance, declares that the responsibility is with the abutting property owner for maintaining or repairing adjacent planting strips. This includes all tree care.
- ◆ **Chapter 18.85** provides further clarity on the regulation of street trees and trees on public property. All street trees are managed by the Public Works Department and require permits for all persons who wish to plant, remove, prune or otherwise change a tree on a street, right-of-way, parking strip, planting strip, or other public place. This code chapter also includes language defining abuse and damage to street trees.

Tree Related Fees and Penalties

To facilitate compliance and remediation for disregarding public tree codes, the City provides penalties as a punitive deterrent:

- ◆ **Chapter 18.45.070** defines the punitive discretion for trees that are damaged from disregard of City code of up to \$1,000 for trees less than 3" and \$3,000 for trees larger than 3". Fines can be tripled related to trees in critical areas, buffers, or areas dedicated to public use, including public right-of-way.

Private Land Clearing

Land clearing on private property is often a critical challenge to effectively reaching urban forestry canopy goals. Individual private property rights and objectives of private landowners can frequently be at odds with the community aspirations for the urban forest.

- ◆ **Chapter 18.45** contains regulations associated with trees on private properties for land clearing and tree cutting. This code provides for a variety of purposes that would preserve the physical and aesthetic character of the City and prevent indiscriminate removal or destruction of trees. This chapter also implements policies of the State Environmental Policy Act. It provides special exemptions in 18.45.030 for improved single-family lots, partially improved single-family lots or certain unimproved lots, allowing private property owners in these categories to maintain or remove trees at their discretion without permits. Additionally, these land clearing codes provide exemptions for utility vegetation maintenance or tree work by City departments when situations involving danger to life or property are found.

Tree Protection During Construction

As new construction occurs throughout the Pacific Northwest, many projects can damage or kill trees. Regulations to protect trees during construction are a mechanism to control canopy loss as sites are developed.

- ◆ **Chapter 18.45** requires that trees that are being retained during a land development project are also protected. The codes describe the protected area on a site as being within the drip-line of the tree and attempts to limit damage to trees by controlling the impact to trees within this area.

Critical Areas and Buffers

Washington State has special laws to protect critical areas, which are defined for certain types of valuable and environmentally significant areas.

- ◆ **Chapter 23.40** establishes extra protections and management requirements for trees located near wetlands, streams, or steep slopes. Tree pruning or removal is restricted or prohibited without a report from an ISA certified arborist, ASCA registered consultant, or a registered landscape architect that documents the hazard and provides a replanting schedule for replacement trees.

Challenges

One of the more frequent complaints related to tree removal in the city is when properties are developed or subdivided. While a goal of the City's code is that "trees should be retained to the maximum extent feasible," other applicable development regulations help determine what is feasible. There are regulations that prescribe how wide driveways and roads must be, how far the development must be from the edges of a property, location of utilities (water, sewer, gas, and power) that must be installed underground, and stormwater requirements that require the installation of stormwater facilities. As a result, when one of the larger properties in the City that contains a grove of trees is developed to meet the many regulations and needs, sometimes only a few trees are located outside of the development footprint. Trees that were once stable in their grove, are susceptible to wind throw and become hazardous when isolated on their own. Where a tree was once the right tree in the right location (one tree protected in a larger grove), it may no longer be the right tree in the right location (an exposed tree on the perimeter of a lot) following development.

As the City considers updates to the development code, updates should provide more ways to encourage greater tree retention when properties are developed. An example may be to provide options for reduced interior setbacks that would allow houses to be clustered and thus provide an opportunity to avoid trees where otherwise development would be placed under the regulations in effect as of early 2019. Another example of an update to consider may include evaluating the required width of access easements.

Table 8: Summary of Current City of Edmonds Tree Cutting Regulations

	Tree Removal Scenario	Review? Permits?	Notes
Private Property	Developed single-family property, no critical areas present	No review, no permit required	No notification required, but suggested to avoid unnecessary Code Enforcement Response
	Developed single-family property, critical areas present	Yes, review and permit required if tree in critical area or critical area buffer	Tree cutting permit Type II decision (staff decision with notice)
	Removal of hazard trees in critical area	Review required, but no permit	Documentation of hazard tree by certified arborist, or clear documentation of dead tree. Replanting required at 2:1 ratio
	Prune or trim trees	No review, no permit	Topping considered same as tree cutting or removal unless retopping of a previously approved topping
	Multi-family property and Planned Residential Developments with approved landscape plan	Yes, review and permit required	Design review against landscaping requirements. Type I decision (staff decision, no notice)
	Commercial Property	Yes, review and permit required	Design review against landscaping requirements. Type I decision (staff decision no notice)
	Tree removal with development	Yes, review included with land use or development permit.	Tree protection measures required for trees to remain
Public Property	Trees in right-of-way	Yes, review and permit required	A right-of-way construction permit is required for any party other than the City of Edmonds to perform any removal or trimming of trees located within the City rights-of-way
	Street trees	Yes, review and permit required	Design review against landscaping requirements. Type I decision (staff decision, no notice)
	Prune or removal of park trees	No permit	The City's Parks Department maintains trees within the City's parks. While no permit is required, tree removal and replacement must be consistent with the City's critical area regulations

Regional Urban Forestry Resources

Regional urban forestry resources are organizations that provide services to aid in the protection, maintenance, and development of the urban forest. These range from active volunteer groups in the City, to nonprofits, academic institutions, and state and federal government agencies. Some of the organizations and programs described below have been used by the City. Others may be good choices for the future.



Edmonds' community volunteers helping to remove ivy and improve forest health.



Washington State Urban and Community Forestry Program

Under the Washington State Department of Natural Resources (DNR), the Washington State Urban and Community Forestry (UCF) Program provides technical, educational, and financial assistance to Washington's cities and towns, counties, tribal governments, nonprofit organizations, and educational institutions. The mission of the UCF is:

"To provide leadership to create self-sustaining urban and community forestry programs that preserve, plant and manage forests and trees for public benefits and quality of life."

A key service provided by the UCF is its collection of financial assistance programs including; Community Forestry Assistance Grants, Tree City USA Tree Planting & Maintenance Grants, Arbor Day Tree Reimbursements, Landscape Scale Restoration Grants, Scholarships, and Internships. All forms of financial assistance, their availability in a given year, and their associated dollar amounts are dependent on continued funding through annual grant allocations from the USDA Forest Service. The UCF communicates events, educational opportunities, and other information through a Tree Link Newsletter.

The Washington Community Forestry Council advises the DNR on policies and programs. The program does this by teaching citizens and decision-makers about the economic, environmental, psychological, and aesthetic benefits of trees. The program also helps local governments, citizen groups, and volunteers plant and sustain healthy trees throughout Washington. The council was established under RCW 76.15.

FORTERRA Green City Partnerships

The Green City program helps urban communities in the Puget Sound region effectively steward their natural open spaces through best practices. FORTERRA partners with local municipalities to develop achievable goals, shared visions, long-term plans, and community-based stewardship programs to care for the valuable forests and natural areas in our urban environments. Specific services include:

- ◆ City-wide forested park and natural area assessment
- ◆ Strategic and restoration planning
- ◆ Volunteer program development and guidance
- ◆ Education and training for volunteers
- ◆ Restoration tracking systems
- ◆ Green City outreach and community engagement
- ◆ On- the-ground stewardship projects and event support

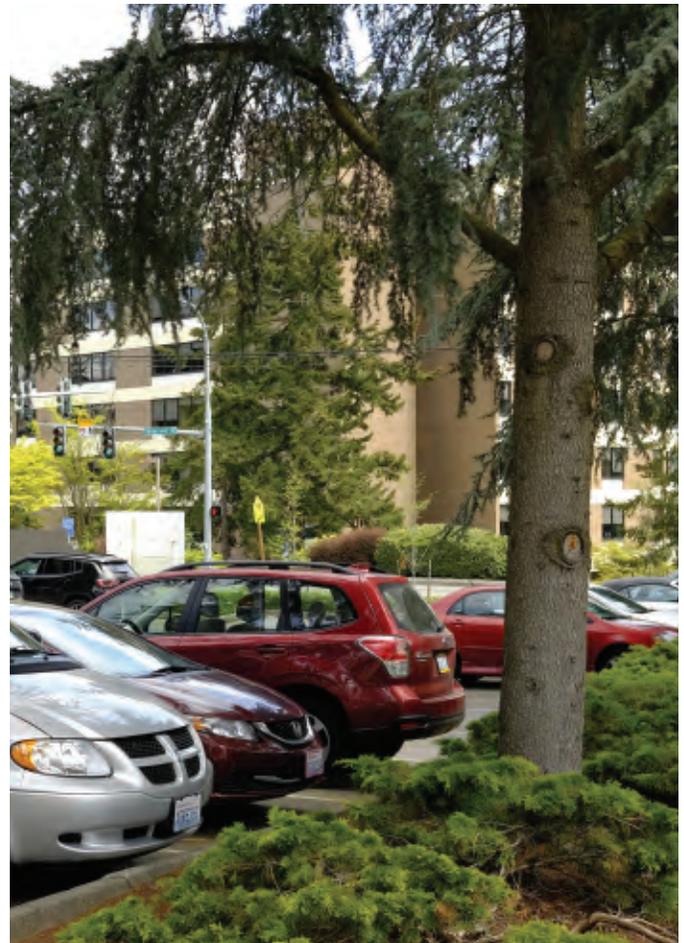
The Green City Partnerships share three (3) core goals:

- ◆ Improve the quality of life, connections to nature, and enhance forest benefits in cities by restoring our forested parks and natural areas
- ◆ Galvanize an informed and active community
- ◆ Ensure long-term sustainable funding and community support

These unique public/private partnerships bring together public, private, and nonprofit stakeholders to create a sustainable network of healthy forested parks and natural areas throughout the region.

Municipal Research and Services Center

The Municipal Research and Services Center (MRSC) is a nonprofit organization that helps local governments across Washington State better serve their citizens by providing legal and policy guidance on any topic. The MRSC collects state and local information from parks and recreation departments, land use planners, utilities, and citizen organizations to promote and manage urban forestry resources. Example resources include local urban forestry programs in Washington State, legal references, and related articles.



A deodar cedar provides shade for parked cars.



Futurewise

Futurewise is a nonprofit that has worked to prevent sprawl to protect the resources of communities in Washington State. Futurewise was founded to help support implementation of Washington State's Growth Management Act, and to focus on preventing the conversion of wildlife habitat, open space, farmland, and working forests to subdivisions and development.

Futurewise provides data analysis and research, community and environmental planning and policy development, community engagement and outreach, grassroots organizing and advocacy, legislative initiatives, and litigation. These services are all provided through strategic collaboration with businesses, governments, community organizations, and nonprofit partners.

The University of Washington Restoration Ecology Network

The UW-Restoration Ecology Network (UW-REN) is a tri-campus program, serving as a regional center to integrate student, faculty and community interests in ecological restoration and conservation. Students in the program are required to complete capstone projects, where students of different academic backgrounds work together to complete a local restoration project. Students learn how to plan, design, install, and monitor a restoration project while working in teams. The Capstone spans three academic quarters beginning in the fall. Communities collaborate with the program to develop RFPs, which then provide volunteers for the community and excellent learning experiences for the students.



Wetland stream flowing through Edmonds.



EarthCorps

EarthCorps is a human capital development program where corps members learn leadership skills by working collaboratively, leading community volunteers, and executing technical restoration projects along shorelines, trails, and in forests. Puget Sound Stewards help EarthCorps run restoration events, monitor plant growth, adapt management plans, and educate the community. EarthCorps collaborates with businesses, nonprofits, and communities to offer volunteers who are passionate about conservation and restoration.

The Puget Sound Stewards program in Edmonds was created by EarthCorps in 2015 in partnership with the City of Edmonds with support from the Hazel Miller Foundation. The goal was to provide on-



Forested park canopy in Edmonds.

going, locally-based, expert care for one of the City's key natural areas. Starting with Edmonds Marsh, a wildlife sanctuary and rare example of a saltwater marsh in the midst of a city, the program has grown to include three more sites: Brackett's Landing, Willow Creek Demonstration Garden, and Hutt Park.

The volunteers who join the Puget Sound Steward program are supported by EarthCorps staff and crews as they learn about the ecology of Puget Sound and how to perform actions that improve the ecological health of project sites in Edmonds that contribute to the health of Puget Sound and Edmonds residents. Actions include removing invasive weeds such as Himalayan Blackberry or English Ivy, mulching areas in need of water retention and weed suppression, and replanting with native plants to foster greater biodiversity.



Forested park canopy in Edmonds.

Urban Forestry Practices: Case Studies

In order to remain progressive with its urban forestry programs, the City of Edmonds recognizes that there are urban forestry practices emerging from other municipalities that could eventually add value if developed within the City. Through stakeholder interviews and discussions with City Staff, three urban forestry practices were selected as important for further consideration in implementation of this UFMP: Tree Banks (or fee in-Lieu programs), Heritage Tree Programs and Arborist Business Licensing. This section explores some examples around how other cities have adopted these programs.

Tree Banks – Fee-based alternatives to tree replacement

Often in the course of urban forest management, there can be logistical challenges associated with replacing trees at the same site where trees are removed. An increasingly common solution is to provide developers and residents with the opportunity to pay fees in-lieu of meeting their landscaping requirements. Providing a fee or financial guarantee option creates a system for funding tree planting projects or even more sophisticated landscape restoration projects that improve the overall health and condition of the urban forest.

Precedence for this option can be found at the National level, with the U.S. Army Corp of Engineers. In a Federal Rule published in April 2008, The U.S. Army Corps of Engineers (the Corps) and the U.S. Environmental Protection Agency (EPA) define an in-lieu fee program as:

- ◆ “A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements... Similar

to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor.”

Snohomish County

Here, the government provides options for permit applicants to engage the county, their own contractor, or do the mitigation work themselves to ensure that mitigation is achieved, even when it is not possible at the proposed project site:

- ◆ *“Applicants may choose to perform the off-site mitigation work on private property either themselves or through their own contractor, subject to all other provisions of **Section 30.62 SCC**, or applicants may enter into a voluntary mitigation agreement with the County pursuant to **RCW 82.02.020** under which the County will perform the mitigation work on public property within the same sub-drainage basin or watershed resource inventory area (WRIA).”* (POL-6210 REQUIREMENTS FOR PROVIDING OFF-SITE MITIGATION FOR IMPACTS TO CRITICAL AREAS ARISING OUT OF SINGLE-FAMILY RESIDENTIAL CONSTRUCTION UNDER **SCC 30.62.330**)

The following cities are examples of fee in-lieu programs related to urban forestry. There is some variation in how these fees are calculated, as well as where the funds collected get administered.

City of Redmond

The City of Redmond calculates fee in-lieu to include the cost of the trees. More importantly, the fee also includes all costs associated with establishment care. From Article IV Environmental Regulations:

- ◆ **RMC 21.72.080 E.2.** - Tree Replacement Fee A fee in- lieu of tree replacement may be allowed, subject to approval by the Administrator after careful consideration of all other options. A tree replacement fee shall be required for each replacement tree required but not planted on the application site or an offsite location.
 - i. The amount of the fee shall be the tree base fee times the number of trees necessary to satisfy the tree replacement requirements

of this section. The tree base fee shall cover the cost of a tree, installation (labor and equipment), maintenance for two years, and fund administration.

- ii. The fee shall be paid to the City prior to the issuance of a tree removal Permit.
- iii. Fees collected under this subsection shall be expended only for the planting of new trees in City-owned parks, open spaces or rights-of-way.

- ◆ <http://online.encodeplus.com/regs/redmond-wa/export2doc.aspx?pdf=1&tocid=005.009&file=doc-005.009-pid-80.pdf>

City of Renton

The City of Renton has much more limited code language. Fee in-lieu options are still at the City's

discretion, but only cover the cost of the tree and installation. No funding for establishment care is required in this code. However, the code does directly designate the funds to be allocated to the Urban Forestry Program fund, which provides more discretion to the City with how the funds get allocated:

- ◆ **RMC 4-4-130 H.1.E iii.** Fee in Lieu: When the Administrator determines that it is infeasible to replace trees on the site, payment into the City's Urban Forestry Program fund may be approved in an amount of money approximating the current market value of the replacement trees and the labor to install them. The City shall determine the value of replacement trees. <http://www.codepublishing.com/WA/Renton/#!/Renton04/Renton0404/Renton0404130.html>



Community volunteers pulling weeds and improving forest health in Edmonds.

City of Port Angeles

The City of Port Angeles provides a fee in-lieu option, but it only appears to relate to street tree replacement requirements. Another distinction in this code is the fee is determined by the Community Forester (a city staff position):

- ◆ **PAMC 11.13.050 B.3.** Street tree requirements in previously developed area. In addition to the above requirements, the following also apply: Where new street trees cannot be planted due to portions of rights-of-way having been previously paved or otherwise rendered unsuitable to plant trees, a fee-in-lieu of planting is required. Such fee shall be determined by the Community Forester per City Policy and deposited into the Community Forestry Fund. https://library.municode.com/wa/port_angeles/codes/code_of_ordinances?nodeId=TIT11STSI_CH11.13STTR_11.13.050STTRENRE

Heritage Tree Programs – Recognizing Historical Significance of Trees

In many cities around the nation, trees are often recognized for their historical significance to the community. This recognition is commonly referred to as part of a Heritage Tree Program. These programs provide communities with a way of officially recognizing trees, and with the recognition, can offer a variety of benefits to the community, including:

- ◆ Increasing public awareness of trees and the urban forest
- ◆ Drawing attention to and protecting unique and significant trees
- ◆ Reinforcing how trees are a key component of a city's character and sense of place
- ◆ Engaging citizens with the purpose and activities of a city's urban forestry program
- ◆ Encouraging public participation in the identification and perpetuation of heritage trees throughout the City

City of Seattle

In the greater Puget Sound region, a number of cities have heritage tree programs. One of the earliest programs was for the City of Seattle in 1996 when PlantAmnesty (a nonprofit) initiated a program that eventually became co-sponsored by the City. Seattle's program provides the broadest set of categories for designating a tree as a heritage tree. Trees can be designated according to the following categories:

- ◆ **Specimen:** A tree of exceptional size, form, or rarity.
- ◆ **Historic:** A tree recognized by virtue of its age, its association with or contribution to a historic structure or district, or its association with a noted person or historic event.
- ◆ **Landmark:** Trees that are landmarks of a community.
- ◆ **Collection:** Trees in a notable grove, avenue, or other planting.

City of Vancouver

The City of Vancouver, Washington, has had a heritage tree program in place since 1998. Unlike Seattle, which already regulates the care of exceptional trees (including heritage trees) on private property, the City of Vancouver uses this designation to protect trees on private properties where tree removal permits would not ordinarily be required. This is a voluntary program for private property owners, thus protecting the rights of the property owner (<https://www.cityofvancouver.us/publicworks/page/heritage-trees>).

City of Lynnwood

Closer to Edmonds, in the neighboring City of Lynnwood, the Heritage Tree program is defined in municipal code. Although many aspects of this program are similar to other cities, their specific code language binds all successive owners of the tree to the protection obligations within this designation. This language has the added benefit of ensuring long-term protection and care for the tree unless it is determined to be a hazard (LMC 17.5.070).

Arborist Business Licenses – Ensuring Best Practices in Tree Care

Businesses that operate in Edmonds only require a general business license to work as an arborist. This is not uncommon, but many cities are now recognizing how the complexity of city codes associated with tree care and the expectations of the community necessitate special licensing for businesses that perform tree work. Tree care industry professionals and researchers in the science of arboriculture routinely convene as the International Society of Arboriculture (ISA), or the Tree Care Industry Association (TCIA). These groups collaborate to encourage best practices in tree care and tree worker safety. To help ensure a community has companies that are adequately trained and qualified for tree work, the use of arborist licensing that ties the business with these organizations is increasingly popular. The following cities were selected from throughout the U.S. as examples of different approaches for arborist business licensing:

City of Herrington

- ◆ Herrington, KY – Businesses that practice arboriculture must submit an application to the City for a Tree Contractor license. The application identifies the business as practicing arboriculture and requires proof of sufficient insurance (<http://www.cityofherrington.com/pview.aspx?id=32514&catID=547>).

City of Lincoln

- ◆ Lincoln, NE – In Lincoln, applications for tree services and arborists not only require proof of insurance, but also proof of ISA credentials or a tree worker test administered by the parks and recreation department. <http://lincoln.ne.gov/city/parks/communityforestry/arborist.htm>

City of Denver

- ◆ Denver, CO – Denver has two classes for their “Tree Service License.” This is a distinct feature of their licensing process. Licenses can be issued to businesses working on “Large Trees,” which require workers to leave the ground, or an “Ornamental” license, designed for companies doing landscaping work on small trees that do not require an aerial lift. <https://www.denvergov.org/content/dam/denvergov/Portals/747/documents/forestry/tree-license-info-packet.pdf>

City of Spokane

- ◆ Spokane, WA – Spokane has a commercial tree license that businesses must secure if they are doing work on public property trees (e.g., street trees and park trees). <https://my.spokanecity.org/urbanforestry/permits/>



Community engagement on urban forestry is important to encourage tree retention on private properties.

Incentives – Encouraging Tree Retention on Private Properties

From the urban tree canopy assessment, it was determined that the majority of tree canopy in the city is privately owned and managed. For cities to manage their urban forests, collaboration and voluntary commitments on the part of private property owners can be a beneficial strategy that encourages desirable tree care and retention practices. (Note: In some “incentive programs,” cities have first established by code minimum tree density requirements for private properties and then used incentives to allow property owners some flexibility in retaining the minimum tree density). The following are example methods that cities, counties, and states have used to incentivize desirable tree stewardship on private property:

City of Portland

- ◆ Portland, OR – The City of Portland has a “Treebate” program which provides a one-time credit on individual utility bills for planting a tree in a residential yard. The amount of credit depends on the size of the tree. (Certain types of trees are excluded from the program.) <https://www.portlandoregon.gov/bes/article/314187>

Brevard County

- ◆ Brevard County, FL – In Brevard County, incentives were created to encourage tree preservation as they relate to landscaping requirements during development. This code language incentivizes by providing credits for exceeding tree canopy density, preserving native trees of significant size, or vegetation of special concern. These credits reduce the tree re-planting requirements otherwise associated with development projects. (Code Sec 62-4344). http://brevardcounty.elaws.us/code/coor_ptii_apid32777_ch62_artxiii_div2_sec62-4344

City of Rocklin

- ◆ Rocklin, CA – In an effort to preserve its native oak population, the City of Rocklin established incentives in their code. Projects that save 25% or more of the surveyed oak trees receive expedited processing by the Community Development department. In addition, development projects can have traffic mitigation and capital facility fees deferred from 3 months up to 12 months depending on the trees being saved. http://www.rocklin.ca.us/sites/main/files/file-attachments/oak_tree_preservation_guidelines.pdf

State of Hawaii

- ◆ State of Hawaii – In an effort to encourage the care and maintenance of trees determined as “exceptional”, residents can deduct up to \$3000 per tax year for their costs associated with tree care. The code language has an additional limitation that this tax deduction can only be allowed once every three years. (HRS 235-19). http://files.hawaii.gov/tax/legal/hrs/hrs_235.pdf

When the City of Edmonds updates its development regulations, incentives for tree retention and tree planting should be considered. These may include:

Tree bank

- ◆ Tree bank funded by development. Developer pays X dollar for each significant tree removed during development into a tree bank. This “incentivizes” tree retention because the developer may find ways to maintain trees rather than pay into the tree bank.
- ◆ Tree bank could be used to supply property owners with certificates to purchase trees to plant on their property.
- ◆ Tree bank funds could be used towards purchase of forested properties when they become available.

Development flexibility to maintain trees.

- ◆ Allowing reduced interior setbacks may allow more flexibility in home placement and provide opportunities for tree retention.
- ◆ Allow for deviations from access and road width requirements to allow more flexibility in design and home placements.
- ◆ Encourage low impact development techniques which promote tree retention.

Heritage Tree Program

- ◆ Develop a voluntary Heritage Tree Program to recognize unique or special trees as a way to recognize stewardship of the urban forest by local property owners.

Further consideration of the above—and any additional—ideas should be explored in more detail as part of the code update process in the near future.

Summary Considerations for Urban Forest Practices

Historical practices and regulatory requirements provide a clear vision and mandate that direct the City to manage the entire urban forest. In particular, the City has special authority over property it owns or that is within the public right-of-way. Yet, no comprehensive public tree inventory exists. The City also does not have a dedicated forestry specialist to direct the City's urban forest management activities. Instead, the City has multiple departments that are guided by codes and policies for site-specific decisions without overarching strategic level guidance of the forest. An example encountered by public works staff is when a tree removal is being considered. One tree may need to be removed and replaced for safety reasons, but additional trees may get removed and replaced to maintain the aesthetic of the streetscape. Without overarching urban forest strategies, removals of trees for simple rights-of-way improvements can be seen as reactive solutions resolved through political discourse instead of planned practical decisions for city managers.

This reactive approach to urban forest management also extends to the tree care budget. The City does not maintain sufficient tree related information

(such as tree quantity or condition data) to budget for proactive tree care. Current urban forestry benefits models show how trees in Edmonds provide environmental and economic benefits that are much greater than their reactive management costs. There is tremendous opportunity to leverage this disparity and direct forest management toward proactive tactics such as tree planting, young tree maintenance pruning, and tree inspections.

With approximately 13% of the City's entire tree canopy in public ownership, other methods to encourage or require tree planting/protection will be needed for the community to have influence over tree care in the remaining 87% of the forest. Some strategies that have been engaged in at other municipalities include the fee in-lieu programs to support variances in any tree replacement obligations, Heritage Tree Programs that protect special trees, and arborist business licensing to encourage best practices in tree care, and incentive programs.

The City's policies with regard to the acquisition of open space (including the potential purchase of forested properties) are contained with the Parks, Recreation and Open Space (PROS) Plan. Land acquisition is included in the capital project budget and the PROS plan notes that "expansions of the parks system will target the gaps identified in this plan and take advantage of opportunities as they emerge. Due to the constrained nature of Edmonds, this approach will require vigilance and proactive pursuit of potential land acquisition opportunities for both parks and open spaces. The City's inclusion of this item in the capital projects list recognizes the importance of swift action when rare property acquisition opportunities become available." A specific policy addressing the purchase of forested properties could be considered for adding to the PROS plan to recognize the potential of maintaining the City's tree cover through the selective purchase of forest properties as opportunities arise.

Finally, the City of Edmonds has both public and nonprofit agencies committed to helping Edmonds maintain a healthy urban forest. With continued and greater engagement, the City may realize more grant-funded opportunities, volunteer resources, and engaged citizens who will help the City achieve its urban forest management goals.

What Do We Want?

Stakeholder and Community Input

Edmonds conducted substantial outreach to public stakeholders, residents, and nonprofit agency stakeholders. Connections and relationships that develop among stakeholders are valuable outcomes of the urban forest outreach process. This provided a wide context for the challenges that face Edmonds' urban forest. As community awareness and actions associated with urban forestry move forward, it will be the people of Edmonds that ultimately realize the value of their contributions to their community in the trees that grow around them.

Stakeholder Interviews

In the summer of 2017, a team from the Davey Resource Group and Nature Insight Consulting met with several municipal and regional urban forest stakeholders. These stakeholder interviews occurred over two days and included urban planners, utility experts, public works staff, tree board representatives, and City staff leadership. Their valuable contributions guided the framework of the UFMP.

Virtual Open House

Throughout the development process, the City hosted a website that provided community access to the planning process. In addition, the website provided access to videos of public presentations, surveys, and invitations for public comments. This approach provided further opportunities for public input outside of scheduled community meetings.

Community Meetings

The first public meeting was held with the City of Edmonds Citizens' Tree Board on May 4, 2017. During this meeting, issues, concerns, and values about the urban forest were explored with members and visitors in attendance.

Later, on June 22, 2017, the City of Edmonds hosted the first of two open houses (Appendix D) at City Hall to share information about the UFMP development process and gather input from community residents. The open house included a presentation and a brief discussion with the audience to answer clarifying questions. Following the presentation, attendees were invited to provide input (thoughts, ideas, concerns, questions) on six opinion poster boards. Each poster board contained a broad topic followed by initial suggestions generated through the prior stakeholder interview process. Attendees were invited to express their opinions using dots (where green = a positive "vote"/agreement for the suggestion, yellow = concern/hesitation of the suggestion, and red = a negative "vote"/disagreement or dislike of the suggestion). Attendees were invited to use as many dots of each color as necessary to express their opinion of each suggestion on each poster board. In addition, each poster board provided an area for Additional Suggestions, where attendees were invited to write down their thoughts, ideas, concerns, and questions on a sticky note. The sticky note was then adhered to the poster board for other attendees to review and "vote" on.

A third meeting which was with the Planning Board, occurred on July 26, 2017 as another opportunity to solicit public participation early in the UFMP development process. The results of these public meetings helped the City to understand the needs and concerns of the community and guide the development of the online survey.



Tree board meetings in Edmonds provide pathways for community engagement.

Online Community Survey

As part of the initial stakeholder outreach, a survey was developed with the intention of understanding and benchmarking Edmonds' community values and views on the urban forest. It was not conducted as a statistically valid study but as one to gauge community values and get public feedback. Survey data was collected online. The survey platform only allowed one survey response per household to control for multiple entries from a single respondent. The survey closed in September of 2017 with 175 responses having been gathered through the summer (Appendix C). Responses increased following the public open house and a presentation to the planning board. Although the intent was to gather feedback from a broad representation of the community, 40.9% of the respondents affiliated themselves with the Edmonds Bowl area, with another 15.2% affiliating with the Seaview neighborhood. Other neighborhoods had less than fifteen (15) responses each, about 29.3% of the combined total. 14.6% (24 responses) did not affiliate within the survey-defined neighborhood groups.

The results showed how seventy-five percent (74.9%) of respondents "strongly agree" that public trees are important to the quality of life in Edmonds. Sixty-seven percent (66.9%) of respondents "agree" or "strongly agree" that Edmonds needs more public

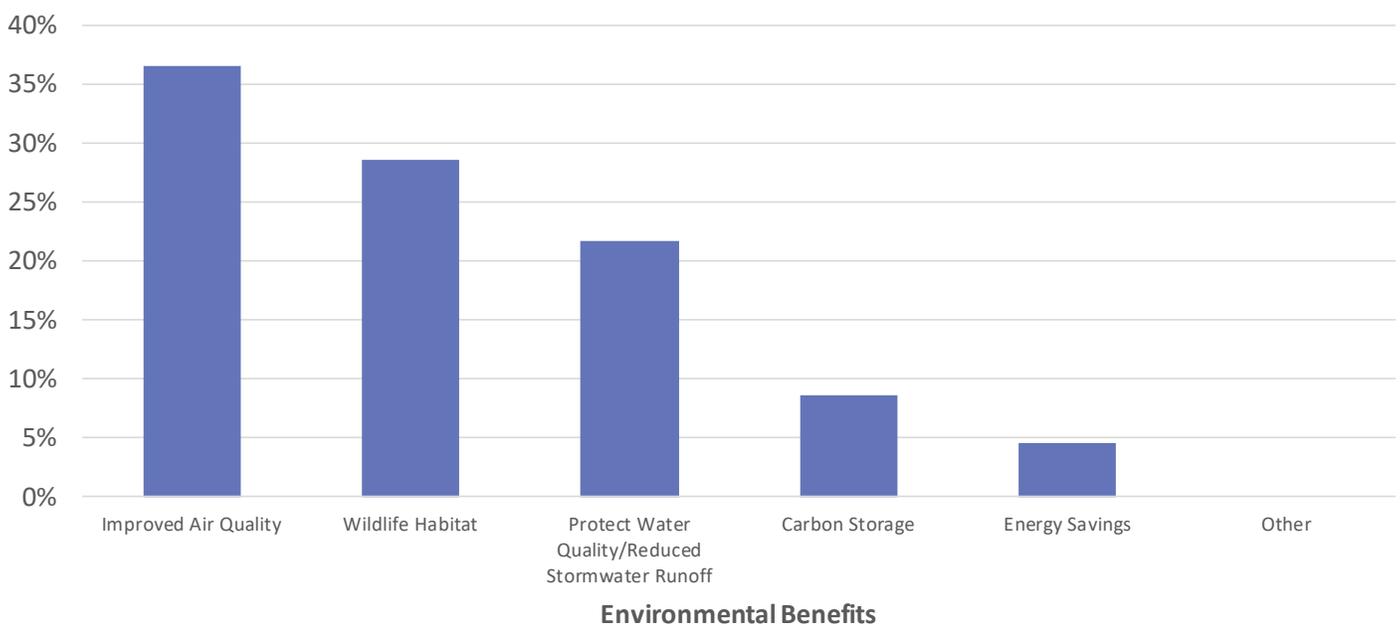


Edmonds' fountain and traffic circle trees.

trees. The most popular location for more trees is in open space and natural areas (60.4%), followed by parks (59.2%), streetscapes (59.2%), then trails and bike paths (45.6%), downtown (42.6%), and golf courses (11.2%).

When asked to rank the environmental benefits most valued from the urban forest, respondents expressed the greatest appreciation for air quality benefits, with 36.6% indicating that it is the most important benefit, followed by wildlife habitat, and water quality. Energy savings were ranked as least important at 4.6% (Figure 4).

Figure 5: Most Valuable Environmental Benefit



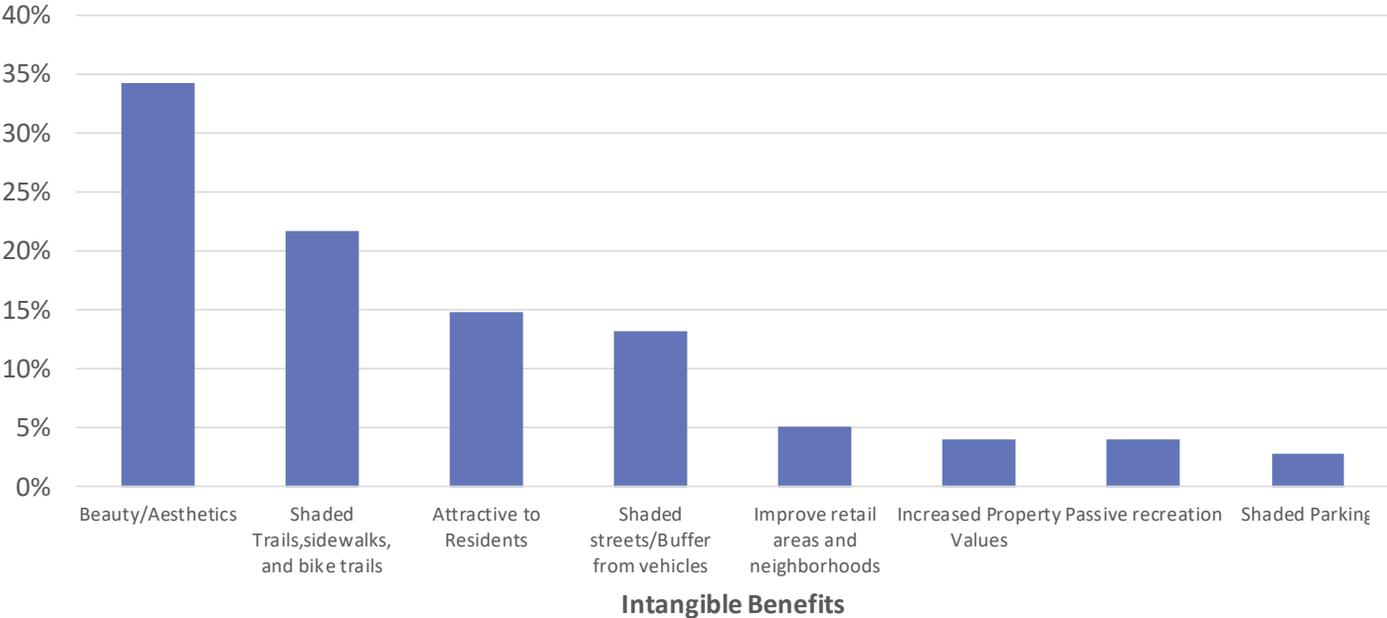


View of street trees at 5th Avenue South and Main Street.

On average, respondents ranked the beauty of trees as the most important intangible benefit, followed by shaded trails, sidewalks, and bike trails, then

attractiveness to residents. The benefit of shaded parking was ranked as the least important aesthetic benefit (Figure 5).

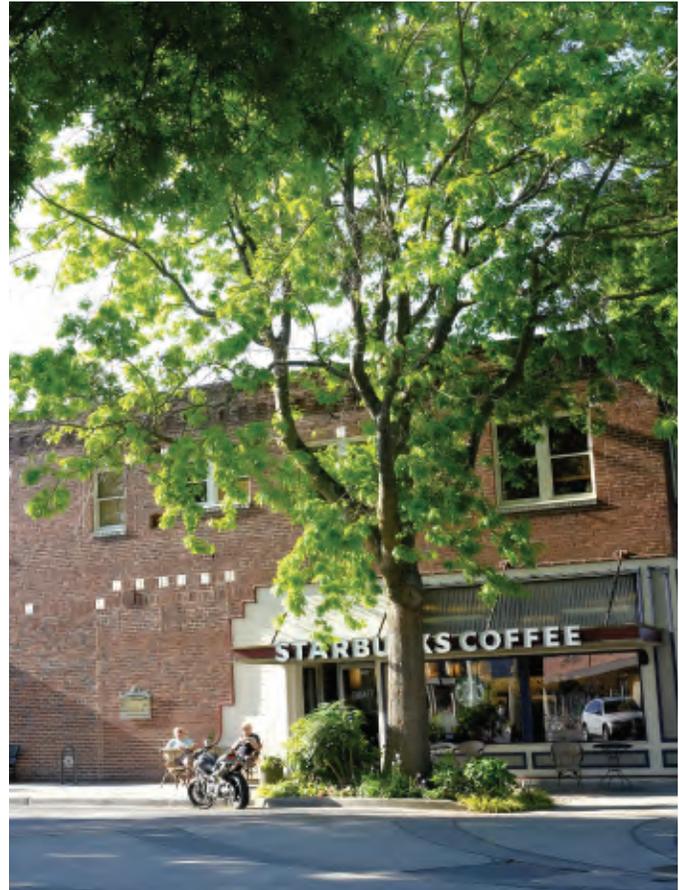
Figure 6: Most Valuable Intangible Benefit



In general, respondents are satisfied with the current level of maintenance, with 69.8% saying they “Agree” or “Strongly Agree.” When asked to rank various options for the level of maintenance that public trees should receive, 52.1% of respondents indicated their preferred expectation is for trees to receive hazard maintenance (Figure 6).

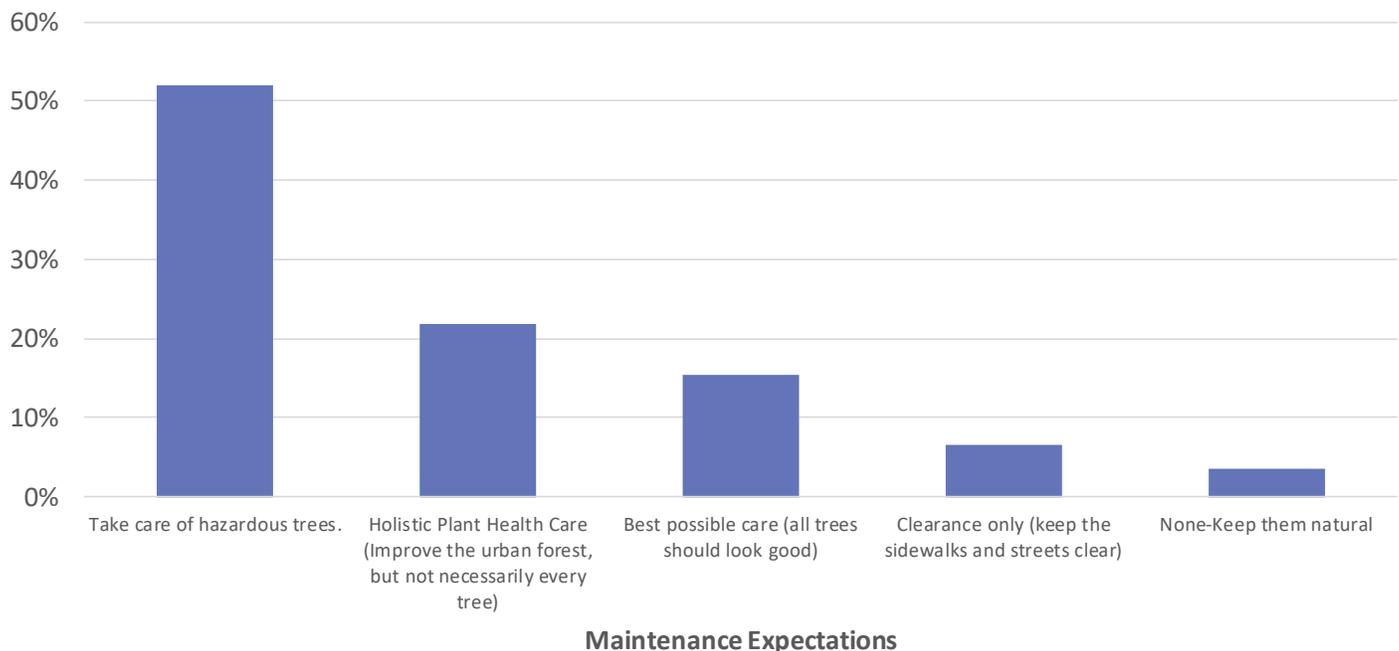
Fifty-four percent (53.9%) of respondents would like to see the City help preserve trees on private property. Education and outreach were considered the best ways to encourage tree planting and preservation on private property, with 79.0% of respondents identifying these as their preferred methods.

Respondents were asked to select the types of education and public outreach they would like to see offered by the urban forestry program. The most popular educational materials were website resources (62.7%), followed by interpretive trails and displays (59.8%), guided nature and tree walks (55.0%), and informational brochures (43.2%).



Street tree along Main Street.

Figure 7: Maintenance Expectations



Summary Considerations for Public Outreach

Already considered a valuable asset by Edmonds residents, Edmonds has an opportunity to further improve the urban forest through increased public outreach and community engagement. Public engagement on urban forestry issues has demonstrated that the public is generally satisfied with the City’s activities on public property, but prefers to have the City only provide guidance and education as opposed to regulation when it comes to stewardship of trees on private property.

There is general agreement from survey respondents that trees impact views for many residents, and the issue galvanizes residents as a primary tree issue in Edmonds. In fact, views of the water and other scenic places are fundamental to Edmonds’ identity as a community. Scenic views are also considered a property right of long-established development. At the same time, appreciation of trees—especially “the right trees in the right place”—is a value shared by almost everyone.



Street trees along 5th Avenue.



Private property trees have canopy that can shade public streets.

How Do We Get There?

Over the next twenty (20) years, the City of Edmonds will be able to enhance management of the urban forest through implementation of actions recommended in this Plan. The decision to develop a Plan with a 2038-time horizon was primarily based on the precedence established by the City with other long-range planning documents. Additionally, growing and improving Edmonds' urban forest are slow processes. Tree physiology for most trees in Western Washington can take up to seven (7) years to establish after planting, and another ten (10) years before they reach functional maturity. Trees provide the majority of their ecosystem services when they reach functional maturity. For this additional reason, it is essential that urban forest planning consider at least twenty (20) years within the Plan framework as a reasonable expectation for achieving the desired state of the urban forest.

The five (5) long-range strategic goals provided in this Plan will guide actions and activities that address the three components of a sustainable urban forestry program:

- ◆ **Urban Forest Asset Actions**, which are intended to improve the urban forest resource over the next twenty (20) years by developing detailed expectations for the urban forest. To accomplish this, most activities will increase the amount of information the City maintains about its urban forest resource. This includes activities like routine tree canopy assessments and a public tree inventory, both of which are fundamental to management and are substantial expenses to an urban forestry program requiring significant consideration.

- ◆ **Municipal Resource Actions**, which are intended to drive improvements in City policy and practices by developing efficiency and alignment of efforts within City departments. The common activities for accomplishing these goals center around developing policies that promote routine tree inspection and formalized tree management strategies for City-owned trees. The results will encourage the City to improve its awareness and mitigation of tree hazards and eliminate barriers to effective urban forest management.

- ◆ **Community Resource Actions**, which are intended to build stronger community engagement and public participation in urban forest stewardship. The activities coordinate with the public and encourage the participation of citizens and businesses to align with the City's vision for the urban forest.

The research into current and historical efforts in urban forestry at the City has revealed numerous opportunities for Edmonds to enhance the understanding of the urban forest resource as well as improve efficiency in tree maintenance operations.

The criteria and indicators proposed by Kenney, et al. (2011) were used as a standard to assess the current urban forestry practices in the City, and provide the management reference necessary to frame the following recommended goals for this plan.

Each action contains **time** designations which estimate the anticipated timeframe for completion of the action/activity once it is started.



Scenic views of the Puget Sound from Edmonds. Trees can obstruct the view, but can also be the view.

Urban Forest Management Plan Goals

Goal 1

Time

Goal 1 - Maintain or enhance citywide canopy coverage

The city has limited information about the condition of the urban forest. Success with this objective will be achieved with enhanced management of public trees and a deeper understanding of the population of trees on private property. The following actions will support this objective:

- | | |
|---|----------------------|
| A. Update tree regulations to reduce clearcutting or other development impacts on the urban forest and to consider changes to tree replacement requirements and penalties for code violations | On-going |
| B. Adopt policy goal of no net loss to overall tree canopy and continue to enhance canopy in parks according to the PROS plan. | 1 Year |
| C. Ensure protection of tree resources in environmentally critical areas | On-going |
| D. Develop a voluntary heritage tree program | 3-5 Years |
| E. Enforce city regulations on tree cutting | On-going |
| i. Reach out periodically to tree maintenance and landscaping firms to make sure they know Edmonds' requirements for pruning or removing trees | |
| F. Establish a tree bank or fund to which donations can be made for tree planting and other tree programs | 3-5 Years |
| i. Use any penalty fees from tree cutting violations to fund tree programs | |
| G. Support sustainable ways to combat pests and disease that threaten trees | On-going |
| H. Consider need for dedicated City arborist | On-going |
| I. Report at least every 10 years on canopy coverage | 10 Years, On-going |
| J. Periodically review and, if needed, update Urban Forest Management Plan (generally, every 5-10 years) | 5-10 Years, On-going |

Urban Forest Management Plan Goals

Goal 2

Time

Goal 2 - Manage public trees proactively

The city has identified opportunities within this plan to improve its risk management associated with trees and create better pathways for community engagement. The following actions will support this objective:

- | | |
|--|----------------------|
| A. Use best available science in caring for the urban forest on City properties and ROW | On-going |
| B. Have adequate resources (staff, contractual help, training, or other) to monitor the health of public trees and make decisions on their care | On-going |
| C. Develop and maintain an inventory of trees in key public places (for example, along certain City streets or trails) to document tree condition and risk | On-going |
| D. Update the Street Tree Plan periodically | 5-10 Years, On-going |
| E. Support removal of invasive plants, such as ivy, where they threaten the health of public trees | On-going |
| F. Coordinate among departments on tree issues and identify lead City staff person to guide approach and activities | On-going |
| G. Develop and implement a tree planting plan on City property and ROW to help ensure: <ul style="list-style-type: none"> i. Age and species diversity; ii. And suitability of species to location | 3-5 Years, On-going |
| H. Implement a program of regular maintenance and pruning for City trees, consistent with best management practices | 3-5 Years, On-going |
| I. Lead or facilitate volunteer activities for tree planting/care on City property and rights-of way | 1 Year, On-going |
| J. As part of City-sponsored capital projects, provide funding for appropriate trees in rights-of-way and on City properties | On-going |
| K. Provide an annual report to the City Council on tree planting/management for City properties and right-of-way (ROW) | On-going |

Urban Forest Management Plan Goals

Goal 3

Time

Goal 3 - Incentivize protecting & planting trees on private property

To ensure success with enhancing the tree canopy, the city recognizes that voluntary public participation must be encouraged. The following actions will support this objective.

- A. Have a program of giving away trees and/or tree vouchers for use in Edmonds
- B. For properties that retain a certain amount of tree canopy cover, explore establishment of:
 - i. A property tax “rebate” applicable to the City portion of property taxes; and/or
 - ii. A stormwater utility fee reduction; and/or
 - iii. Other techniques that provide a financial recognition of the benefits of tree planting and protection.
- C. Develop a certification/awards program to publicly recognize property owners that maintain a certain amount or type of healthy trees

3-5 Years, On-going

3-5 Years, On-going

1 Year, On-going

Urban Forest Management Plan Goals

Goal 4

Time

Goal 4 - Provide resources to the community to educate/inform on tree planting and care

The city recognizes the importance of the privately managed tree population in the city and recognizes the opportunity to support community stewardship. The following actions will support this objective:

- A. Provide signage or other information about significant public trees
- B. Provide for Tree Board, especially to:
 - i. Develop community education materials;
 - ii. Participate in or initiate tree planting and tree care activities, including outreach to citizen volunteers
 - iii. Report annually to the City Council on Tree Board activities
- C. Develop and disseminate information for the public on the value of trees and to provide guidance on tree selection and management

1 Year

1 Year, On-going

1 Year, On-going

Urban Forest Management Plan Goals

Goal 5

Time

Goal 5 - Promote “Right tree, right place”

Ultimately, the urban forest will be sustainable when a balanced combination of long-lived native trees and nursery grown street trees are growing in suitable spaces to maintain views, support wildlife (pollinators, birds, mammals, etc) and provide optimum environmental services. The following actions will support this objective:

- | | |
|--|-----------|
| A. Make readily available lists of compatible trees for planting in various kinds of local settings | 1 Year |
| i. Identify: large native tree species that can spread out in large spaces; low-growing trees in view corridors, trees with appropriate root systems near sidewalks and underground pipes. | |
| ii. Provide lists of suitable trees to support pollinators and backyard wildlife habitat. | |
| B. Identify key areas to increase canopy and: | 1-3 Years |
| i. For any such private properties, encourage appropriate tree planting or other techniques; and | |
| ii. for any such public properties, consider and take action to appropriately plant trees or otherwise increase canopy. | |
| C. Identify and plan for the care of unsuitable trees and, as necessary, for pruning or removal when they are potentially damaging to people, buildings or infrastructure | On-going |
| D. Ensure that development regulations require native trees and vegetation to be planted in critical areas, especially near streams and other wildlife habitat areas | On-going |
| E. In updating the Street Tree Plan, identify specific species of trees that should be planted to be compatible with the street environment | 1-2 Years |

How Are We Doing?

Monitoring and Measuring Results

The UFMP includes goals and actions for measuring the success of planning strategies. It is intended that the Plan serves as a living document. As new information becomes available, this section of the UFMP will be reviewed and amended using routine plan updates, annual reports, and community satisfaction surveys.

5–10 Year Plan Update (Plan 2023)

The UFMP is an active tool that will guide management and planning decisions over the next twenty (20) years. The goals and actions will be reviewed every five to ten (5 -10) years for progress and integration into an internal work plan. The UFMP presents a long-range vision and target dates are intended to be flexible in response to emerging opportunities, available resources, and changes in community expectations. Therefore, each year, specific areas of focus should be identified. This can inform budget and time requirements for Urban Forest Managers.

Annual State of the Urban Forest Report

This report, delivered annually, should include numbers of trees planted and removed by the City, and any changes to the overall community urban forest. It will serve as a performance report to stakeholders and an opportunity for engagement.

The report is also an opportunity to highlight the successful attainment of UFMP actions as well as to inform stakeholders about any issues or stumbling blocks. This information can be integrated into urban forest managers' Annual Reports and used to pursue additional project support and funding from state agencies and Tree City USA applications.

Community Satisfaction

The results of the UFMP will be measurable in improvements to efficiency and reductions in costs for maintenance activities. Attainment of the goals and actions will support better tree health, greater longevity, and a reduction of tree failures. However, perhaps the greatest measurement of success for the UFMP will be its ability to meet community expectations for the care and preservation of the urban forest resource.

Community satisfaction can be measured through surveys as well as by monitoring public support for realizing the goals and actions of the Plan. Community satisfaction can also be gauged by the level of engagement and support for urban forest programs. An annual survey of urban forest stakeholders will help managers ensure activities continue to be aligned with the community's vision for the urban forest.

Appendices

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Appendix C: Community Survey Responses

Introduction:

The survey questions provided a public feedback opportunity during the early stages of plan development. They were designed to solicit input from residents and businesses in the City of Edmonds and help guide the plan development by understanding about how respondents.

The questions were arranged into 4 groups:

- ◆ How do you value trees?
- ◆ Your opinion about public trees. (City managed trees on streets and in parks)
- ◆ Your opinion about private trees. (privately managed trees)
- ◆ Who are you? (Simple Demographics)

While providing valuable information, the results of this survey should not be interpreted to be a statistically significant survey representing all of Edmonds. 175 individuals responded to the survey (0.4 percent of the Edmonds population) and the geographic distribution of respondents was not a control factor, as a result the survey responses may include an over representation of view properties. However, these responses do represent views of many citizens who are particularly interested in the management of the City's urban forest.

Question 2: Trees are known to provide benefits to the environment. Understanding which benefits are most appreciated by residents can help guide long-term management strategies. Please rank (1-5) the following ENVIRONMENTAL benefits in order of their value to you. (i.e., 1 = most valuable and 5 = least valuable):

Improved Air Quality
Energy Savings
Protect Water Quality/Reduced Stormwater Runoff
Carbon Storage
Wildlife Habitat
Other

Question 1: Trees are important to the quality of life in Edmonds.

Answer Choices	Responses	
Strongly Agree	74.86%	131
Agree	21.71%	38
Disagree	2.29%	4
Strongly Disagree	0.57%	1
Not sure	0.00%	0
Not Sure	0.57%	1
Other (please specify)	0.00%	0
		Answered 175
		Skipped 0

Question 2 (Extended)

1		2		3		4		5		Total	
36.57%	64	24.00%	42	21.14%	37	14.29%	25	4.00%	7	175	4.75
4.57%	8	5.14%	9	13.71%	24	26.86%	47	49.71%	87	175	2.88
21.71%	38	36.57%	64	25.71%	45	10.29%	18	5.71%	10	175	4.58
8.57%	15	8.57%	15	17.14%	30	36.00%	63	29.71%	52	175	3.3
28.57%	50	25.71%	45	22.29%	39	12.57%	22	10.86%	19	175	4.49
0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0	0
										Answered	175
										Skipped	0

Question 3: Trees also provide less tangible benefits to society. Understanding which of these benefits are most appreciated by residents can help guide long-term management strategies. Please rank (1-8) the following AESTHETIC and/or SOCIOECONOMIC benefits in order of their value to you. (i.e., 1 = most valuable and 8 = least valuable):

	1	2	3	4
Attractive to Residents	14.86% 26	21.71% 38	16.00% 28	13.14% 23
Beauty/Aesthetics	34.29% 60	21.14% 37	14.86% 26	14.29% 25
Shaded Trails,sidewalks, and bike trails	21.71% 38	17.14% 30	24.00% 42	11.43% 20
Shaded Parking	2.86% 5	3.43% 6	8.57% 15	9.71% 17
Improve retail areas and neighborhoods	5.14% 9	10.29% 18	12.57% 22	13.71% 24
Increased Property Values	4.00% 7	5.14% 9	5.14% 9	9.71% 17
Passive recreation	4.00% 7	5.14% 9	6.86% 12	12.00% 21
Shaded streets/Buffer from vehicles	13.14% 23	16.00% 28	12.00% 21	16.00% 28

Question 4: Optional. Use this space to provide additional comments on the benefits of Edmonds' public trees.

Additional Comments	
Answered	60
Skipped	115

Question 5: What is your current awareness of the City's urban forest program? Please check all that apply.

Answer Choices
I was not aware that the City has an urban forest program
I have visited the City's webpage for information about public trees and/or the urban forest
I have read a newspaper article that discussed public trees and/or Edmonds' urban forest
I have participated or volunteered with tree related events in the City
Other (please specify)

Question 3 (Extended)

5	6	7	8	Total	Score
15.43% 27	9.71% 17	6.86% 12	2.29% 4	175	5.39
7.43% 13	2.86% 5	2.29% 4	2.86% 5	175	6.29
9.71% 17	9.71% 17	4.57% 8	1.71% 3	175	5.74
8.57% 15	17.71% 31	19.43% 34	29.71% 52	175	3.03
19.43% 34	18.29% 32	14.29% 25	6.29% 11	175	4.25
10.29% 18	13.71% 24	22.86% 40	29.14% 51	175	3.05
15.43% 27	14.86% 26	20.00% 35	21.71% 38	175	3.37
13.71% 24	13.14% 23	9.71% 17	6.29% 11	175	4.89
				Answered	175
				Skipped	0

Question 5 (Extended)

Responses	
36.69%	62
23.67%	40
52.07%	88
14.79%	25
12.43%	21
Answered	169
Skipped	6

Question 6: Trees can grow to obstruct streets and sidewalks. How often do you encounter this issue with trees in the public rights-of-way.

Answer Choices	Responses	
Daily	13.02%	22
Weekly	11.83%	20
Monthly	10.65%	18
Several Times A Year	34.32%	58
Never	30.18%	51
Answered		169
Skipped		6

Question 7: Trees can become damaged or develop structural weakness over time, these issues may be risks for injury to persons or property. How often do you encounter this issue with public trees?

Answer Choices	Responses	
Daily	5.33%	9
Weekly	4.14%	7
Monthly	2.96%	5
Several Times A Year	41.42%	70
Never	46.15%	78
Answered		169
Skipped		6

Question 8: Trees can appear sick and unhealthy from damage by insects, diseases, or simply poor tree care regimes. How often do you observe this issue with public trees?

Answer Choices	Responses	
Daily	5.33%	9
Weekly	2.96%	5
Monthly	5.92%	10
Several Times A Year	43.20%	73
Never	42.60%	72
Answered		169
Skipped		6

Question 9: In general, I am satisfied with the current level of maintenance provided for Edmonds' public trees.

Answer Choices	Responses	
Strongly agree	10.65%	18
Agree	59.17%	100
Disagree	11.83%	20
Strongly Disagree	8.88%	15
Not Sure	9.47%	16
	Answered	169
	Skipped	6

Question 10: What level of maintenance would you prefer for public trees? Please rank the following options according to your preference (1 = most desirable; 5 = Least desirable)

None-Keep them natural
Best possible care (all trees should look good)
Clearance only (keep the sidewalks and streets clear)
Take care of hazardous trees.
Holistic Plant Health Care (Improve the urban forest, but not necessarily every tree)

Question 11: Edmonds needs more public trees.

Answer Choices	Responses
Strongly Agree	37.87% 64
Agree	28.99% 49
Disagree	17.16% 29
Strongly disagree	5.33% 9
not sure	10.65% 18
	Answered 169
	Skipped 6

Question 12: Where would you like to see more public trees planted? Please check as many as apply.

Answer Choices	Responses
Parks	59.17% 100
Open spaces and Natural Areas	60.36% 102
Streetscapes	59.17% 100
Golf Courses	11.24% 19
Downtown	42.60% 72
Trails and bike paths	45.56% 77
Edmonds has enough public trees	20.12% 34
Other (please specify)	17.75% 30
	Answered 169
	Skipped 6

Question 10 (Extended)

1	2	3	4	5	Not Sure	Total	Score
3.55% 6	8.88% 15	10.06% 17	25.44% 43	45.56% 77	6.51% 11	169	1.92
15.38% 26	9.47% 16	21.89% 37	26.04% 44	23.08% 39	4.14% 7	169	2.67
6.51% 11	24.26% 41	27.81% 47	26.04% 44	10.65% 18	4.73% 8	169	2.89
52.07% 88	26.04% 44	14.20% 24	5.33% 9	1.78% 3	0.59% 1	169	4.22
21.89% 37	30.18% 51	23.08% 39	12.43% 21	8.28% 14	4.14% 7	169	3.47
Answered						169	
Skipped						6	

Question 13: What types of education and public outreach would you like to see offered by the urban forestry program? Please check all that apply.

Answer Choices	Responses	
Seminars and workshops	44.38%	75
Interpretive trails and displays	59.76%	101
Website resources	62.72%	106
Online videos (e.g. YouTube)	24.26%	41
Guided nature/tree walks	55.03%	93
Informational brochures	43.20%	73
Other (please specify)	11.83%	20
		Answered 169
		Skipped 6

Question 14: Optional. Please use this space for any additional comments about the care of public trees.

Additional Comments	
Answered	40
Skipped	135

Question 15: What is/are your biggest concern for trees in Edmonds? (Check as many as apply)

Answer Choices	Responses	
Trees blocking my view	24.70%	41
Trees shading my yard	9.04%	15
Tree debris in my yard	12.65%	21
Healthy mature trees being removed during development	68.67%	114
Canopy loss	57.83%	96
Loss of wildlife habitat	72.29%	120
Other Concerns(please specify)	18.67%	31
		Answered 166
		Skipped 9

Question 16: What are your experiences with trees on nearby properties around you? Please select any from this list any statements you agree with.

Answer Choices	Responses	
Trees near my property are a nuisance	11.98%	20
Trees near my property are a dangerous	17.37%	29
Trees near my property block views	29.34%	49
Trees near my property are beautiful	67.66%	113
Trees near my property are healthy	59.28%	99
I want more trees near my property	25.15%	42
I have no trees near my property	0.60%	1
I don't agree with any of these statements.	2.40%	4
		Answered 167
		Skipped 8

Question 17: When private properties are developed or improved, trees on the property can be impacted. Should the City be involved with protecting trees on private property during construction?

Answer Choices	Responses	
Yes. The City should require property owners to preserve trees on private parcels where reasonably possible.	53.89%	90
No. This City of Edmonds should not concern itself with trees on private property.	17.96%	30
Not sure. This issue is more complicated.	28.14%	47
		Answered 167
		Skipped 8

Question 18: In your opinion, what are the best ways to encourage tree planting and preservation on private property? Please select as many as apply.

Answer Choices	Responses	
Education and outreach	79.04%	132
Information about how to hire a professional tree care company	29.34%	49
Require tree care companies to have a certified arborist on staff	28.74%	48
Free (or low-cost) Trees	55.09%	92
Ordinances, Rules or Regulations	35.33%	59
Other (please specify)	22.75%	38
		Answered 167
		Skipped 8

Question 19: Optional. Please use this space for any additional comments about trees on private property.

Additional Comments	
Answered	44
Skipped	131

Question 20: Which gender do you identify with?

Answer Choices	Responses	
Male	28.66%	47
Female	59.76%	98
Gender Diverse	1.83%	3
Prefer not to answer	9.76%	16
		Answered 164
		Skipped 11

Question 21: What age group are you representing?

Answer Choices	Responses	
Under 18	0.00%	0
18 to 25	1.22%	2
26 to 35	4.27%	7
36 to 45	11.59%	19
46 to 55	21.34%	35
56+	61.59%	101
Answered		164
Skipped		11

Question 22: Where do you live in Edmonds? Please choose a neighborhood from the list below.

Answer Choices	Responses	
Downtown/The Bowl	40.85%	67
Westgate	7.32%	12
Five Corners	8.54%	14
Perrinville	4.88%	8
Meadowdale	4.27%	7
Seaview	15.24%	25
Lake Ballinger	1.22%	2
HWY 99	3.05%	5
Other (please specify)	14.63%	24
Answered		164
Skipped		11

Question 23: What is your relationship with Edmonds' urban forest. (Choose all that apply)

Answer Choices	Responses	
I am a resident of Edmonds	95.12%	156
I am a frequent visitor to Edmonds	10.98%	18
I own a business in Edmonds	6.71%	11
I appreciate public trees	72.56%	119
I have planted public trees as a volunteer	18.90%	31
I help care for a public tree adjacent to my property	10.98%	18
I have donated money to a non-profit foundation in support of public trees	15.85%	26
None of the above	0.61%	1
Other (please specify)	4.27%	7
	Answered	164
	Skipped	11

Question 24: Please provide any additional comments or feedback (Optional)

Additional Comments	
Answered	33
Skipped	142

Appendix D: Open House

Summary Report

On June 22nd, 2017, the City of Edmonds hosted the first of two open houses in the Brackett Room at City Hall to share information about the City of Edmonds Urban Forestry Management Plan and gather input from citizens.

The open house included a presentation by Ian Scott of Davey Resource Group and a brief Q and A from the audience to ask clarifying questions. The presentation provided attendees an overview of Edmonds' urban forest, an introduction to what will be included in the Urban Forest Management Plan, and that the Davey Resource Group team has completed to date. Following the presentation, attendees were invited to provide input- thoughts, ideas, concerns, questions- on six discussion/opinion boards where a broad topic was introduced on each board followed by initial suggestions generated through the prior stakeholder interview process.

Attendees were invited to express their opinions using dots (where green= a positive "vote"/ agreement for the suggestion, yellow= concern/ hesitation of the suggestion, and red= a negative "vote"/disagreement or dislike of the suggestion). Attendees were invited to use as many dots of each color necessary to express their opinion of each suggestion on each board. In addition, each board provided an area for Additional Suggestions where attendees were invited to write down their thoughts, ideas, concerns, questions on a sticky note and adhere it to the board for other attendees to review and "vote" on, as well. Lastly, a confidential and anonymous option was provided for attendees to provide comments and feedback by writing their thoughts, ideas, concerns and questions on index cards that were placed inside a box and not shared at the public meeting.

The Davey Resource Group team also provided a link for attendees to give additional feedback through an online survey. That survey can be accessed via the home page on the City of Edmonds website, under the "What's New..." section:

- ◆ <https://www.surveymonkey.com/r/EdmondsUFMP>

Local media provided public announcements of the open house leading up to the event:

- ◆ <http://myedmondsnews.com/2017/06/reminder-open-house-managing-citys-tree-cover-set-june-22/>
- ◆ <https://edmondsbeacon.villagesoup.com/p/open-house-planned-to-discuss-managing-city-s-tree-cover/1660111?source=WeeklyHeadlines>

My Edmonds News covered the open house and provided a news story and video of the presentation to the public:

- ◆ <http://myedmondsnews.com/2017/06/public-asked-share-ideas-managing-edmonds-urban-forest/>
- ◆ <http://myedmondsnews.com/2017/06/now-video-open-house-plan-manage-edmonds-urban-forests/>

Opinion Board #1: What tree benefits do you most appreciate?				
Idea	# Green Dots	# Yellow Dots	# Red Dots	
A. Improved Air Quality	11	0	1	
B. Energy Savings	4	0	0	
C. Water Quality/ Reduced Stormwater Runoff	14	0	0	
D. Carbon Storage	7	1	0	
E. Wildlife Habitat	14	0	0	
F. Beauty/Aesthetics	12	0	0	
G. Shaded trails, sidewalks, and bike trails	4	0	3	
H. Improved retail areas and neighborhoods	3	1	4	
I. Increased property values	7	2	3	
J. Shaded streets and parking lots	4	1	0	
K. Additional Ideas				
Wind protection (think roof shingles); noise reduction; shade-calm/healing; sound of wind through branches; hi-class (untreed neighborhoods proven to have higher crime- “the projects” don’t get trees, Bellevue does); soil retention; cools streams; coastal trees involved in weather cycle to prevent inland desertification	0	0	0	
City revenue increase with more views	0	0	0	
Air quality requires big, tall trees	0	0	1	

Opinion Board #2: What types of outreach and education are preferred/valued?

Idea	# Green Dots	# Yellow Dots	# Red Dots
A. Electronic (websites, links, youtube, apps)	2	0	0
i. Species selection	4	0	0
ii. Tree planting	1	0	0
iii. Tree pruning	4	1	0
iv. Interactive tree selector	1	1	0
v. Irrigation	1	0	0
vi. Volunteer opportunities	1	0	0
B. Hard copy (pamphlets, newsletter)	3	0	0
i. Species selection	3	1	0
ii. Tree planting	1	0	0
iii. Tree pruning	3	1	0
iv. Irrigation	0	0	0
C. Hands-on (Workshops, seminars)	2	0	0
i. Tree planting	2	0	0
ii. Tree pruning	5	0	0
iii. Irrigation	0	0	0
iv. Volunteer opportunities	1	0	0
D. Additional Ideas	7	1	0
Neighborhood meetings for education and outreach	0	0	0
Maybe a pamphlet with a map of specific trees of interest	0	0	0
Pamphlets telling what species of trees on city property- amount of carbon storage, % stormwater absorption- info which appeared tied to Main St trees for a very short time. Maybe story in the Beacon [local newspaper with print and online circulation]	0	0	0
New name needed	0	0	0

Opinion Board #3: What is/are your biggest concern(s) for trees in Edmonds?				
Idea	# Green Dots	# Yellow Dots	# Red Dots	
A. Trees blocking my view	11	1	9	
B. Trees shading my yard	3	0	7	
C. Tree debris in my yard	1	1	5	
D. Healthy mature trees being removed	12	0	3	
E. Canopy loss	11	0	3	
F. Loss of wildlife habitat	15	0	3	
G. Additional Concerns				
Private development- current Edmonds land use code allows developers to completely clear treed lots for development (residential, commercial, etc). This is not okay. It disrupts urban	1	0	0	
Someone who would be willing to negotiate or help mediate between neighbors having difficulty with trees vs. view, perhaps to come to the home if asked and accepted by both parties	1	0	0	
Need to address invasives in our forests that prevent the establishment of seedlings. Without that there will be no forests	0	0	0	
Critical areas ordinances are not followed- All native vegetation is removed for development	0	0	0	
This becomes a question of aesthetics- learn to see trees, which are beautiful and characteristic of the luxuriant NW where we have chosen to reside- as the “view”. Trees are very connected to the idea of “the commons” in which we have not much	2	0	0	
I believe these green dots indicate agreement with the stated additional concern.				
***Note: for this opinion board:				
Green dots = concerned				
Red dots = not concerned				

Opinion Board #4: What level of maintenance would you prefer for public trees?

Idea	# Green Dots	# Yellow Dots	# Red Dots
A. None (keep them natural)	1	4	2
B. Best possible care (all trees should look good)	7	1	3
C. Clearance only (keep sidewalks and streets clear)	7	1	1
D. Take care of hazardous trees	10	2	0
E. Holistic plant health care (improve the urban forest, but not necessarily every tree)	8	3	0
F. Additional Ideas			
In past, City has been resistant to allow removal of dangerous and dying trees even when 3 arborists said remove. Need process to effectively deal with dangerous trees.	0	0	0
Utilize/ plant and replace trees that “heave” the sidewalks. ie- avoid trees that interfere with built environment.	2	0	0
Native trees preferred. Alder are not trash trees.	0	0	0
Edmonds is a City of Views- Very important that property owner’s views are protected. As a first step/tonight’s meeting working together to protect environment as well as property owners will put this plan in a more optimistic mode.	0	1	0
There were not actually green dots placed on this Additional Idea sticky note, but two other people wrote “Agree” directly on the note itself.			

Opinion Board #5: Where would you like to see more trees planted?

Idea	# Green Dots	# Yellow Dots	# Red Dots
A. Parks	10	0	0
B. Open Spaces	10	0	1
C. Commercial properties	9	2	0
D. Streets and medians	7	3	2
E. Parking lots	10	0	0
F. Private properties	8	1	1
G. Additional Ideas			
Along railroad- need tall ones to defray pollutants. Along all arterials for same reason. Along streams to keep them cool	1	0	0
Less trees in view areas	1	1	1

Opinion Board #6: What are the best ways to encourage tree planting and preservation on private property?

Idea	# Green Dots	# Yellow Dots	# Red Dots
A. Free (or low-cost) trees	10	0	0
B. Information about how to hire a professional tree care company	3	0	0
C. Education and Outreach	16	0	0
D. Tree planting events	5	0	0
E. Additional Ideas			
Update land use code so developers cannot clear all of the trees when building. Current code allows to clear the entire lot.	3	0	1
Education- slow but steady so that folk begin to know that all the oxygen we breathe is produced by (largely) trees- for “views” we can cut out our lungs.	0	0	0
Provide ideas for good trees that are more like 15 ft tall in order to keep both trees and preserve view.	3	0	0
City needs a full-time arborist. Codes should:	3	0	0
Neighbor education and outreach (about critical areas and streamside property management more important than public meetings for general public)	0	0	0

Additional anonymous comments:

- ◆ Change name “Urban Forest”- bad impression, oxymoron. Suggestion- Best plant/tree for Best location
- ◆ Wondering what is/can be done to encourage people to maintain views for neighbors around them?
- ◆ Let’s separate view areas from non-view areas. Right tree for right location.
- ◆ I am concerned about safety regarding older trees in both private and public spaces. We have 70+ year old trees in our neighborhood that lose branches with most wind storms. Who watches out for the health of those trees and probability of danger? Most people would have no idea where to begin, let alone be able to afford to do something like hire an arborist. (signed J Thompson)

Questions from the public asked during the presentation:

- ◆ Question regarding how the 30% canopy cover was determined- comment that that number seemed really high. Wondering if there is a uniform process used by all cities. Made comment that grants were judged by how much canopy a City had. Asked for clarification on what the process that was used to determine 30% canopy cover.
- ◆ Question asking for clarification of the intention of the UFMP- to handle City trees (as stated in an early slide) or is it actually expanded to handle private trees too.
- ◆ Commenter asked for clarification on defining “what is a tree”- a 30ft lilac...is that a tree? A big rhododendron- is that a tree?
- ◆ Commenter referring to tree planting suggestions (provided an sign in table on yellow paper)- had a question about why is there not any evergreen on that suggestion guide?
- ◆ Commenter asked question regarding tree topping being preferable to cutting a tree to the ground. Expressed concern over making a “blanket rule” that tree topping is bad or not preferable.
- ◆ Question regarding information on what kinds of trees do what kinds of things- eg. a fir versus an oak- and where is that kind of data available at?
- ◆ Question referring to the chart shown in the presentation comparing Edmonds with other cities- does that chart take into consideration view property- does it differentiate where there are view properties and where there are not? Commenter suggested that a significant portion of the City [of Edmonds] has views.

Attendance

City of Edmonds:

- ◆ Dave Teitzel, Edmonds City Council
- ◆ Shane Hope, Development Services Director
- ◆ Carrie Hite, Parks, Recreation & Cultural Services Director
- ◆ Phil Williams, Public Works and Utilities Director
- ◆ Kernen Lien, Senior Planner
- ◆ Rich Lindsay, Park Maintenance Manager
- ◆ Jeanie McConnell, Engineering Program Manager
- ◆ Brad Shipley, Planner
- ◆ Debora Ladd, Parks Maintenance Staff

Project Team Members:

- ◆ Ian Scott, Davey Resources Group
- ◆ Ian Lefcourte, Davey Resources Group
- ◆ Keeley O'Connell, Nature InSight Consulting

Members of the public:

- ◆ Approximately 50