# City of Lake Forest Park

# COMMUNITY FOREST MANAGEMENT PLAN

**March 11, 2010**

# Acknowledgments

## SUMMARY OF ACTIVITIES

The original Urban Forest Task Force was tasked with revising the 1999 tree ordinance because a large number of trees were being lost. The Task Force held its first meeting on February 6, 2006, followed by 27 scheduled public meetings. The Task Force also held several public forums to solicit community input. The Task Force issued their final revised report February 6, 2007. The Task Force continued their work and in July 2008, issued the report "Issues and Perspectives" in response to the Planning Commission's review. Late fall 2008, the Council requested a new approach to regulating trees in Lake Forest Park and asked the Task Force to prepare a new recommendation with broader perspectives.

### ORIGINAL URBAN FOREST TASK FORCE MEMBERS 2006 - 2008

**Mark Phillips, Chair**
**Steven Bennett, LFP planning Director**
**Tyson Greer**
**Beth Hale**
**David Hepp**
**Brian Highberger**
**Stephen Plusch**

In late fall 2008, the City Council appointed Council Member Don Fiene to lead the Task Force in a new effort to provide a broader perspective to saving this City's community urban forest of the City of Lake Forest Park. The current Urban Forest Task Force held 2 organizational meetings in January 2009. The Task Force then held a total of 21 scheduled public meetings. The Task Force presented its initial Draft Community Forest Management Plan to the City Council December 10, 2009. The Final Draft Community Forest Management plan was presented to the City Council March 11, 2010.

### CURRENT URBAN FOREST TASK FORCE MEMBERS 2009-2010

**Don Fiene, Council Member, Chair**
**Steven Bennett, LFP planning Director**
**Tyson Greer**
**David Hepp**
**Aaron Hoard**
**Mark Phillips**
**Stephen Plusch**
**Richard Saunders**
**Mike Woodbury**

# Lake Forest Park
# Community Forest Management Plan

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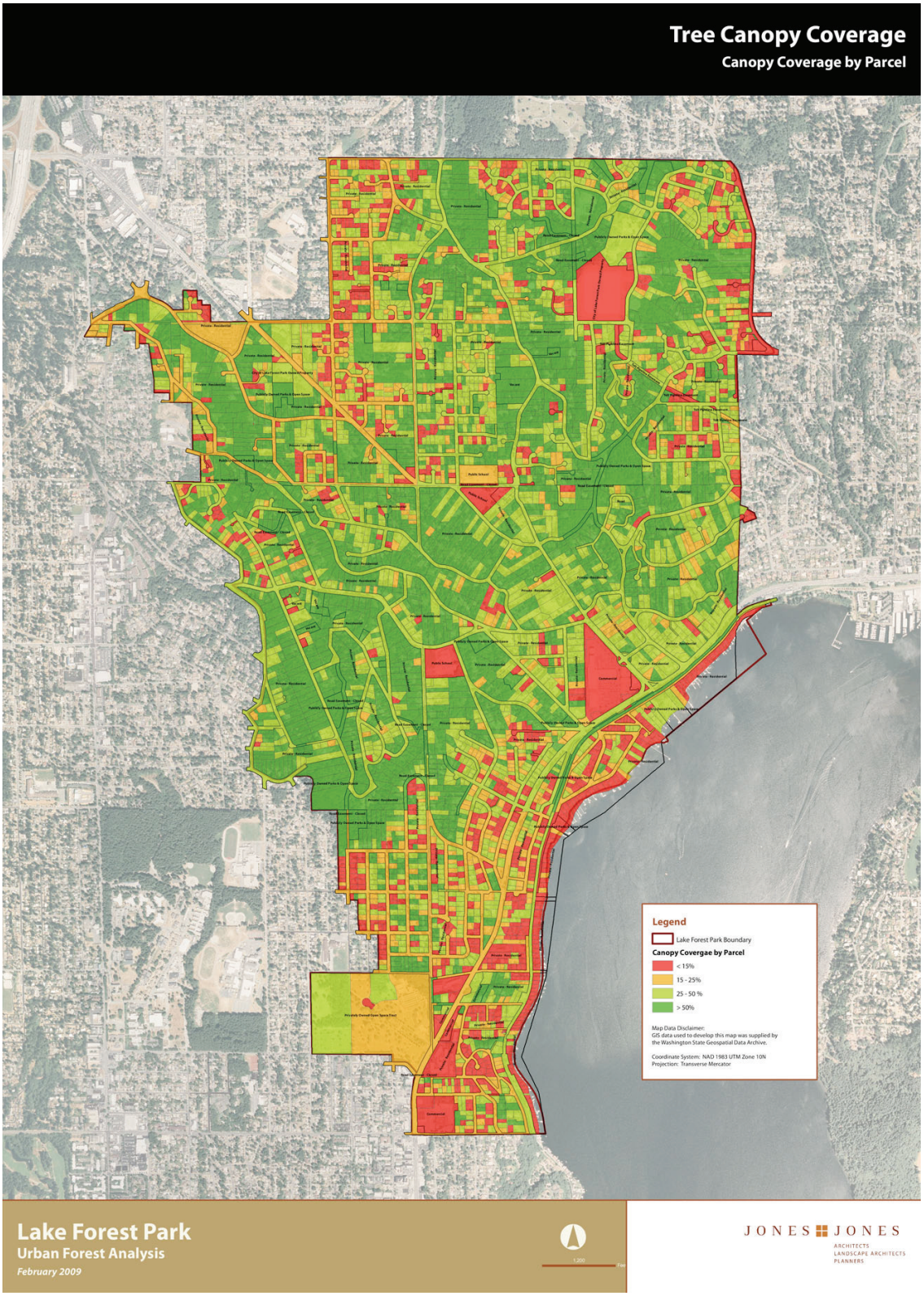
**"To exist as a nation, to prosper as a state,
and to live as a people, we must have trees."**
Theodore Roosevelt,
26th President of the United States

**"A society grows great when old men plant trees
whose shade they know they shall never sit in."**
Greek Proverb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Map Data Disclaimer:
GIS data used to develop this map was supplied by the Washington State Geospatial Data Archive.
Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Lake Forest Park
Urban Forest Analysis
February 2009
JONES JONES
ARCHITECTS
LANDSCAPE ARCHITECTS
PLANNERS

## MISSION STATEMENT

This plan will guide and promote sustainable forest conditions in Lake Forest Park through education, incentives, and regulation. It will apply to public and private property, commercial centers, neighborhoods, utility corridors, and open spaces for the environmental, economic, and social benefit of all Lake Forest Park residents.

Our shared view is that one hundred years from now, looking at Lake Forest Park from 30,000 feet, you will see a community forest enhanced from what we have today. Our community forest will be slightly more diverse in tree species and encompass more area but will still largely resemble a healthy native Northwest conifer forest and continue to bring outstanding ecological, social and economic benefits to our unique City.

## PREFACE

In Lake Forest Park, "Forest" is our middle name.

The purpose of developing a Community Forest Management Plan (CFMP) is to provide context, strategies, and tools to ensure that we preserve, restore, maintain, and enhance the forest that provides all the functions and benefits of our green infrastructure heritage in Lake Forest Park. [1] This CFMP defines, adds structure, and incorporates many of the concepts developed in the Legacy 100-Year Vision.

Our community forests provide tangible and intangible benefits—environmental, economic, and social—to us all. Early photos of "The Park," as residents used to call it, show a richly forested landscape. Of course, as population has increased, trees have had to make way for homes and a variety of new land uses. However, if we do not take steps now to manage this forest heritage, we will be in the same unfortunate situation as the vast majority of cities—large and small—who now regret their forest's decline and who are scrambling, at great expense, to replenish these forest assets that they have lost.

Sustaining a community's forest requires creating a substantive plan, educating the community, and enforcing all related ordinances; and at intervals, thoughtfully performing a review and analysis to assess how well the CFMP and the Tree Protection and Replacement Ordinance are working. The analysis will indicate revisions needed to the plan to ensure a sustainable community forest of abundant, healthy trees that contribute to the community benefit for all our citizens.

[1] Goals and Policies 1A

**Note**: Throughout this document, the footnotes codes (such as 1B, 2A, 4C) refer to specific goals and policies presented to City Council on September 10, 2009 by Councilmember Don Fiene, and accepted by the Council on October 22, 2009.

## WHERE ARE WE NOW?

In 2008, the Environmental Quality Commission contacted Jones and Jones Architects to perform a canopy study, which the firm produced using 2004 data available from GIS and aerial sources.

The study provided maps showing canopy cover across the City and lot-by-lot analysis of the percent coverage of the canopy. (See Overview map on page 6.) This data has been compiled to show canopy cover by zoning/land use classification and by residential lot size. The data is abstracted below in the "**Setting Goals for Canopy Cover**" section (Page 11).

This study provides us with a snapshot in time (2004), and a baseline for historical comparison in coming years. This baseline provides a basis for periodic future analysis of our community forest to evaluate the success of education, regulation, and Forest Asset Management efforts. This current study, however, has limitations. It analyzes only one dimension of our community forest: canopy cover. Other aspects of the forest are equally important, such as tree size, condition, species diversity, age class, understory, and extent of invasive species.

Our community forest is an integral part of the visual and physical character of our community. In a values survey conducted in 2006, City residents (157 participants) responded to the question: "Which of the following values of trees are important to you?"

| | |
|---|---|
| • **Wildlife habitat** | **88%** |
| • **Erosion and stormwater control** | **85%** |
| • **Carbon (CO2) capture** | **79%** |
| • **Temperature moderation** | **76%** |
| • **View screening and privacy** | **75%** |
| • **Increased real estate value** | **66%** |
| • **None of the above** | **1%** |

# INTRODUCTION

## WHAT IS A "COMMUNITY FOREST"?

This CFMP addresses all trees in our community—native, naturally regenerated, and ornamental species. A healthy forest is a dynamic system made up of canopy, understory of woody shrubs, ground covers, soils and root systems that all function together. Although the CFMP focuses on trees, management strategies reflect the need to recognize all the components that are integral to good forest health.

Just as the system of roads, sewers, and stormwater system comprises the "gray" infrastructure, a community forest is a part of the "green infrastructure" defined as the natural life support system of the living space (as defined in the Legacy 100-Year Vision Project, Introduction Page 1).

Healthy trees and sufficient forest cover provide a variety of beneficial ecological functions. Benefits are experienced at every scale:

- Some benefits are on an individual scale; for instance, research shows that views of nature reduce stress and increase property values.

- Other benefits are on a community scale. Forest cover intercepts rainfall and releases it to flow slowly through the soil, reducing both runoff rates and peak volumes. In contrast to impervious surfaces, this reduces flooding, stream pollution and infrastructure costs, while increasing safety.

## COMMUNITY FOREST VALUES, BENEFITS AND SERVICES [2]

The values, benefits and services of community forests have been well documented. The Community Forest Management Plan seeks to preserve, maintain, restore, and enhance a vibrant healthy and diverse community forest within Lake Forest Park in order to take full advantage of benefits and services that trees provide to the community.[3]

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[2] Bradley, G. 1995. Urban Forest Landscapes: Integrating Multidisciplinary Perspectives. Seattle: University of Washington Press. Western Center for Urban Forest Research and Education. c/o Department of Environmental Horticulture, Univ OF CA. Davis, CA 95616. Aesthetics and Commercial Districts. 1993. Volume 1, No. 6 of the Scenic America Technical Information Series. Dwyer, McPherson, Schroeder & Rowntree. 1992. Assessing the Benefits and Costs of the Urban Forest. Journal of Arboriculture, 18(5) 227-234. Orland,Vining & Ebreo. 1992. The Effect of Street Trees on Perceived Values of Residential Property. Environment and Behavior, 24(3)298-325. Wolf, K. L. 2004. Economics and Public Value of Urban Forests. Urban Agriculture Magazine, Special Issue on Urban and Periurban Forestry, 13: 31-33.

[3] Goals and Policies 1F

## Economic Benefits of Trees in Cities [4]

Cities make many important decisions based on careful cost-benefit analyses of various options. Yet the values of trees and plants in our urban centers are often overlooked. Urban forests are a significant and increasingly valuable asset of the urban environment.

Scientists have quantified some of the significant services and benefits that trees provide for people in cities. A complete assessment of both benefits and costs is challenging and as yet incomplete. Nonetheless, an understanding of this information is valuable if decision makers wish to make cost effective policy and budget decisions.

Investments in the planting and care of trees represent long-term commitments of scarce dollars; improper plantings will increase costs and reduce benefits. Adequate resources for both planning and management of the green infrastructure are necessary if cities wish to optimize the values and benefits of the community forest.

## Environmental and Energy Savings [4]

Citywide, the number and quality of trees influence both biological and physical urban environments. Plants, if strategically placed and cared for, can become a "living technology," a key part of the green infrastructure that contributes to more livable places.

- **Improved Stormwater Management -** The tree canopy intercepts precipitation, reducing runoff before it can occur. It absorbs and stores water, which reduces the impacts of stormwater surges, especially in developed areas, streets and parking lots. In one study, 32-foot tall street trees intercepted rainfall, reducing stormwater runoff by 327 gallons annually. Savings are possible since cities can design and build surface water management systems that handle smaller amounts of runoff. Then, due to smaller size needed, they can be less costly to build and for their citizens to pay for through lower Storm Water Utility Fees.

- **Improved Water Quality -** Clean water is vital to the health of our environment and especially to fish habitat. The community forest helps remove pollution from water, reduces sedimentation by stabilizing soils and preventing erosion, helps moderate stream temperature, and helps protect Lake Forest Park's aquifer.

- **Heating and Cooling Costs -** A 25-foot tree, situated appropriately, can reduce annual heating and cooling costs of a typical residence by 8 to 12%, producing an average $100 savings per American household. Also, buildings and paving in City centers create a heat-island effect. A mature tree canopy reduces air temperatures (in the summer) by about 5 to 10° F, influencing the internal temperatures of nearby buildings.

- **Air Quality and Cleansing -** A typical person consumes about 386 lb of oxygen per year. A healthy tree, such as a 32-foot tall ash tree, can produce about 260 lb of oxygen annually - two trees supply the oxygen needs of a person each year!
  Also, cooler air temperatures created by tree canopies reduce smog levels by up to 6%, producing savings in air clean-up campaigns. Finally, a mature tree absorbs from

120 to 240 lbs of the small particles and gases of air pollution. In Sacramento, CA, for instance, this represents a value of $28.7 million.

## Retail and Commercial Environments [4]

Businesses work hard to offer products and services that meet the needs of their customers. The presentation or image of shops and business districts is also important. Trees help create a positive environment that attracts and welcomes consumers, and makes them shop longer and buy more.

- **Consumer Patronage -** In a survey of one southern community, 74% of the public preferred to patronize commercial establishments whose structures and parking lots were beautified with trees and other landscaping.

- **Commercial Land Values -** Weyerhaeuser surveyed real estate appraisers and found that 86% of them agreed that landscaping added to the dollar value of commercial real estate. Also, 92% also agreed that landscaping enhances the sales appeal of commercial real estate.

- **Boosted Occupancy Rates -** One study looked at 30 variables—related to architecture and urban design—of potential importance in determining office occupancy rates. Results suggest that landscape amenities have the highest correlation with occupancy rates, higher even than direct access to arterial routes.

## Residential Property Values [4]

House prices are also influenced by the presence of trees. Developers can maximize profits by retaining existing trees or replanting them after construction is completed.

- **Increased Home Sale Prices -** Several studies have analyzed the effects of trees on actual sales prices of residential properties. Homes with equivalent features—square footage, number of bathrooms, location—were evaluated. In one area a 6% increase in value was found to be associated with the presence of trees; an increase of 3.5 to 4.5% was reported in another study.

- **Tree Size and Value** - A team of researchers compared tree size and public valuations of homes. Tree size did not affect the appraised value of low price homes, but did affect values of more costly homes. For more expensive homes, small and medium-sized trees enhanced the public's perception of real estate value.

- **Unimproved Property Values -** Using a scale model of a land parcel, researchers found that there was a 30% difference in appraised value based on the amount and variation of tree cover. Taking into account the potential value of a house built on the site, the value increase would be close to 5%.

## Human Health Values [4]

Urban trees can play a beneficial role in two aspects of human health– physical and mental conditions.

A lack of physical activity is a leading factor in the nation-wide problems with obesity and associated health risks. National health organizations recognize the need to motivate people to engage in basic physical activities including walking and biking. Other research has shown how enabling forms of urban design (such as street layout, the presence of sidewalks and the proximity of parks) encourages activity. Tree lined streets encourage strolling, as the environment is more pleasant with trees than without trees.

Mental health is a second arena of health benefits with economic consequences. The presence of trees and "nearby nature" in human communities generates numerous psychosocial benefits. Kuo and partners (2003) have found that having trees within high density neighborhoods lowers levels of fear, contributes to less violent and aggressive behavior, and encourages better neighbor relationships and better coping skills. Research also shows:

- Schoolchildren with ADHD show fewer symptoms and girls show more academic self-discipline if they have access to natural settings.

- Hospital patients recover more quickly and require fewer pain-killing medications when they have a view of nature. Office workers with a view of nature are more productive, report fewer illnesses, and have higher job satisfaction.

These are important, but often unnoticed, effects for urban people who have views of trees and nature in the course of their normal, everyday activities and experiences. Although much work remains to be done, in theory all of these scientific findings could be translated to economic values. [4]

# SETTING GOALS FOR CANOPY COVER

The Urban Forest Task Force (UFTF) proposes using the 2004 citywide forest canopy cover data point of 43% as a minimum baseline—the point below which we will not allow our canopy to degrade—but not the upper limit of a desirable forest canopy. In other words, 43% may not be sufficient for our community to minimize the expense of delivering engineered services or to take full advantage of the functions that trees provide to our community and to maintain its "forested character." [5]

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[4] Bradley, G. 1995. Urban Forest Landscapes: Integrating Multidisciplinary Perspectives. Seattle: University of Washington Press. Western Center for Urban Forest Research and Education. c/o Department of Environmental Horticulture, Uni OF CA. Davis, CA 95616. Aesthetics and Commercial Districts. 1993. Volume 1, No. 6 of the Scenic America Technical Information Series. Dwyer, McPherson, Schroeder & Rowntree. 1992. Assessing the Benefits and Costs of the Urban Forest. Journal of Arboriculture, 18(5) 227-234. Orland,Vining & Ebreo. 1992. The Effect of Street Trees on Perceived Values of Residential Property. Environment and Behavior, 24(3)298-325. Wolf, K. L. 2004. Economics and Public Value of Urban Forests. Urban Agriculture MAGAZINE, Special Issue on Urban and Periurban Forestry, 13: 31-33

[5] Goals and Policies 1A

Obviously, it would be inappropriate to use 43% as a tree cover goal for every lot in the City. Instead, to reflect the diversity of neighborhoods and land use areas, the City shall adopt the following American Forests' Pacific Northwest canopy goals, as minimum benchmarks for setting various canopy goals: [6]

- 50% for Suburban Residential areas
- 25% for Urban Residential areas
- 15% for Business Districts

These benchmarks set by American Forests, a non-profit forest conservation organization http://www.americanforests.org are used nationwide, are tailored to the Pacific Northwest and have been used by Bellevue, Lacey, and several other Northwest cities to set achievable forest canopy goals.

We determined our 2004 canopy cover and compared it to the American Forests canopy cover classification benchmarks: Suburban, Urban, and Business Districts. It appeared to the UFTF that the most manageable evaluation method should consider parcel size rather than zoning classification for individual lots. The reason is that a zoning classification specifies the minimum lots size, not the actual lot size. Each zoning category can contain lots of various sizes.

While the American Forests' guidelines provide no specific definition of the terms "Urban" Residential and "Suburban" Residential, Lake Forest Park will consider the division to be at the ¼-acre:

- "Urban" for those lots ¼ of an acre (10,889 sq ft) or less,
- "Suburban" for all lots ¼ acre (10,890 sq ft) or more.

The following table summarizes data from Jones and Jones Architects, the consulting firm that furnished the tree canopy assessment, about the average canopy area of various lot sizes within LFP zoning classifications:

[6] Goals and Policies 1B

| LFP Canopy Cover by Zoning and Lot Size | | | | |
|---|---|---|---|---|
| **Residential Lot Size** | **Area (Ac.)** | **Canopy Area (sq. m.)*** | | **Avg. Tree Canopy** |
| 1/4 Acre (10,890 SF) or more | 1,220.4 | 2,632,415 | | 53% |
| Less than 1/4 Acre (10,889 SF) | 107.6 | 138,862 | | 32% |
| | | | **Total Residential** | **52%** |
| | | | | |
| **Business Zone** | **Area (Ac.)** | **Canopy Area (sq. m.)** | | **Avg. Tree Canopy** |
| Neighborhood Business | 3.7 | 2,086 | | 14% |
| Corridor Commercial | 9.6 | 9,909 | | 25% |
| Town Center | 19.3 | 3,070 | | 4% |
| | | | **Total Business** | **11%** |
| | | | | |
| **Other Ownerships/Uses** | **Area (Ac.)** | **Canopy Area (sq. m.)** | | **Avg. Tree Canopy** |
| Public Parks & Open Space | 59.8 | 157,026 | | 65% |
| Other City of LFP Property | 20.9 | 7,607 | | 9% |
| Public Schools | 14.4 | 8,003 | | 14% |
| Road ROWs | 372.6 | 425,280 | | 28% |
| Closed Road Easements | 20.8 | 49,149 | | 58% |
| Tolt Pipeline | 3.9 | 3,439 | | 22% |
| Vacant | 14.0 | 48,695 | | 86% |

* square meter

Tree canopy/density goals shall be the foundation for developing strategies to preserve, restore, maintain, and enhance our healthy community forest.

Many areas of our City do not currently meet the American Forests' minimum goals for tree canopy/density. The need to meet tree canopy/density goals will be triggered by development activities, including proposed land use changes and proposed changes to a built environment—such as remodel/expansion of a certain size—that require the property owner to acquire a building permit.

## PRESERVING AND ENHANCING THE CANOPY COVER

Recognizing that it's easier to save what you have than to try to regain what you've lost, the CFMP goals the City Council accepted on October 8, 2009, emphasize preservation of existing trees, where practical, considering tree health and longevity. [7] Improving the canopy will be an ongoing process, as areas to plant new trees are identified.

[7] Goals and Policies 7G

Canopy improvement would also entail risk management by identifying and replacing hazardous trees. This would include planting and replacing trees to ensure human safety and to place the right tree in the right place to avoid conflicts with structures, streets, driveways, sidewalks, and utility services.

Community input in 2006 to the Urban Forest Task Force made it clear that preserving large trees that characterize our City was of great value. In addition to the symbolic and aesthetic values that people may appreciate, large trees also "work harder" to reduce stormwater runoff and to improve air quality than newly planted or young trees. Young trees can take 20 or 30 years to achieve the same level of services.

To preserve, restore, maintain, and enhance the tree canopy will require a mix of strategies. Among those strategies, are the designation of tree tracts, the preserving and planting of trees in common areas, and the landscaping of individual lots with tree cover to meet the City's tree canopy/density goals. [8]

The community forest canopy should reflect a mixture of forest components: trees and understory composed of native and non-native, evergreen and deciduous species.

In general, decisions for preserving and for replanting trees on individual lots should be based upon the conditions of the site, considering criteria necessary for maintaining healthy and safe trees in the community forest.[9]

Where re-vegetation is needed, the emphasis should be on native vegetation and native evergreens. [10]

## Relationship to Comprehensive Plan and other Land Use Regulations

Within the Environmental Quality and Shorelines subsection of the 2005 City of Lake Forest Park Comprehensive Plan, is the Forest Canopy Element found on page 52.

In addition to detailing the benefits of an urban forest, the Community Forest Management Plan is the action plan to implement the goals of the Forest Canopy Element. The CFMP is also complimentary to the Legacy 100-Year Vision, which is scheduled to be included in the next Comprehensive Plan update.

The CFMP is intended to guide the development of the City's Tree Protection and Replacement Ordinance and other non-regulatory programs that will preserve and enhance

[8] Goals and Policies 5B
[9] Goals and Policies 1C
[10] Goals and Policies 7G

Lake Forest Park's tree canopy. [11] The Appendices to the CFMP summarize additional elements, which are being completed to fully implement the goals of this plan.

There are also numerous references to the importance and the benefits of the City's forests within the current Comprehensive Plan, which was passed December 1, 2005, as shown in the Table below:

| Source in Comprehensive Plan - December 1, 2005 | Reference |
|---|---|
| ***Vision Statement*** *p.18* | "The City will be a model for preservation of the environment and our natural resources within the surrounding urbanized region." |
| ***Development Opportunities and Options*** *p.32, 33* | "Two significant sub-basins that contribute surface waters… Note: the community forest is critical to limiting stormwater runoff and maintaining the health of our streams. p. 32<br><br>"Urban forests that provide wildlife habitat and tree canopy coverage, which is one of the most useful benchmarks of urban environmental quality." p.33 |
| ***Flood Hazard Areas*** *p.51* | "Preservation of native vegetation and trees, including those in or near environmentally sensitive areas, also helps limit the possibility for erosion." |
| ***Community Description*** *p.16:* | "…The community is known by the high degree of visibility of its mature Douglas Firs, hemlocks and maples…" |
| ***Goal EQ 8—Fish and Wildlife Habitat*** *p.58* | "Protect significant trees within Lake Forest Park....<br><br>"Protect native plant communities by encouraging management and control of non-native invasive plants…" |
| ***Forest Canopy*** *p.52* | "Urban forests are a vital resource of Lake Forest Park. ...<br><br>"The amount of tree canopy coverage is one of the most useful benchmarks of urban environmental quality. The City has a tree protection ordinance that recognizes the environmental benefits of community forests (see, Lake Forest Park Municipal |

[11] Goals and Policies 5A

| | |
|---|---|
| | Code 16.14). Environmental benefits of community forests include the following…" |

The zoning and other land use regulations should be consistent with the goals and principles of this CFMP and should reference appropriate sections of the Tree Protection and Replacement Ordinance where applicable. It is important to provide citizens with a clear expectation of the minimum tree cover that must be maintained on a property, not just at the time of development, but over the long term as well. The City's land use regulations should also reflect the CFMP's focus on promoting preservation or establishment of preferred tree species and tree stands. 12

Municipal Code sections and supporting materials that need to integrate appropriate references to Tree Protection and Replacement regulations include:

- Commercial Zoning
- Towne Centre Zoning
- Residential Multifamily and Single Family Zoning
- Sensitive Areas
- Clearing and Grading
- Street Excavation
- Drainage
- Subdivisions and Dedications
- Short Subdivisions
- Off-Street Parking
- Screening and Landscaping
- Road Standards
- Low Impact Development (LID) Standards
- Code Enforcement

## ARBORIST SERVICES

Implementing this CFMP will require an investment of time, personnel and funding. An important function necessary to achieve the goals of the CFMP is for the City to have a City Arborist under contract or on staff.

The City Arborist would be intimately involved in community forest sustainability. One of the roles of the Arborist is to foster the understanding of benefits of trees. Benefits provided by the community's urban trees are directly related to their size, any tree care activity that supports tree health and structural stability leads to sustainability. (See "**Appendix D: Tree Care and Best Management Practices,**" page 50) Conversely, activities that result in poor growth or increased cost, such as inappropriate site or tree selection and poor pruning practices, inhibit sustainability. This is true whether trees are growing on public or private property, singly or in small groups.

[12] Goals and Policies 5A

Because the City Arborist would have special knowledge about trees, he/she should provide expertise and leadership in developing programs associated with the sustainability of the community forest. These programs include the Inventory of Forest Assets, the Tree Planting and Maintenance Plan on Publicly Owned Property, and several initiatives described in the "**Education**" section (page 23).

The City Arborist will be involved in implementing the goals and policies of the CFMP and the revised Tree Protection and Replacement Ordinance to assure that arboricultural best management practices are used and to ensure compliance with accepted standards and regulations. Additionally, the City Arborist shall also ensure that public safety issues are considered whenever plans are being developed for tree protection, preservation, or landscape design. [13]

## EARLY INTERVENTION

Early intervention in any activity involving trees is the first and best action that we can take to ensure forest sustainability. It's too late once a tree is removed to ask what other alternatives were available to prevent the loss of this tree and the benefits, functions, and values that it contributed to the community. This is especially true for large trees.

For instance, research conducted by the USDA Forest Service, reveals that a single large deciduous tree measuring 30" in diameter at DBH (diameter at breast height) provides as much as 70 times the beneficial values of a 3" diameter tree.

Lake Forest Park currently has a large inventory of trees larger than 20" diameter and a considerable number greater than 30" diameter. Due to the beneficial values inherent in these trees, the need to preserve and protect them cannot be overstated.

The City Arborist should be the primary contact person for every tree removal permit or development submittal. People have many reasons to remove a tree, such as solar access, view enhancement, conflicts with buildings and other infrastructure, conflicts with neighbors, or to remove a hazard, etc; and too often tree removal is viewed as the only solution.

A site visit by the Arborist might well demonstrate to the applicant that a good alternative to complete tree removal would meet their objective, possibly even at lesser cost. The alternative techniques and applications that the City Arborist suggests shall be those that conform to the International Society of Arboriculture's (ISA) Best Management Practices (BMP) publications.

[13] Goals and Policies 3A

## Prior to Construction

Requiring early involvement by the City Arborist from the outset of the permit process for development and redevelopment provides another opportunity to protect and preserve trees. The goals and principles of the CFMP and the Tree Protection and Replacement Ordinance would be addressed at this time and would be applied right from the beginning.

The construction process can be deadly to nearby trees. Often the damage is extreme, but hidden; the trees may not die immediately but decline over years. Trees in areas of development can be protected and preserved when the correct measures are taken. It should be the responsibility of the City Arborist to communicate to the property owner, their arborist, and the construction company clear objectives and expectations of compliance to the site-specific tree protection and preservation plan during and after the construction phase.

The City should require a tree inventory and assessment during the design phase to identify those trees or tree tracts suitable to be considered for retention and preservation. A tree protection zone for every tree or tree tract should be identified. A detailed plan should be prepared with specifications for tree preservation that are in accordance with ISA's BMP-Managing Trees During Construction, such as erecting barriers, limiting access, and protection of the critical root zone, etc.

## Utility Pruning

Often trees are in conflict with overhead utility lines and must be pruned to clear the lines. This conflict is usually created because a tree species inappropriate for the site was planted or was established by natural regeneration.

When line clearance pruning is poorly performed and is not in compliance with accepted standards and practices, a major goal of the CFMP—to preserve, restore, maintain, and enhance trees—is threatened by a reduction and loss of the benefits and services provided by those trees affected. Many of the complaints about line clearance pruning include the fact that the trees are left disfigured from over pruning or topping, potentially leading to becoming a hazard requiring removal.

The City Arborist should be tasked to work directly with the utility companies regarding concerns the City has about inappropriate line clearance pruning practices and to suggest ways to avoid future problems. One example is for the City Arborist to organize a joint field session with the utility's arborist during their routine inspections for line clearance and pruning needs. This would give the City Arborist an opportunity to review and discuss with the utility's arborist how best to achieve, following the ANSI standards and ISA BMP, the required line clearance while minimizing the amount of tree crown removal.

The City Arborist should also be involved in reviewing utilities' designs about placement of new poles to avoid potential conflicts between existing trees and new poles.

The purpose of utility pruning is to prevent the loss of service, comply with mandated clearance laws, prevent damage to equipment, avoid access impairment, and uphold the intended usage of the facility/utility space.

The utility company and the tree pruning companies they contract with are directed by State Law to follow professional guidance standards and practices such as ANSI A300 Part-1 Pruning, Section 5.9 thru 5.9.3 and ISA-BMP Utility Pruning of Trees.

Electric line clearance and utility line clearance should conform to ANSI A300 (Part 5) Management, sections 52 thru 53.7.3 and ISA BMP Managing Trees During Construction.

The City Arborist would make an inventory and assessment following any line clearance work done by the utility's contracted tree service company to determine that work was performed in compliance with the ANSI standards and ISA BMPs. Non-compliance should be addressed to the utility company in a formal complaint.

### SUMMARY

The City Arborist should have certain duties and responsibilities in determining the applicability of the CFMP's goals and policies and the regulations of the Tree Protection and Replacement Ordinance for all development and tree removal requests in order to maintain the quality and extent of our community forest.

## FOREST ASSET MANAGEMENT

The long-term goal of community forest management is sustainability (maintaining ecological, social, and economic functions and benefits) over time. Because the environmental functions of the community forest largely depend on the amount of canopy cover, a healthy tree resource is an absolute necessity. Stewardship of the naturally occurring and planted trees is a central element to the sustainability of the community forest.

Concerns about tree health and structure, preservation during development and redevelopment, species and site selection, quality of planting stock, and standards of performance are integral to a sustainable community forest.

Developed lots in the City will be required to maintain a certain minimum tree canopy/density over the long term. [14] The long-term view is a practical approach, recognizing that every tree in the City is, until it dies, in a state of growth and increasing in size. Obviously, if a property owner seeks to remove a 24-inch diameter tall cedar and replace it with a 2-inch diameter cedar, it would take many years, if ever, to restore the

[14] Goals and Policies 4A

tree function value that the cedar provided. Further, if a vine maple replaced a cedar, the new tree would never compensate for the loss of services.

Forest sustainability requires that all members of the community understand the value of the community forest and are supportive of the Community Forest Management Plan. Leadership, professional expertise, and funding will be needed to develop programs associated with achieving sustainability.

A detailed inventory of the forest resources of Lake Forest Park will be necessary to provide the baseline data that will be used to demonstrate values and services, in dollars and cents, that the CFMP provides to the community. It will also set priorities for management goals and policies, as well as, aiding in effective decision-making.

## INVENTORY OF FOREST ASSETS

Today there is a recognition and clear understanding of the active role trees play in improving the environment of the urban community.

City streets, sidewalks, utilities, public works, schools, public buildings, etc. are all part of the gray infrastructure of the community. We understand and know what the effects and value of the gray infrastructure are and what they contribute to our community. Our forest resource of trees, shrubs, and ground vegetation are important elements of the green infrastructure that also makes a contribution, with measurable effects and values, to our community.

Communities that foster healthy green infrastructure are more livable, produce fewer pollutants, and are more cost effective to operate. Measuring our community forest is the first step toward understanding this resource and developing appropriate management plans for sustainability and optimal beneficial effects.

Unlike gray infrastructure, historically the functional role of trees as part of the green infrastructure in cities has not been adequately documented to date. Lacking a quantification of their value, trees services (or benefits) and values have not been factored into a city's budget process. The size, shape, and location of this part of the City's green infrastructure can now be measured and the public utility functions they perform can be accurately calculated (see Appendix for discussion of " **i-Tree Software**," page 41).

Inventorying our community forest is the first step towards understanding the value of this green infrastructure and the benefits it provides to our community. For details about conducting the inventory, see "**Appendix A, Inventory of Forest Assets**" page 41).

## NATIVE TREES

Native trees are well adapted to our environment. This means they are easier to maintain and add special value to the ecosystem. When making landscape-planning decisions, the Community Forest Management Plan requires giving special emphasis to selecting native

trees and vegetation, as they provide the greatest benefits including food and cover for birds, fish, and other wildlife. [15] Native trees are also often easier to maintain because they are acclimatized to our area.

While preserving and promoting planting of native trees is a goal of the CFMP, it is particularly important to preserve and promote planting native trees in all designated privately owned land that contains Sensitive Areas and their buffers. [16]

In 2007, Lake Forest Park became the 21st city in the nation to have earned the designation of a Community Wildlife Habitat City. Thanks to the efforts of the Good Stewards of the Lake Forest Park Stewardship Foundation, City staff, the Washington Department of Fish and Wildlife, and the National Wildlife Federation certified 165 Backyard Habitats in our community. Also, all five City parks, two businesses, and both elementary schools achieved certification. The goal of the Community Wildlife Habitat program is to create not just isolated backyard habitats, but corridors for wildlife. The Community Forest Management Plan is consistent with this goal.

## SAFETY

Trees may present a risk to life and property that is a concern to all property owners. This CFMP recognizes that this issue must be addressed while meeting the forest protection policies and objectives of the CFMP. The City Arborist can perform a tree risk assessment as part of the Inventory of Forest Assets.

Our older second growth native trees, mostly conifers that are 30 to more than 100 years old, largely define Lake Forest Park's "forest image." Trees do age and eventually decline. Property owners routinely find it necessary to remove a tree that may have previously been a healthy, beneficial component of the forest, but now threatens to break or fall.

In some cases, these "hazard trees" may present an imminent threat to life or property and require immediate removal. Emergency removal should be allowed without an issued permit, with the requirement that such removal is followed by retroactive application for the relevant permit. [17] A penalty should be assessed in cases where the proponent claims "hazard" but after the fact it is shown that the tree didn't fit the criteria as defined by the ordinance.

Preservation of large existing trees in development tracts is most successful when they are in groves or groups of trees, rather than as individual trees isolated from others. Trees in groves are less likely to be blown over during storms. Safety is a key reason, therefore, for

[15] Goals and Policies 8A
[16] Goals and Policies 6A
[17] Goals and Policies 2C

the required designation of tree tracts as described above in "New Residential Development, (See "**Property Type: New Residential Development,"** page 30).

Downed power lines also present a safety issue. It is therefore in the community's interest that conflicts between trees and power lines be minimized. However, there is ongoing community concern about the practices used for power line clearance. Increased City oversight of utility tree trimming plans (See "**Utility Pruning**," page 18) should, over time, reduce the damaging impacts of utility pruning practices on the community's trees. Going forward, the City should ensure that appropriate species are selected for use within street rights-of-way and on properties immediately adjacent to utility lines.

# INCENTIVES

Good stewardship of our community forests will rely on a City partnership with residents, with widespread voluntary compliance an indication of success. An incentive program is a positive way to encourage good tree care within the community and should be integral to any related ordinance or community engagement plan. This section explores possible incentives to foster community support for the CFMP and the related municipal codes, as well as encouraging voluntary efforts to preserve, restore, maintain, and enhance forest elements on private properties.

## FLEXIBILITY IN MUNICIPAL CODES

The City Arborist will able to provide flexibility and options to residents because of his/her expertise and because of a clear, well-written tree ordinance that provides flexibility and options. A flexible tree ordinance provides the City Arborist, City staff, and local residents and commercial entities with a wide range of choices for complying with the goals of the ordinance. A streamlined permit process gives City Staff the tools to incentivize residents.

## TAX INCENTIVES AND GRANTS

The 2008 Evergreen Communities Act in its "Guide to Community and Urban Forestry Programming" states:

> *"Broader community support for tree conservation and planning can be built through positive appeals for best practices that include voluntary and incentive-based programs, such as stormwater utility credits, certified wildlife habitat, density/building height bonuses, streamlined permit review, adjusted setback or parking requirements, and property or impact fee reductions."*

Future incentives like stormwater utility credits may become powerful tools to incentivize local residents.

The Evergreen Communities Act (Sections 26 through 30) lists a wide variety of infrastructure and environmental grants and loans available through several State agencies that will provide preferential consideration to applications from communities that have achieved recognition as an Evergreen Community. If these grants are obtained they may be used to fund incentive programs for LFP residents.

This Community Forest Management Plan will qualify Lake Forest Park for "Evergreen Community" status. [18]

# EDUCATION [19]

## INTRODUCTION

Community education is absolutely critical to Lake Forest Park's Community Forest Management Plan. The CFMP, the Tree Ordinance, and related policies are the foundation and a strong, focused, ongoing education effort is essential to ensure community understanding, voluntary compliance, and ultimately the development of a strong government-community collaboration in the stewardship of a healthy, functional community forest.

The Community Forest Management Plan Tree Board is responsible for carrying out the Education goals and efforts. (See "**Community Forest Management Plan Tree Board,"** page 26.)

Help in further shaping and defining this educational effort will come from many sources:

- Volunteers, including members of the Urban forest Task Force, as well as other volunteers interested in taking on specific tasks such as the Heritage Tree program;

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## [18] REFERENCES


- "A Guide to Community and Urban Forestry Programming" Washington State Department of Commerce Evergreen Communities Partnership Task Force
  http://isa-arbor.com/publications/ordinance.aspx - ISA Arboriculture Society Website. Section on guidelines for develop and evaluating tree ordinances


## [19] RESOURCES


1. Katy Krokower, Certified Arborist and Vice Chair of the Community Forest Commission of the City of Bainbridge Island.
2. A Guide to Community and Urban Forestry Programming, Washington State Dept. of Commerce, Evergreen Communities Partnership Task Force:
3. http://www.dnr.wa.gov/Publications/rp_urban_guideucfprograms.pdf
4. http://www.arborday.org/ - site about Arbor Day
5. http://isa-arbor.com/publications/ordinance.aspx - ISA Arboriculture Society Website. Guidelines for develop and evaluating tree ordinances
6. http://treesaregood.com/ - educational site of the ISA Arboriculture providing info to the general public about tree care
7. Lots of material from the previous tree task force (provided by Tyson Greer)
8. Input from the LFP EQC

- The City Arborist through one-on-one discussions while reviewing tree removal or site development requests and through other outreach activities;

- City staff through information in newsletters, hand-outs and on the City Website;

- Documents arising from the adoption of this CFMP, including the Tree Protection and Replacement Ordinance, and the property-owners' manual of Best Management Practices (BMP) for tree care (See "**Appendix D: Tree Care and Best Management Practices,**" page 50).

## Overall Strategy

- Align goals and efforts with established community goals (CFMP, Legacy, StreamKeepers, and Lake Forest Park Stewardship Foundation, etc);

- Focus on the positive: the good that can be accomplished by doing the right thing for the forest and therefore the community;

- Target efforts for each type of community member (resident, developer, etc);
    - Consider developing goals to reach a certain percentage of LFP residents

- Learn from what other organizations and communities have done and leverage existing efforts (i.e. Heritage Tree program);

- Focus on the Gaps
    - The lack of understanding of how trees and our forest relate to: storm water, water quality, air quality, community aesthetics, and costs/savings to the City and community;
    - The lack of understanding of how City policies intend to address the issues and accomplish community goals;
    - The lack of understanding of the balance between community goals/community benefits with individual property rights.

## Objectives

- To further the goals of the LFP Community Forest Management Plan by educating the community about the issues being addressed and the benefits of a healthy community forest;

- Help streamline the adoption of related City policies by providing positive, easy-to-understand educational materials and services;

- Provide resources and services that guide community members above and beyond ordinance compliance. I.e. *Make it easy to do the right thing* and enable *Right Tree/Right Place, Voluntary Compliance*; [20]

- Coordinate education initiatives and efforts with other groups and City commissions (such as the Environmental Quality Commission and Stormwater and Water Quality efforts, StreamKeepers, Good Stewards and the LFP Stewardship Foundation). [21]

- Develop programming that leverages the commitment and interest of citizens to support environmental stewardship that works collaboratively to increase wildlife habitat and other natural systems, and to generate greater public awareness of community, community forestry issues, and our strong local culture and environmental ethic. [22]

## A Critical Component: The City Arborist

Probably the most critical education component is the availability of a City Arborist. This expert, trusted resource will do more to educate residents and businesses and to guide the community towards voluntary compliance and forest management success than any other educational effort.

The UFTF strongly urges significant commitment of resources to ensure that the City Arborist service is offered at no or minimal cost (for example, for Level 1 tree removal) to our citizens so this resource is accepted by and accessible to all our citizens. It is the City's investment in our community forest. [23]

## Target Audience / Stakeholders

The table below includes target audiences for education efforts along with their potential needs. This list is meant as a starting point and not as a definitive list. For more details about education efforts and resources, please see the Appendix B.

| Audience | Needs |
|---|---|
| **LFP Resident / Property Owners & Renters** | • Filling the gaps (above)<br>• Easy to consume materials<br>• Help interpreting ordinances<br>• Planting and maintenance guide<br>• Community events that engage and educate |

[20] Goals and Policies 2G
[21] Goals and Policies 2H
[22] Goals and Policies 2F
[23] Goals and Policies 3D

| | |
|---|---|
| **Developers and Construction Industry** | • Clear ordinance<br>• Best Management Practices Guide<br>• Support and quick answers from staff<br>• Planting and maintenance guide |
| **Realtors** | • Targeted materials summarizing for realtors and their staff the philosophy, goals, and policies of the CFMP and related city ordinances<br>• Information about available resource for potential and new LFP residents |
| **Arborists** | Introduction to LFP's CFMP and goals |
| **Tree Trimmers, Removers & Landscapers** | • One page intro to the CFMP and Tree Protection Ordinance<br>• Best Management Practices Guide<br>• Planting and Maintenance Guide |
| **Educators/Students** | An expert resource that can easily integrate and compliment their existing curriculum without adding additional time and cost. |
| **City of LFP Staff** | Education on the CFMP, enforcement, and current Tree Ordinance |

## COMMUNITY FOREST MANAGEMENT PLAN TREE BOARD

During the 2006-2009 endeavors to revise the Tree Protection & Replacement Ordinance, the Urban Forest Task Force evolved as a focal point to address the need to better protect, restore, maintain, and enhance our City's forest resource and to expand public understanding of the value of a community forest.

Going forward, a Community Forest Management Plan Tree Board shall be created as a standing committee of the Environmental Quality Commission. [24] In addition to being a requirement for recognition by both the Tree City USA designation and the Evergreen Communities Act the Community Forest Management Plan Tree Board will be tasked as outlined below.

This Tree Board should have at least seven members and would include selected members of the Environmental Quality Commission and the Community Services Commission, tree specialists, and citizens of Lake Forest Park who are representative of the scope of community forestry issues in our City. [25]

[24] Goals and Policies 9A
[25] Goals and Policies 9B

The Tree Board shall undertake activities as necessary to:

- Monitor the effectiveness of the Tree Protection and Replacement Ordinance, enforcement issues, and the Community Forest Management Plan; it will issue an annual status report that updates the Gap Analysis and includes specific recommendations on measures to achieve the City's community forest goals. [26]

- At a minimum of every 5 years, review how the tree canopy cover and health of the community forest has changed so that the Community Forest Management Plan can be improved;

- Become a knowledge resource for the City about trees and community forest issues;

- Ensure development of an educational program and coordinate with other regional, City, and community efforts to increase awareness about the benefits of a community forest.

- Revise and clarify the Lake Forest Park Heritage Tree Program (See Appendix E, Heritage Tree Program, page 53).

## PLAN RELATIONSHIP TO PROPERTY TYPES

This section of the Community Forest Management Plan provides guidance targeted to particular types of property ownership/use/management.

Each land use classification shall have specific forest canopy cover goals based on zoning classification or, for residential properties, based on lot size. These requirements come into play when it's necessary to make decisions for tree preservation or tree planting. [27] Property owners should be encouraged to retain existing trees, particularly large ones, to the maximum extent possible. The use of native conifers, where practicable, should be emphasized. However, efforts for preservation, particularly evergreen trees, should also recognize individual preferences for residential landscaping. [28] Examples:

- A short plat of undeveloped land would be required to meet different standards than a minor remodel permit on an existing residence, regardless of the number of trees affected.

- A tree removal request on a small lot would be evaluated on different criteria than a similar request on a large lot.

[26] Goals and Policies 9C
[27] Goals and Policies 7C
[28] Goals and Policies 7E

- A comparison of the percentage of existing canopy cover on a lot to the goals of canopy cover for that size of lot would be made for a tree removal request. This process would determine if any tree replanting would be required.

## PROPERTY RIGHTS

All the trees in Lake Forest Park make up our Community Forest. This forest provides tangible and intangible benefits—economic, environmental, and social—to us all. As a result, what happens to individual trees can affect us as individuals living in a community. This necessitates a balance between the rights of the individual property owner and the interests of the community as a whole.

In addition to the general protection provided against "takings" provided by federal law, Washington law includes additional parameters that must be considered in crafting regulations applicable to new development, such as the tree regulations and mitigation standards called for by this Plan. It is the intention of this Plan that such regulations and mitigation standards be consistent with federal and state constitutional requirements, the State Environmental Policy Act, RCW 82.02.020, and other applicable law. It is also the intention of this Plan that such regulations and mitigation standards (including any monetary fees payable in lieu of tree re-planting) be applied so as not to result in a regulatory taking of private property without just compensation, and construed as reasonably necessary to mitigate the direct impacts identified as a consequence of proposed new development.

## STATUS OF PROPERTY TYPE: PREVIOUSLY DEVELOPED RESIDENTIAL

A "windshield tour" of Lake Forest Park reveals a great diversity in the amount of tree cover on individual developed residential lots in our City. The original City area still has many large lots with generous and stately canopies of native cedars, hemlocks, Douglas firs, and big leaf maple trees. The forested slopes of steep ravines continue to serve in stabilizing slopes, reducing stormwater runoff, and increasing water quality. The City's Sensitive Area Ordinance codifies the protections for this type of land.

Over the years, some areas that have been annexed into the City contain smaller lot sizes and therefore do not have the same tree density, tree size or canopy cover as the original City. Smaller lots constrain the ability to support large native conifers and other large-scale trees. [29]

Because a larger proportion of these small lots are consumed by the building, the driveways, the necessary site grading, and the minimal flexibility in locating underground utilities these lots do not have the canopy potential of the original City. Stem count may be

[29] Goals and Policies 7D

the most appropriate method to regulate these small lots while the percentage of canopy cover may be more effective in achieving the goals of the CFMP for the larger lots.

The results of the 2009 canopy study, based on 2004 GIS data, depict the pressure of site development on forest retention.

In aggregate, these smaller lots have a total canopy cover of 32%. However, one half of the "Urban Residential" (less than ¼ acre) lots do not meet the 25% canopy cover goal set by this CFMP.

Lots between ¼ acre and 16,000 SF have an aggregate canopy cover of 40%. However only 35% of the lots in this size group meet the "Suburban Residential" canopy goal of 50%.

About 5% of lots larger than 16,000 SF currently do not meet the 50% canopy cover goal. "Suburban Residential" lots (larger than ¼ acre, which is 10,890 SF) meet the 50% goal set by this CFMP. (See "**Setting Goals for Canopy Cover**," page 11)

Besides the impacts of past site development on residential lots, other factors, which may lead to tree removal, may be important to homeowners, including solar access for home and garden, and recreational needs. View preservation is important to some property owners.

An objective of this CFMP is that developed residential lots shall maintain a certain minimum canopy/tree count over the long term. The minimum standards for Developed Residential Properties should be based on the lot size and on the canopy cover goals of this CFMP. The need, if any, to replant trees or to plant additional trees would be triggered by a request to remove existing trees or by development activities that require the homeowner to obtain a building permit. By working with the City's Arborist, property owners will have flexibility in how their property can meet the CFMP goals. [30]

Choice of trees to retain or replant is often a matter of strong personal taste. A certain amount of flexibility should be allowed for individual lot owners to reflect individual tastes, landscaping preferences, and needs. Decisions for preserving trees and replanting should also consider criteria necessary for maintaining healthy, safe trees on that property and for neighboring properties. Trees selected will need to be integrated with expected land uses[31] and reflect CFMP goals for the long-term health and viability of the community forest. [32]

Additional considerations for regulating tree removal on developed residential lots include:

- Emphasis on the preservation of existing native trees within Sensitive Areas and their buffers, and use of native species for any tree replacement required within those areas; [33]

[30] Goals and Policies 4A
[31] Goals and Policies 1C
[32] Goals and Policies 7G
[33] Goals and Policies 6A

- New required trees may be planted in the adjacent street rights-of-way (ROW) if location and species criteria set by the City are met;

- Trees age and eventually decline. Property owners, particularly of larger lots, routinely find the necessity to remove a tree that may have previously been a healthy, beneficial component of the forest;

- This CFMP recognizes the need to replace declining components of the community forest with new trees and understory to ensure long-term objectives of maintaining the community forest's ecological, social, and economic functions and benefits over time;

- Owners of larger lots (10,890 SF or greater) should be granted extra flexibility regarding replacement for trees removed if the existing canopy of their property exceeds the canopy cover goal set by this Plan.

## PROPERTY TYPE: NEW RESIDENTIAL DEVELOPMENT

Development of new residential lots presents a different set of challenges to our community forests. While there is little vacant land available for new homes in LFP, small plats including "flag lots" continue to occur and to trigger significant development pressure on the forests on those sites and the neighboring lands. On-site loss of existing forest canopy and associated forest benefits for the community are inevitable and severe. Lot sizes are generally near the minimum allowed by the underlying zoning. Necessary site grading to accommodate buildings and pavements, along with minimal flexibility in locating underground utilities all contribute to the need to remove existing trees.

The City should coordinate requirements of zoning and subdivision ordinances to increase their clarity and flexibility in support of this Community Forest Management Plan.[34] (See "**Relationship to Comprehensive Plan and Other Ordinances,**" page 14)

Review and approval by the City of all property development requests shall integrate the goals and principals of this CFMP. [35] This process of review includes the early and ongoing input of the City Arborist.

Developers shall use strategies to preserve existing trees where possible and ensure planting of additional new trees to meet the long-term forest cover objectives of this CFMP. [36] Regulation and plan review/approval of these developments should include, but not be limited to, consideration of:

[34] Goals and Policies 5A
[35] Goals and Policies 5C, 5D
[36] Goals and Policies 5B

- In every land division over a minimum designated size, there should be a requirement to designate a tree tract(s) for preservation and maintenance of existing forest canopy.

    - A "tree tract" is a portion of land designated for preservation and protection of existing trees or the planting of new trees to maintain tree canopy at a development site. The "tree tract" shall be a separate designated lot(s) shown on the plat map and shall be recorded with appropriate description of purposes and restrictions. Restrictions should reserve the tract for the protection and preservation of trees in perpetuity and should not allow any use other than the growing of trees, except those uses that are compatible with the trees and will not negatively impact tree health. [37]

    - The tree tract(s) should comprise a minimum part of the total site and serve as a primary strategy for maintaining significant tree canopy following plat development.[38]

    - Designation and survey of these tree tracts should reflect professional evaluation of tree health and longevity and should require additional in-plantings necessary to maximize the tract's ecological, social, and economic functions and benefits over time.

    - Areas of the proposed development outside the tree tract(s) should be replanted with trees appropriate to the scale and functions of the spaces and compatible with the CFMP to provide for long-term achievement of the goals for canopy cover and associated forest benefits. [39]

    - These original stipulations including tree tracts and trees planted on individual lots should be noted on the property titles to ensure compliance into the future.

- Emphasis on the preservation of existing native trees within Sensitive Areas and their buffers, and use of native species for any tree replacement required within those areas.

- New required trees may be planted in the adjacent street rights-of-way if location and species criteria set by the City are met.

- The City should allow flexibility in meeting portions of the site development standards provided this flexibility results in enhanced retention and protection of existing forest elements and benefits.

[37] City of Lacey code
[38] Goals and Policies 7A, 7F
[39] Goals and Policies 7B

## Property Type: Towne Centre, Commercial Corridors, and Neighborhood Business Properties

Properties zoned for neighborhood business and commercial corridors present many of the same challenges to the community forest, as do the residential zones. These properties, taken as a whole, currently have tree canopy coverage of 22%, which is above the goal of 15% for overall commercial. There are however properties that are below the 15% goal.

The minimum standards for these commercial properties should be based on the lot size and on the canopy cover goals of this CFMP. The need to replant trees or to plant additional trees would be triggered by a request to remove existing trees or by a certain threshold of development or redevelopment activities. Existing codes don't fully address the community's needs for landscaping in these areas. (See "**Relationship to Comp Plan and Other Ordinances,**" see page 14.)

Negotiated results should be the key to obtaining needed City permits. By working with the City's Arborist, property owners will have flexibility in how their property meets the goals of the CFMP.

The Towne Centre represents a unique situation within LFP. It is currently built-out, but is likely to be redeveloped in the future. The Towne Centre currently has canopy cover of 4%, significantly below the 15% tree cover goal for commercial areas. Significant opportunities for new tree plantings will be triggered by any proposal for redevelopment. Existing codes don't fully address the community's needs for landscaping at Towne Centre. Negotiated conditions will be the key to obtaining needed City permits.

Additional considerations for regulating tree removal and replacement on commercial properties include:

- Providing trees in pedestrian areas, particularly where required in design criteria for pedestrian access across parking lots, to develop a canopy over walkways; [40]

- Emphasize preservation of existing trees, where practicable, with consideration of tree health and longevity. When trees are removed, these areas should be intensively replanted with trees, appropriate to the scale and functions of the spaces, to provide for long-term achievement of targets for canopy cover and associated forest benefits. [41]

[40] Goals and Policies 7H
[41] Goals and Policies 3C

## PROPERTY TYPE: PUBLICLY OWNED (PARKS, MAINTENANCE YARDS, ETC.)

Publicly owned parcels comprise just 4% of the total acreage of the City; two-thirds of that acreage represents City parks. Canopy cover on these lands is currently 45%. In recent years, the City has focused on using native trees and shrubs for all park improvements and restorations.

All tree plantings on public properties should be guided by a tree planting plan (See Appendix C, **"Tree Planting and Maintenance Plan on Publicly Owned Property,"** page 48), based on an Inventory of Forest Assets, which would identify opportunities for additional trees and set priorities. This Plan should be created in collaboration with adjoining property owners. It should continue the current preference for native tree species, while also recognizing the need to coordinate decisions with site uses and with a desire for diversity of species, sizes, and aesthetic quality for trees in our parks. [42]

Trees age and eventually decline. Over time, the City may find it necessary to remove a tree that may have previously been a healthy, beneficial component of the forest. This CFMP recognizes the need to replace declining members of the forest with new trees to ensure long-term objectives of maintaining the community forest's ecological, social, and economic benefits over time.

The City, on its own properties, should provide trees in pedestrian areas, particularly where required in design criteria for pedestrian access across parking lots, to develop a canopy over walkways. [43]

## PROPERTY TYPE: RIGHTS-OF-WAY/STREET TREES

Street rights-of-way comprise 16% of the City's area. They represent an underutilized opportunity for adding to the canopy and associated benefits of our community forest.

In many communities, street trees are used to add a symbolic cultural or natural heritage identity. Currently, the City lacks a comprehensive street tree/rights of way planting or maintenance plan. The trees that do occur in these areas are largely the result of natural regeneration or planting by adjacent homeowners (who subsequently are responsible for maintenance of those trees). Any City program for planting trees in the rights-of-way should include adjacent property owners in decisions about locations and species of trees.

Trees within and adjacent to the rights-of-way are subject to periodic utility pruning, which is required to maintain vegetation clearances for existing power lines and other overhead lines. Some of the conflicts between utility maintenance practices and community interest result from growth of inappropriate trees along the streets. Some of these trees are from natural regeneration, others from poor planting choices by adjacent landowners.

[42] Goals and Policies 1E
[43] Goals and Policies 7H

City policy should require consideration of appropriate tree species for use in and adjacent to utility corridors and, perhaps, provide flexibility in permitting removal of 'problem' trees on private properties adjacent to these corridors. Planting the right tree in the right place, coupled with increased City oversight of utility tree trimming plans should, over time, reduce the damaging impacts of utility pruning practices on the community's trees. (See "**Utility Pruning**," page 18)

### BUFFERS BETWEEN ZONING CLASSIFICATIONS

In a few situations in Lake Forest Park, high-intensity land uses lie adjacent to single-family residential areas such as the Towne Center and the Elks property. Landscape buffers between these zones may help mitigate the potential impacts of noise and site activities. The City should develop policies and regulations, including development of a landscaping code, that will provide for buffers between incompatible land uses.

These buffers are distinct from those required adjacent to Sensitive Areas, but share objectives for reducing impacts on the 'receiving' properties.

As designated by the City, these buffer areas should preserve existing native trees, shrubs, and groundcovers; and supplement them with additional plantings. [44] The use of native conifers, where practical, should be emphasized. [45] Guidance for evaluating site suitability and tree selection is provided below under "**Replacement Tree Selection Criteria**" (see page 37).

## PERMITS AND PLANS

Achieving the goals set forth by City Council can be accomplished through a mix of education, incentives, and regulation. Regarding regulation, one of the Council's policies requires developing a Tree Protection and Replacement Ordinance that both is easy to administer—we are a small City with limited resources—and minimizes the burden of the permit application process for property owners. [46] Indeed, input that the Urban Forest Task Force received from the public emphasized the need for the permit process to be simple and regulations to be easy to understand.

A key factor in minimizing the burden of tree removal permits is the role of the City Arborist. This individual (with a broad knowledge of forests, their tree and understory components, and the community values and services they provide) would not only provide in-field information, but also address objectives of streamlined processing and flexibility in achieving benefits for both the proponent and the community. This Arborist input should be

[44] Goals and Policies 6B
[45] Goals and Policies 7A
[46] Goals and Policies 2A

provided at no cost for minor tree removal requests, with partial or full cost recovery placed only on major development/permits. [47]

The requirements of this Community Forest Management Plan shall be addressed early in the subdivision planning process to consider tree protection, tree preservation and/or replacement, prior to preliminary approval. [48] As part of this review, the proponent should provide a tree count/canopy cover analysis during plan review, subject to final approval of the City Arborist and the Planning Department. These original requirements shall also be continuously applied to individual lots as new building permits for these lots are applied for and approved. [49]

The City shall allow flexibility in the landscaping plan of development sites to preserve areas of native vegetation where appropriate or create areas of native vegetation, reflecting the community-wide objectives of preservation of tree tracts and replenishment of the native tree component of our community forest through time. [50]

The City shall condition all development permits with specific and detailed requirements to protect trees (through Best Management Practices) designated for preservation during construction activities.

# TREE REPLACEMENT

## WHICH TREES ARE REGULATED?

In recognition of the many community benefits provided by trees in LFP, the City regulates the removal of all significant trees. "Significant tree" is defined as any tree larger than 6 inches in diameter at four and a half feet from the ground. All properties in the City are covered including undeveloped land, existing homeowner and business properties, and public lands including street rights-of-way. The City also provides an expedited process to allow removal of "hazard trees": those trees that present an imminent threat to life or property due to their unacceptable risk of failure. [51]

Permitted tree removals may include a requirement to plant replacement trees. This requirement would be based on the proposed action, and on the evaluation of lot size and existing canopy. For example, requirements for proposed land development and major new site construction should differ from requirements for cutting individual trees on an existing residential lot. Recognizing the range of lots sizes in LFP and the variability of existing

[47] Goals and Policies 3D
[48] Goals and Policies 5C
[49] Goals and Policies 5D
[50] Goals and Policies 5E
[51] Goals and Policies 2C

canopy cover on individual lots and neighborhoods, replacement planting may be reduced or not required, if forest canopy objectives are otherwise met. To provide a streamlined permit process and increase flexibility, the proponent would be assisted in this evaluation by the City Arborist.[52]

Flexibility may also be provided for addressing certain species of trees identified by the City as "invasive species": non-native species that spread readily in unmaintained settings and negatively impact habitat and diversity objectives of the community forest.

## Replacement on Private Property

The first priority for required plantings should be on-site replacement. This recognizes that localized replacement of trees is a key component to meeting Goal 1 of the CFMP:" preserve, restore, maintain, and enhance a vibrant, healthy and (age) diverse community forest…" However, regulation should provide landowners flexibility in how their property supports this goal.

To assist property owners and to support long-term objectives for forest health and diversity, the City should develop guidance for replacement tree planting.

- Selection Criteria to support a coordinated, deliberative approach on selection of preferred species. (See "**Replacement Tree Selection Criteria"** section, page 37)
- Detailed planting and maintenance specifications based on Best Management Practices.

For major site development or tree removal requests, the Planning Director may require a Monitoring and Maintenance program to ensure success of the replanting. (See "**Monitoring and Maintenance of Trees Planted on Private Property**," page 38)

## Replacement Tree Planting on City property

If the property owner believes on-site replacement is inconsistent with their reasonable use of their property, an option for off-site replacement should be available. This option would require payment of a fee into a City account (Tree Fund) dedicated to planting trees elsewhere in the City. The size of the fee shall reflect, as a minimum, the City's cost of purchase, installation and maintenance of a tree of the required size/species.

The priority for tree planting elsewhere in the City from the Tree Fund should be on City properties and rights-of-way. The City currently has no street tree program for trees in the rights-of-way. The trees that do occur in these areas are largely the result of natural regeneration or planting by adjacent homeowners. Any City program for planting trees in

[52] Goals and Policies 3D

the rights-of-way should include adjacent property owners in decisions about locations and species of trees.

The Planting and Maintenance Plan for trees on City owned property shall guide all tree plantings on public properties. [53] (See "**Appendix C, Planting and Maintenance Plan on Publicly Owned Property**," page 48). This plan will be developed after the Inventory of Forest Assets is completed.[54] (See "**Appendix A, Inventory of Forest Assets**," page 41).

Elements of this plan would include:

- Maps of existing tree assets and their characteristics that also identify opportunities for additional tree plantings;
- A prioritized list to guide future plantings of trees, either from the Tree Fund or from other City assets;
- Selection Criteria (see below) to support a coordinated, deliberative approach on selection of preferred species;
- Criteria for placement and species of trees in rights-of-way, including coordination with overhead utilities, as well as a framework for consultations with adjacent property owners;
- An appendix to the plan that details planting and maintenance specifications based on Best Management Practices.

In the future, funds dedicated to tree replacement may exceed the capacity of City-owned properties to absorb additional plantings. The City could then (or earlier) initiate a program modification that would allow funded tree plantings on private property, at the request of individual property owners. These requests will comply with the Inventory of Forest Assets (See "**Inventory of Forest Assets,"** page 41) and the Replacement Tree Selection Criteria (next page).

## REPLACEMENT TREE SELECTION CRITERIA

In order to preserve, restore, maintain, and enhance a vibrant, healthy and diverse community forest within LFP, tree replacement requirements should be based on a broad range of criteria in order to best mitigate for the loss of the tree's benefits to the

[53] Goals and Policies 1D
[54] Goals and Policies 1E

community. [55] Special emphasis should be given to choosing native tree species due to their numerous environmental benefits (See "**Native Tree**," page 20). [56]

- The City shall maintain an approved Tree List to assist property owners in finding tree species compatible with their needs for size, seasonal characteristics and habitat value;

- The City Arborist shall be available to the property owner to assist in determining best planting location and species for replacement trees; [57]
- Site criteria to be considered includes topography and drainage; sensitive areas; and on-site and neighboring tree species; [58]

- Decisions should reflect site use considerations: owner's desired activities, wildlife habitat support, and special aesthetic considerations;

- For publicly-owned property and on City rights-of-way, the City Tree Replacement Plan will allow for collaboration with adjacent property owners; [59]

- In order to meet long-term objectives for replenishing the community forest, consideration should be made to the existing canopy cover and the other on-site and neighboring trees size, age class, and health.

## MAINTENANCE AND MONITORING OF TREES PLANTED ON PRIVATE PROPERTY

The Planning Director may require a maintenance and monitoring program for trees planted on private property. The applicant shall submit maintenance and monitoring program prepared by a qualified professional that shall, at a minimum, include the following:

- The goals and objectives for the maintenance and monitoring program;
- The criteria for assessing the maintenance and monitoring;
- A monitoring program that includes annual site visits by a qualified professional, with annual progress reports submitted to the Planning Director and that lasts for a period sufficient to establish that performance standards have been met as determined by the Planning Director, but no less than five years;

[55] Goals and Policies 3B
[56] Goals and Policies 8A
[57] Goals and Policies 3D
[58] Goals and Policies 6A
[59] Goals and Policies 1F

- A contingency plan;

- A signed copy of the written contract with a qualified professional who will perform the monitoring program. The contract shall incorporate the terms of the required monitoring program.

Whenever the Planning Director determines that monitoring has established a significant adverse deviation from predicted impacts, or that mitigation or maintenance measures have failed, the applicant or the property owner shall be required to institute corrective action, which shall also be subject to further monitoring as provided in this section.
All costs associated with the maintenance and monitoring program therefore, including City expenses, shall be the responsibility of the applicant.

### BOND REQUIREMENTS

The Planning Director may require a performance bond(s) or other security in an amount sufficient to guarantee that all required maintenance and monitoring measures will be completed in a manner that complies with conditions of approval and to guarantee satisfactory workmanship and materials for a period not to exceed five years. The Planning Director shall establish the conditions of the bond or other security according to the nature of the proposed maintenance or monitoring and the likelihood and expense of correcting mitigation or maintenance failures. [60]

## ENFORCEMENT

While incentives and education may eventually render enforcement obsolete, it is always wise to have enforcement capability associated with a tree ordinance to effectively protect this valuable community resource.

The City should develop an ordinance with enforcement provisions that are fair, based upon professional evaluation, and promote the vision of the Community Forest Management Plan. The enforcement program should include mitigation fees and fines for noncompliance.

- **Mitigation fees** – If onsite mitigation is not possible, mitigation fees shall be based upon a fair value of the trees lost, including a value for community services that trees provide and the replacement cost of trees. Mitigation fees and fines shall be used to support the City's Community Forest Management Plan through the maintenance and planting of trees on public owned property and to offset the cost of providing City Arborist services to property owners; [61]

[60] Goals and Policies 5B
[61] Goals and Policies 2B

- **Penalties** - In cases where a violator intentionally or knowingly violated the ordinance or has committed previous violations, mitigation costs should be based on the City appraised tree value of the removed trees utilizing the industry standard "Trunk Formula Method" defined in the current edition of Guide for Plant Appraisal;

- **Increased Permit Fees** - In addition to or in place of any other remedy or penalty authorized by the ordinance, the administrator should be able to charge a fee equivalent to triple the fee associated with a Level II tree permit to any person who conducts unpermitted activity requiring a Level I or Level II tree permit;

- **Tree Service Companies** - Require tree service companies that wish to do business in Lake Forest Park to: [62]

    - Obtain a Business License in Lake Forest Park;
    - Sign an affidavit that they have read, understood, and will comply with the CFMP and the Tree Protection and Replacement Ordinance.

**"People who will not sustain trees**
**will soon live in a world**
**which cannot sustain people."**
Bryce Nelson

**"Trees are the best monuments that a man**
**can erect to his own memory. They speak his**
**praises without flattery, and they are blessings**
**to children yet unborn."**
Lord Orrery, 1749

[62] Goals and Policies 2E

# Appendices:

***These appendices are necessary for full implementation of CFMP. Those that are not yet complete provide a framework.***

## APPENDIX A. INVENTORY OF FOREST ASSETS

We do not currently have a broad inventory of our forest assets. An Inventory of Forest Assets is a catalog of existing trees and their associated attributes, and includes an assessment that evaluates the state of the existing forest resource. Both are essential tools in identifying current maintenance and management needs, and setting future goals.

An Inventory of Forest Assets would be invaluable for informing educational and Forest Asset Management efforts. (See "**Forest Asset Management**," page 19.) This citywide inventory would require considerable professional arborist input, supplemented by volunteer data collection. The inventory would gather and track data on tree sizes, species, age, and distribution. It would also evaluate tree health, tree risks, and collect data on invasive trees and plants within our forests.

Once we know what makes up the components of the canopy, we can then devise strategies to keep those assets in balance over time.

A member of the Urban Forest Task Force has offered his services as a community donation to design, prepare and conduct an inventory of the community forest for the residents of LFP. He is a Consulting Arborist residing in LFP. He is an ISA Certified Arborist and PNW-ISA Certified Tree Risk Assessor, has an Associates Degree in Forestry, and has 15 years of forest technology and forest management experience earned while employed with the USDA Forest Service. He has specialized knowledge, skills, and experience with a wide variety of forest and tree inventory systems and field data collection methods.

### I-TREE SOFTWARE

The inventory and assessment will be completed using ground based inventories and i-Tree inventory analysis and assessment software products. i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban and community forestry analysis and benefits assessment tools. The i-Tree software is in the public domain. The inventory will be designed to map to the parameters of the CFMP canopy goals.

i-Tree tools help communities of all sizes to strengthen their community forest management and advocacy efforts by quantifying the environmental services that trees provide and assessing the structure of the community forest.

The i-Tree software suite v. 3.0 includes two flagship community forest analysis tools.

- **i-Tree Eco** provides a broad picture of the entire community forest. It is designed to use field data from randomly located plots throughout a community along with local hourly air pollution and meteorological data to quantify community forest structure, environmental effects, and value to communities. This is the tool for the initial Inventory.

- **i-Tree Streets** focuses on the ecosystem services and structure of a municipality's street tree population. It makes use of a sample or complete inventory to quantify and put a dollar value on the trees' annual environmental and aesthetic benefit, including energy conservation, air quality improvement, carbon dioxide reduction, stormwater control, and property value increases. This tool will be important for developing the Tree Planting and Maintenance Plan on Publicly Owned Property (See **"Planting and Maintenance Plan for Publicly Owned Property**," page 48).

The assessment model currently calculates the following parameters based on standard inputs of field, meteorological, and pollution data.

- Urban forest structure, including species composition, tree cover, tree density, tree health (crown dieback, tree damage), leaf area, leaf biomass, and information on shrubs and ground cover types;

- Hourly pollution removal by the community forest of ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and particulate matter (PM10). The model accounts for potential negative effects of trees on air quality due to BVOC emissions (Biogenic volatile organic compounds);

- Effects of trees on building use and related reductions in carbon dioxide emissions;

- Total carbon stored and net carbon sequestered annually by trees;

- Susceptibility to gypsy moth and Asian longhorn beetle;

- Exotic species composition.

The i-Tree Eco tool makes use of user-collected field data. For large areas (entire cities or neighborhoods), a random sample of fixed area plots is analyzed. For smaller-scale sites, a complete inventory option is available that will provide information on community forest structure, pollution removal, carbon sequestration and storage, and resource value. Model outputs are given for the entire population and, for smaller scale projects making use of complete inventories, results are also provided for individual trees.

The Inventory of Forest Assets report will not be included in this draft CFMP due to the amount of time required to prepare the inventory, collect field measurements, analyze input data, and produce an assessment report. It would, however, be completed before Council adoption deadlines, and could be made part of the CFMP as an appendix, adding considerable supportive information to influence acceptance of the CFMP.

# APPENDIX B: EDUCATION

## IDENTIFIED GAP: EDUCATION

Educational efforts need to focus on helping property and business owners, developers and construction industry members; tree trimmers, removers, and landscapers; arborists; realtors; and educators and students understand the vital role our forest plays in our community, how to maintain tree health, and alternatives to just cutting down trees, as well as understand their responsibilities under the ordinance.

## POTENTIAL STRATEGIES AND RESOURCES

| Effort | Resource |
|---|---|
| **City of LFP Website** | Provide easily consumable, resident/business- friendly information (including interactive content and multimedia) about the City's CFMP, Tree Ordinance, and incentives |
| **Arbor Day** | Lead community participation in National event April 30th<br><br>Examine existing program to ensure ongoing compliance |
| **Heritage Tree program** | Examine existing program and contribute to EQC's re-design<br><br>Participate in increasing awareness for the program |
| **Community Forest Plan Tree Board outreach** | • Presence at community events (Farmer's Market, etc)<br>• City Website<br>• LFP City TV Channel<br>• City news letter & "etc*" (electronic Town Crier)<br>• Mailings<br>• Library – Work with Lake Forest Park librarians to get a Recommended Reading List published for Tree/Forests<br>• Gardening and related clubs<br>• Lake Forest Park Stewardship Foundation – notices in their newsletter<br>• Create a survey for LFP residents to aid in identifying gaps in citizen understanding and information |
| **Tree & Community Forest Awareness** | • "Tree photo of the month." Posting of tree photos provided by citizens in periodicals (Towne Crier) and relevant Websites<br>• Tree Walks of LFP (2008)<br>• A Citizen's Guide to LFP Tree Ordinance<br>• Planting guide and maintenance info<br>• Ongoing efforts to keep residents up to date<br>• LFP Tree Calendar |

| | |
|---|---|
| | • Third Place Commons Digital Community Kiosk<br>• Developing the concept of LFP Signature Tree(s) (EQC and CSC)<br>• US Forest Service's Urban & Community Forestry Resources: http://na.fs.fed.us/urban/inforesources/index.shtm<br>• US Forest Service's Informational Handouts for Property Owners: http://na.fs.fed.us/urban/treeownersmanual<br>• International Society of Arboriculture's (ISA) consumer education Website: http://www.treesaregood.org/<br>• Dave Ward, Principal Watershed Steward, Snohomish County Surface Water Management. Has presentation about their efforts to develop an education program for stream-front property owners. |

The Community Forest Management Plan Tree Board will be responsible for carrying out and coordinating the education component of the CFMP. This section includes ideas and resources that could be used in the education effort.

**LFP RESIDENTS**

It is a challenge to reach all residents with a single coherent message. The residential component of the plan will need to be creative about how to reach residents who are not attending public meetings and community events and who are not immediately accepting of the City's efforts.

**TREE TRIMMERS, REMOVERS, AND LANDSCAPERS**

- These businesses that operate in LFP are required to obtain a City Business License. When they apply, they should receive Introduction to LFP Goals and CFMP, Best Management Practices guide, and Guide to City's Tree Protection and Replacement Ordinance advising them of tree protection requirements; then sign an affidavit that they have read, understood and will comply with the CFMP and the Tree Protection and Replacement Ordinance.

**DEVELOPERS AND CONSTRUCTION INDUSTRY**

- Best management practices guide and materials. The City will use funds from the Department of Ecology's Coordinated Prevention Grant (CPG) to work out technical issues with the ordinance and materials to help developers creatively comply. Material is also needed for homeowners to assist them in working with their contractors.

- Goal: Get a good development application the first time.

**REALTORS**

- Targeted materials summarizing for realtors and their staff the philosophy, goals, and policies of the CFMP and related city ordinances.

- A packet of information including available resource for potential and new LFP residents.

**Educators/Students**

- Expert resources to engage local schools. The key is to integrate with the school curriculum and teach skills not just subjects. Need a local champion. Target in order of priority: elementary schools, middle schools, and high schools. This is a long-term effort to inform students and their families, and shall may be coordinated with EQC's "in the schools" outreach effort.

- Tree education curriculum and teaching resources: http://www.bbc.co.uk/breathingplaces/autumn09/

**CITY OF LFP STAFF**

- Training on CFMP, Tree Ordinance, enforcement, and related materials

## COMMUNITY GROUPS AND COORDINATION

The following is a list of community groups that will have contributions to make towards the CFMP education goals. The Tree Board will be responsible for engaging these organizations in a coordinated education effort.

| Organization | Potential Role / Contribution |
|---|---|
| **Environmental Quality Commission** | • Environmentally focused education and awareness efforts, including Stormwater and Water Quality efforts, developed for LFP residents, businesses, and schools.<br>• Managing the Heritage Tree Program |
| **Community Services Commission** | • Education and awareness of the LFP Legacy Plan by the Legacy Advisory Committee developed for LFP residents<br>• Managing community beautification and community identification through tree plantings |
| **Planning Commission** | • Providing guidance to City on materials for residents, businesses, and applicants to understand and easily interact with requirements of the Tree Protection and Replacement Ordinance |
| **StreamKeepers** | • Environmentally focused education and awareness efforts developed for LFP residents |
| **LFP Stewardship Foundation and Good** | • Environmentally focused education and awareness efforts developed for LFP residents |

| | |
|---|---|
| **LFP Stewardship Foundation and Good Stewards** | • Environmentally focused education and awareness efforts developed for LFP residents |
| **City of LFP** | • Providing residents, business owners, and contractors with information via mail, email, the City's Website, and materials at City Hall. |
| **City Arborist** | • Expert resource and disseminator of information and materials from the City. |

# APPENDIX C: PLANTING AND MAINTENANCE PLAN ON PUBLICLY OWNED PROPERTY

### IDENTIFIED GAP: PLANTING AND MAINTENANCE PLAN FOR PUBLICLY OWNED PROPERTY

With guidance from a City Arborist, the City needs to create a Planting and Maintenance Plan for trees on publicly owned property. The plan shall prioritize the use of both conifer and deciduous native trees, identify and prioritize areas available for planting, and include a maintenance cycle.

The City Arborist coordinating with Public Works and other City divisions, will develop a detailed Planting and Maintenance Plan for Publicly Owned Property as a sub plan to the CFMP. It shall be developed based on the guiding principles of arboriculture, and the tree care industry standards, approved by the American National Standards Institute, Inc. (ANSI) and accepted International Society of Arboriculture Best Management Practices (ISA-BMP) and other appropriate tree care specifications and standards.

Some of the key elements of the program will be:

**Goals and Directives -** Developed with reference to the CFMP and the Tree Preservation and Protection Ordinances to preserve, restore, maintain, and enhance our community forest.

**Inventory and Assessment of City Owned Trees -** Inventory of City owned trees in parks, street trees, and in right-of-way to provide tree and site data such as tree population by species, location, numbers, size, health and condition, plus vacant planting sites and other useful field measurement information.

**Database of City Owned Trees -** Baseline data, compiled from the inventory and assessment, will be maintained and managed to help set priorities for primary and secondary maintenance needs as well as to aid in evaluation and monitoring efforts.

**Tree Planting -** Including criteria for site requirements, tree selection, planting stock quality, planting and establishment, etc; all shall be in compliance with ANSI A300 standards and ISA-BMP.

**Tree Maintenance and Safety -** Identify and prioritize primary and secondary individual tree maintenance needs to assure public safety and avoid damage to property. Also identify and prioritize maintenance for individual trees to improve their health, structure and retention. All plans and work shall be in compliance with ANSI A300 standards and ISA-BMP.

**Budgets, Staffing and Administration -** A cooperative development effort involving the City Arborist, Public Works and other City government departments or divisions to secure funding, establish duties and responsibilities, and assign authority.

Considerable investment of time and effort will be devoted to draft a complete and comprehensive Tree Planting and Maintenance Program. The direction of this program will assure that we move forward into the future committed to protecting, maintaining and caring for our valuable forest assets for all future generations to enjoy.

# APPENDIX D: TREE CARE AND BEST MANAGEMENT PRACTICES

### IDENTIFIED GAP: TREE CARE AND BEST MANAGEMENT PRACTICES FOR PROPERTY OWNERS AND RENTERS

Several documents should be available to property owners to help them manage their trees. These informational handouts are an outgrowth of the Education initiatives. (See "**Education**," page 23 and "**Appendix B: Education**," page 44)

Following is a list of handouts that would be useful for Lake Forest Park property owners or Renters, which could be available to all residents at selected public locations such as the City Hall lobby:

- **An approved Tree List** to assist property owners in finding tree species compatible with their needs for size, shape, and seasonal characteristics. This list is already available, but could be supported by additional information to aid in choosing the "right plant for the right place." A subsidiary list could highlight street tree re commendations emerging from the Planting and Maintenance Plan for Publicly Owned Property.

- A **guide to native plants**, both trees and shrubs, highlighting the environmental and habitat strengths of individual species. This information is already partially compiled and available through the LFP Stewardship Foundation's Backyard Habitat project.

- A compiled **list of all tree service companies** which hold a business license for providing tree services in Lake Forest Park, and that have signed the affirmation that they have read and will abide by the Tree Regulations.

- A broad range of **informational brochures** to provide property owners or renters with applicable information on planting, establishing, protecting and maintaining trees on their property. These would supplement BMPs set forth as site construction requirements in the tree protection ordinance with more detailed planting and care information. Fortunately, much of this material is already available. In addition to the publications listed below, two Websites provide good entry into the vast amount of useful information available there:

    - www.treesaregood.org
    - www.arborday.org
    - www.americanforest.com

The International Society of Arboriculture (ISA) has developed a series of consumer information brochures, which provide concise, accurate answers to frequently asked questions about trees and their proper care.

The following is the current title list of the ISA consumer information series:

- ***Avoiding Tree & Utility Conflicts***
  Provides information concerning types of trees to plant near utility lines both above and below ground.

- ***Avoiding Tree Damage During Construction***
  Discusses steps that can be taken to prevent trees from being damaged during construction projects.

- ***Benefits of Trees***
  Goes beyond aesthetics to discuss social, community, environmental, and economic benefits of trees.

- ***Buying High-Quality Trees***
  Discusses issues to be aware of when purchasing trees.

- ***Insect and Disease Problems***
  Discusses plant diseases and pest problems along with symptoms, causes, and possible treatments.

- ***Mature Tree Care***
  Addresses inspection techniques and maintenance procedures for mature tree care.

- ***New Tree Planting***
  Covers topics from selecting a location for the tree, through the eight steps of planting.

- ***Plant Health Care***
  Discusses how to locate a PHC specialist and uses a holistic approach to explain the attributes of Plant Health Care, which include peace of mind, flexibility, versatility, and environmental sensitivity.

- ***Proper Mulching Techniques***
  Discusses mulching benefits, types of mulch, problems associated with improper mulching, and tips for proper mulching.

- ***Pruning Mature Trees***
  Explains the unique concerns for pruning larger, mature trees. This brochure outlines the dos and don’ts, clarifying some of the myths of tree care.

- ***Pruning Young Trees***
  Explains the importance of getting trees started toward a strong, healthy scaffold of branches, reducing future pruning needs.

- ***Recognizing Tree Hazards***
  Lists examples of defects in both urban and rural trees, has a hazard checklist, and helps in managing hazard trees.

- ***Treatment of Trees Damaged by Construction***
  Discusses types of damage that can occur to trees in areas where there is construction and what symptoms you should look for to tell if a tree has been damaged.

- ***Tree Selection***
  Provides aids to choosing the right tree by discussing the tree's intended function and location, soil conditions, possible pest and environmental problems, and the extensive differences in species.

- ***Trees and Turf***
  Covers a variety of considerations when mixing woody plants with turf: tree selection, competition between plants, maintenance, and special situations.

- ***Tree Values***
  Gives helpful advice on personal and professional evaluation of trees and other plants.

- ***Why Hire an Arborist?***
  Covers several topics, including services an arborist can provide, what to look for when choosing an arborist, and a brief explanation of the ISA Certified Arborist Program.

- ***Why Topping Hurts Trees***
  Addresses one of the most damaging practices in tree care. This brochure helps consumers understand how harmful topping is and suggests alternatives for pruning large trees.

# APPENDIX E: HERITAGE TREE PROGRAM

## IDENTIFIED GAP: HERITAGE TREE PROGRAM

The Urban Forest Task Force recognizes the value of creating incentives in the Lake Forest Park Heritage Tree Program that will encourage preservation of exceptional trees. In order to accomplish this, the current program needs definable parameters so that it can be incorporated into the Tree Protection and Replacement ordinance.

The Task Force believes that a Heritage Tree Program should include distinct classifications, and suggests the following four classifications for this program:

- **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.

The program should be a function of the Community Forest Management Plan Tree Board, which is a standing committee of the Environmental Quality Commission. (See Community Forest Management Plan Tree Board, page 26)

# APPENDIX F: GLOSSARY OF TERMS

**"American Forests"** – the national organization focused on the health and values of trees and forest, with a strong focus on urban forestry through outreach and action programs.

**"ANSI"** – is the acronym for the American National Standards Institute. Industry developed national consensus standards of practices for tree care.

**"Appraised Tree Value"** - a monetary value placed on a tree obtained by a tree appraisal performed by the City Arborist.

**"Arborist"**- professional who possesses the technical competence gained through experience and related training to provide for or supervise the management of trees and other woody plants.

**"Baseline"** means the 2004 Citywide canopy cover data and report, also any new developed tree and forest resource inventory and assessment databases.

**"Carbon Sequestration"**- removal of carbon dioxide from the atmosphere by trees used for photosynthesis and stored as sugars and then as wood.

**"Community Benefits"** means the physiological, sociological, economic, and aesthetic benefits that trees provide society.

**"Community Forest"** - the naturally occurring and planted trees, and associated vegetation in and around the urban community.

**"Community Forest Management Plan"(CFMP)** –comprehensive plan of defined goals, policies and directives developed to manage trees and the community forest for the physiological, sociological, economic, and aesthetic benefits that trees provide society.

**"Critical Root Zone (CRZ)"** - the area of soil around a tree where the majority of the roots are located and that provide stability as well as uptake of water and minerals. CRZ determination is sometimes based on the drip line or a multiple of DBH, but because root growth is often asymmetric due to site conditions, on site investigation is preferred.

**"DBH" -** is the acronym for tree diameter at breast height. Measured at 4.5 feet above average ground grade.

**"Forest Resources"** - the collective environment of healthy trees and associated vegetation and soils, the natural watershed ecosystems, viable fish and wildlife habitat.

**"Green Infrastructure"** - the natural and planted trees, and associated vegetation that exist in the community and their direct and indirect value to the community associated by the services they provide.

**"Hazard Tree"** - a tree or tree part that is likely to fail and cause damage or injury, and the likelihood exceeds an acceptable level of risk.

**"i-Trees"** – is a state of the art peer-reviewed software suite from the USDA Forest Service that provides urban and community forestry analysis and benefit assessment tools. Results are generated from inventory inputs obtained from field measurements of the community forest.

**"Limits of Disturbance"** – the boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by the City Arborist.

**"Native Trees"** - tree species indigenous to Western Washington, naturally occurring and not introduced by man.

**"Nuisance Tree"**- a tree, or parts of a tree, causing obvious, physical damage to private or public structures, including but not limited to: sidewalks, curb, roads, driveway, parking lot, building foundation, and roof.

**"Root Zone" –** layer within the soil profile where roots exist or the volume of soil containing tree roots. The horizontal spread of tree roots from the trunk. Typically the root zone of a tree extends well beyond the drip line.

**"Tree Canopy" -** the part of the tree crown composed of leaves and small twigs. Also, the collective branches and foliage of a group of trees' crowns. Aggregate or collective tree crowns.

**"Tree List"** – list of tree species with helpful information regarding size, shape, growth habit, and seasonal characteristics, useful to assist property owners in selecting the "right tree for the right place".

**"Tree Tracts"**- small group or assemblages of trees on public or private property.

**"Trunk Formula Method"** – method to appraise the monetary value of trees considered too large to be replaced with nursery or field-grown stock. Determination of the value of a tree is based on the cost of the largest commonly available transplantable tree and its cost of installation, plus the increase in value due to the larger size of the tree being appraised. These values are subject to adjustments for various factors.

# APPENDIX G: CONTROL OF NON-NATIVE INVASIVE PLANTS

The spread of non-native, invasive plant species is a serious threat to our native ecosystems such as, riparian zones, wetlands, forests and native wildlife habitat. As they spread, unchecked, invasive plant species disrupt the natural balance of an ecosystem, by displacing indigenous vegetation.

There are many invasive weeds in our community forest and among them there are four invasive species that are consisted to be the most destructive to our native forest resources. They are:

**American and English Ivy (Hedera hibernica, H. helix) -** This invasive woody vine has no boundaries as it craws through our neighborhoods, parks, ravines, and forest lands. As Ivy spreads across the ground it over tops native ground cover plants, shrubs, and tree saplings and suppresses natural regeneration of native plants and trees. Ivy can streak up trees and in relatively short time develop a massive growth of woody vines and thick evergreen foliage, choking out a trees live crown and weighing as much as 2100 pounds, capable of toppling trees.

**Himalayan blackberry (Rubus discolor) - T**his invasive plant will cover nearly everything in its' path. It grows quickly into large, dense thickets overtopping and suppressing the natural vegetation.

**English Holly (Ilex aquifolium) -** This invasive tree specie is capable of penetrating deep into the forest and is now considered naturalized. Holly is an evergreen tree and very shade tolerant with few natural predators, giving it growth advantage over deciduous shrubs and trees and some native evergreens. It creates deep shade under its canopy and forms dense thickets that dominate the site, suppressing germination and growth of native trees and shrubs.

**Knotweeds (Polygonum spp.)** - This invasive plant grows very fast and tall. It spreads aggressively from underground stems and roots. When small fragments move downstream, new clone quickly establish along streams, crowding out native vegetation and degrading habitat. The dense patches of Knotweed die back in the winter, leaving stream banks exposed to erosion and salmon exposed to predators.

Without aggressive control efforts of non-native invasive plants, vital segments of the native forest resources, still remaining in our community, are at risk begin altered into weed invested wastelands, diminishing wildlife habitat, increasing erosion, and reducing tree

canopy cover. There are numerous small and not so small openings in the tree canopy throughout the community forest that once were occupied by native trees and shrubs that are now dominated by dense mats of American and English Ivy and tall thickets of Himalayan blackberry.

Although completely eradicate of these destructive invasive plants may not possible, they can be controlled to tolerable levels that prevent the loss of native ground vegetation, trees and habitats. Evidence of such control efforts can be seen at Grace Cole Park, where dedicated community volunteers have weekend "ivy out" work parties to rip out ivy, blackberry, holly and other invasive plants, keeping them under control.

The control of invasive plants should be made policy of the CFMP, with support and direction coming from a detailed plan and program. This invasive plant control plan and program should be developed cooperatively by the City Arborist, representatives of EQC, Stream Keepers, the soon to be assembled Community Forest Management Advisory Commit-tree, and concerned citizens of LFP, etc. The plan/program should incorporate existing efforts and develop new strategies and incentives to control destructive non-native invasive plant species.

References:

"Neighborhood Bullies" Invasive Weeds in Urban Lands. King County Noxious Weed Control Program. King County Department of Natural Resources and Parks.

http://www.kingcounty.gov/environment.aspx King County Department of Natural Resources website.

# APPENDIX F: TREE LOSS HISTORY

## Tree Removal and Replacement Report *2005-2009**

| | 2005 | 2006 | 2007 | 2008 | 2009* |
|---|---|---|---|---|---|
| **LEVEL I** | | | | | |
| Permitted Trees Removed | 203 | 258 | 242 | 184 | 225 |
| Trees Replaced | Not required | Not required | Not required | Not required | 189 |
| **LEVEL II** | | | | | |
| Permitted Trees Removed | 241 | 191 | 204 | 95 | 56 |
| Trees Replaced | 1:1 required | 1:1 required | 1:1 required | 1:1 required | 57 |
| **SENSITIVE AREA WORK PERMITS** | | | | | |
| Permitted Trees Removed | 62 | 80 | 85 | 51 | 40 |
| Trees Replaced | 1:1 required | 1:1 required | 1:1 required | 1:1 required | 35 |
| **UTILITY TREE REMOVALS** | | | | | |
| Permitted Trees Removed | N/A | 20 | 7 | 8 | 10 |
| Trees Replaced | Not required | Not required | Not required | Not required | Not required |
| | | | | | |
| **ANNUAL TOTAL TREES REMOVED** | 506 | 549 | 538 | 338 | 331 |
| **ANNUAL TOTAL TREES REPLACED** | 303** | 271** | 289** | 146** | 281 |

* See page 2 for detailed 2009 breakdown, **data accurate through December 30, 2009**. Note: this data does not include trees removed without permit.
** Assumed based on 1:1 replacement requirement for Level II and Sensitive Area Tree Removals, data on exempt replacements was not considered.

| | Code Enforcement Cases Involving Tree Removal | Total Number of Trees Removed | Total Numbers of Trees to be Replaced/Scheduled to be Replaced |
|---|---|---|---|
| **2009** | **12** | **45** | **40 (8 Exempted)** |
| **2008** | **2** | **2** | **0** |