

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

<p>AGENDA TITLE: Draft Urban Forest Strategic Plan Discussion DEPARTMENT: Parks, Recreation and Cultural Service PRESENTED BY: Dick Deal, PRCS Director Maureen Colaizzi, Park Project Coordinator ACTION: <input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input type="checkbox"/> Motion <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing</p>

PROBLEM/ISSUE STATEMENT:

In 2013, Shoreline became a Tree City USA. To meet the qualifications for the Tree City USA designation, the City of Shoreline adopted Ordinance No. 617 and Ordinance No. 627 in 2012, which created a Tree Board and street tree regulations respectively. In 2013, the City received a \$10,000 Community Urban Forestry Assistance Grant from the Washington Department of Natural Resources (WA DNR) to create an Urban Forest Strategic Plan (UFSP), which was also a goal that came out of the Tree City USA process.

As well, the City has long needed a plan to help guide the care and management of our public trees. The goal of the UFSP is to create a high level, long term strategy to establish priorities for an on-the-ground urban forest management program. Based on the identified goals and priorities for the plan, an annual 2015 work plan with budget implications would be generated from the strategic plan.

RESOURCE/FINANCIAL IMPACT:

To create the UFSP, the City hired Terra Firma Consulting at a cost of \$15,000 - \$5,000 from the City's general fund and \$10,000 from the WA DNR Community Forestry Assistance Planning Grant. Staff has applied for and received another DNR Community Forestry Assistance Planning Grant this year and will likely be presenting a funding proposal to City Council for the 2015 budget to begin implementing some of the short term priorities listed in the plan.

RECOMMENDATION

No action is required. This discussion updates the Council on the development and community involvement process to draft the Urban Forest Strategic Plan. Staff also recommends that Council review the strategic plan's top key priorities and implementation strategies that have surfaced from the collaborative process to draft the UFSP.

Approved By: City Manager **DT** City Attorney **IS**

BACKGROUND

Like other progressive municipalities, Shoreline has a goal to better manage its urban forest. To help achieve this goal, in 2013, Shoreline became a Tree City USA. To meet the qualifications for the Tree City USA designation, the City of Shoreline adopted Ordinance No. 617 and Ordinance No. 627 in 2012, which created the City' Tree Board and street tree regulations respectively. In 2013, the City received a \$10,000 Community Urban Forestry Assistance Grant from the Washington Department of Natural Resources (WA DNR) to create an Urban Forest Strategic Plan (UFSP), which was also a goal that came out of the Tree City USA process. The goal of the UFSP is to create a high level, long term strategy to establish priorities for an on-the-ground urban forest management program. Based on the identified goals and priorities for the plan, an annual work plan with budget implications will likely be generated for future Council consideration.

The City of Shoreline has long needed a plan to help guide the care and management of our public trees. Currently the City has thousands of trees that provide tremendous benefit and have high value, but no comprehensive plan for managing these assets. Realizing its limited resources, the City sought assistance in developing a strategic plan that would help establish a more sustainable urban forestry program. With the WA DNR grant and support from the USDA Forest Service, the City was able to contract with Terra Firma Consulting to work with City staff and the Tree Board to develop the UFSP.

The UFSP is a working document that outlines where Shoreline wants to go regarding its urban forest and ideas of how to get there. Part of the plan includes an overarching vision and mission statement under which all goals and strategies align. In concert, a sustainable urban forestry model (matrix) is utilized to demonstrate the comprehensive nature of resource management and to identify the feasible goals to strive for and key priorities in which to focus short-term action steps. The strategic recommendations in the plan are to guide the community over the next five years regarding planning, management and maintenance of public trees.

DISCUSSION

Shoreline is a community that has a passion around its urban forest. Realizing it is a valued asset that needs to be taken care of, the City needed direction on how to build a sustainable urban forestry program. Through a guided process considering all aspects and components of an initiative, City staff, the Shoreline Tree Board, and interested citizens developed a comprehensive set of goals for urban forestry. Of the key objectives, Shoreline identified these priorities to focus short-term strategies:

- Maintain a climate-appropriate degree of tree cover community-wide
- Establish a diverse tree population suitable for the urban environment and adapted to the region
- Acquire a comprehensive understanding of the public tree resource to direct its management
- Implement a comprehensive urban forest management plan for public trees

- Develop and maintain adequate staff and funding to implement a city-wide urban forestry program
- Work with citizens to help them understand and cooperate in urban forest management, recognizing the urban forest as vital to Shoreline's environmental, social, and economic well-being

With a clear vision of where the City wants to go, several strategies are provided in the UFSP. Many are suggested as short-term, relatively cost-effective tasks that move Shoreline toward an urban forestry program. The success of the plan heavily relies on support of these strategies by both key City stakeholders and the community. Adequate funding and resources committed to a program are critical to move forward and cultivate a more sustainable urban forest. In an effort to continue the momentum, the City is seeking ways to begin implementing a number of the critical strategies and further develop a program and budget proposal as soon as possible.

Development of the Draft Urban Forest Strategic Plan

In order to begin the conversation about a sustainable urban forestry program for the City of Shoreline, an "urban forest sustainability" matrix was used. Three categories are identified in the matrix - vegetative resource, resource management, and community framework - along with a performance indicator spectrum and key objectives. The criteria in each category are comprehensive in order to demonstrate all the aspects of an urban forestry program to consider when setting goals and priorities.

The matrix was distributed to the internal city Tree Team, a committee of staff from the Planning, Parks and Public Works Departments who work with tree issues. The matrix was also distributed to the Tree Board (Parks, Recreation and Cultural Services Board) to introduce these concepts. Other City staff groups (Green Team and Surface Water Environmental Services) were given the matrix as well. Each recipient was instructed to indicate on the spectrum for each criterion where they see the City is *currently* and which level is the *desired* performance benchmark to achieve for Shoreline. They were also to consider which of the 24 key objectives would be potential top priorities to focus on short-term, all the while understanding that each criterion will be addressed in the strategic plan.

The numerous responses were combined onto one matrix template that was presented to the Tree Board and City staff at a retreat on October 19, 2013. The entire meeting was devoted to go over each criterion in the three categories in order to reach consensus on both the desired level (goal) and the top objectives (priorities) for the strategic plan to focus on for short-term strategies. There was no discussion on budget, required resources, or timeline for any of these items, as that will be addressed in the strategic plan. The resulting matrix with the proposed goals and priorities is Appendix B of the draft UFSP.

Community Outreach

The Shoreline Tree Board hosted public Open Houses on January 23 and April 8 to discuss many aspects of trees. On January 23, the discussion focused on the three categories of the matrix with proposed benchmarks and priorities and the draft UFSP vision statement. In addition, staff solicited feedback from the community about the City's Street Tree List, which is a part of the City's Engineering Development Manual.

Tree Board members, City staff, and the consultant were available to discuss the criteria, and the public had several ways during the event to provide input on the proposed framework for the strategic plan. While the Street Tree List is not part of the UFSP, a continued discussion about the Street Tree List will occur after the adoption of the UFSP which is being driven by the DNR grant deadline of May 30, 2014.

On April 8, the content of the draft plan was reviewed and the draft UFSP Initial Strategies for Key Priorities (UFSP Appendix D) and Strategies with Timeline & Budget (UFSP Appendix C) were the focus of the meeting.

In addition to the Open Houses, the City offered an opportunity for public comment on the draft Urban Forest Sustainability Matrix and Vision Statement until February 7th, and the draft UFSP until April 14. Public comment will be compiled and summarized in the final UFSP in Appendix F and is also available on the City's website at: www.shorelinewa.gov/urbanforest.

The major themes of the feedback received thus far is:

- Public tree focus over trees on private property
- Need to balance tree canopy with other values, such as solar access, views, land use, and other landscaping desires
- Native plants have a place and need more emphasis
- The importance of making sure trees are safe (tree risk) needs to be highlighted
- Better coordination of tree work within the city and with other agencies (Seattle City Light)

There were also a few critical misunderstandings about the strategic plan. To clarify, the UFSP will NOT:

- require an increase in canopy, especially on private property
- result in more private tree regulations
- prevent the removal of hazard trees because of tree canopy priority
- Increase the diversity in the tree population by removal of existing healthy trees

The public input was very informative and resulted in some changes to both the vision statement and the key objectives. Furthermore, there was great effort to clarify throughout the document that this plan's primary focus is public tree management.

The draft plan was presented to the Tree Board at their March 27 and April 24 meetings.

Shoreline's Urban Forestry Goals & Strategies

This section of the draft UFSP provides the most substantive content of the plan. Each criterion in the three categories of a sustainable urban forestry program is explained and Shoreline's goals for each are stated with some suggested strategies offered. The bolded criteria are the identified priorities for the program, and therefore, have strategies that can be done in the near future to progress toward those goals.

Summary of Strategies

To work toward the ideal of a future urban forestry program from the draft UFSP goals and strategies, 28 strategic projects are identified in the draft UFSP Appendix C. A suggested timeline for each is shown, as well as the budget implications for the strategy. The timing of strategy implementation is dependent on many factors, most notably, the public investment needed to achieve success. Once the appropriate resources are in place however, many strategies could be sequenced and tackled systematically.

As with any strategic plan, the priorities and actions can evolve, and subsequent work plans are often crafted to match the current reality of what can reasonably be accomplished. The real value of the strategic plan is that it is an overarching set of “navigation instructions” to get from where City is today to where it wants to be regarding public tree management. The City may find other ways to get to the same destination however, and can adjust the duration of the trip, so to speak.

Next Steps – Initial Implementation

The relationships of the short-term strategies to the key priorities for Shoreline are shown in the draft UFSP Appendix D. They are considered low-hanging opportunities and/or cost-effective activities and are identified as critical to generate the necessary momentum for a sustainable urban forestry program for the Shoreline community. If the City has no capacity to take on these tasks, outside assistance may be needed to further analyze the needs and resources, develop a work plan and budget proposal, and provide a cost-benefit analysis for key initiatives.

COUNCIL GOAL(S) ADDRESSED

The Urban Forest Strategic Plan supports City Council Goal No. 2: Improve Shoreline’s utility, transportation, and environmental infrastructure, and specifically Action Step No. 6: Review the City’s [Environmental Sustainability Strategy](#) and Climate Action Plan and develop an urban tree management strategy. The USFP also supports Goal No. 4: Enhance openness and opportunities for community engagement, as City staff conducted an open and responsive public involvement process in the creation of the plan.

RESOURCE/FINANCIAL IMPACT

To create the UFSP, the City hired Terra Firma Consulting at a cost of \$15,000 - \$5,000 from the City’s general fund and \$10,000 from the WA DNR Community Forestry Assistance Planning Grant. Staff has applied for and received another DNR Community Forestry Assistance Planning Grant this year and will likely be presenting a funding proposal to City Council for the 2015 budget to begin implementing some of the short term priorities listed in the plan.

RECOMMENDATION

No action is required. This discussion item will update the Council on the planning, development and community involvement process to draft the Urban Forest Strategic Plan. Staff also recommends that Council review the strategic plan’s top key priorities

and implementation strategies that have surfaced from the collaborative process to draft the UFSP.

ATTACHMENTS

Attachment A: Draft Urban Forest Strategic Plan



Urban Forest Strategic Plan



DRAFT

April 17, 2014

Acknowledgments

Shoreline City Council:

Mayor Shari Winstead, Deputy Mayor Chris Eggen, Will Hall, Doris McConnell, Keith McGlashan, Chris Roberts, and Jesse Salomon

Parks, Recreation and Cultural Services / Tree Board:

Chair: Katie Beth, Vice-Chair: Jesse Sycuro, John Hoey, Garry Lingerfelt, Betsy Robertson, Christine Southwick, Al Wagar and Vadim Dolgov

Staff Advisory Team:

Debbie Tarry, City Manager

Dick Deal, Director of Parks, Recreation and Cultural Services

Kirk Peterson, Park Maintenance Superintendent

Maureen Colaizzi, Parks Project Coordinator

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Elizabeth Walker, Terra Firma Consulting

Vision

Shoreline's urban forest is a healthy and cohesive ecosystem that is valued and cared for through community stewardship.

Mission

Shoreline is dedicated to protect and manage the vibrant urban forest to enhance its benefit to the environment and its contribution to the livability of the community today and for generations to come.



The nation behaves well if it treats its natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.

- Theodore Roosevelt

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Executive Summary

Shoreline is a community that has a passion around its urban forest. Realizing it is a valued asset that needs to be taken care of, the City needed direction on how to build a sustainable urban forestry program. Through a guided process considering all aspects and components of an initiative, City staff, the Shoreline Tree Board, and interested citizens developed a comprehensive set of goals for urban forestry. Of the key objectives, Shoreline identified these priorities to focus short-term strategies:

- Maintain climate-appropriate degree of tree cover community-wide
- Establish a diverse tree population suitable for the urban environment and adapted to the region
- Acquire a comprehensive understanding of the public tree resource to direct its management
- Implement a comprehensive urban forest management plan for public trees
- Develop and maintain adequate staff and funding to implement a city-wide urban forestry program
- Citizens understand and cooperate in urban forest management, recognizing the urban forest as vital to Shoreline's environmental, social, and economic well-being

With a clear vision of where the City wants to go, several strategies have been provided in this plan to develop the road map. Many are suggested as short-term tasks and relatively cost-effective in moving Shoreline toward a city urban forestry program. The success of the plan heavily relies on support of these strategies by both the City decision makers and the community. Adequate funding and resources committed to a program are critical to move forward and cultivate a more sustainable urban forest. In an effort to continue the momentum, the City is seeking ways to begin implementing a number of the critical strategies and further develop a program and budget proposal as soon as possible.

Introduction

There are many definitions for an *urban forest*, but it most commonly refers to all the trees and associated vegetation in a community. Often trees are planted as individuals in the suburban and urban environment, though many preserved natural areas in a city have remnant native forests. Vegetation in residential and commercial landscapes also contributes to the urban forest. Therefore, a healthy urban forest is best managed as an entire forest ecosystem.

Like other progressive municipalities, Shoreline has a goal to better manage its urban forest. The City emphasized its commitment by becoming a Tree City USA in 2012. Currently the City has thousands of trees that provide tremendous benefit and have high value, but no cohesive plan for managing these assets. Realizing its limited resources, the City sought assistance in developing a strategic plan toward a more sustainable urban forestry program. With a grant from the Washington State Department of Natural Resources, in partnership with the USDA Forest Service, the City will have a clear direction for a more effective and cost-efficient management of public trees and urban forest. Terra Firma Consulting was contracted to work with City staff and the Tree Board to develop a strategic plan that addresses how to manage and maintain public trees and lead the City to more specific action plans and budgets over time.

An urban forest strategic plan is a living document that basically outlines where Shoreline wants to go regarding its urban forest and ideas of how to get there. Part of this plan includes overarching vision and mission statements under which all goals and strategies align. In concert, a sustainable urban forestry model is utilized to demonstrate the comprehensive nature of resource management and to identify the feasible goals to strive for and key priorities in which to focus short-term action steps. The strategic recommendations in the plan are to guide the community over the next 5-10 years regarding planning, management and maintenance of public trees based on the identified goals and priorities. Annual work plans with budget implications would be generated from the strategic plan.

The plan is also intended to help promote a more unified effort to manage the entire urban forest between the City and residents, business owners, utilities, and other tree stewards in the community. Longer term strategies are also laid out to give further direction as the plan evolves and goals are achieved. The foundation of the plan ensures that Shoreline's urban forestry program can become more sustainable over time.

The development of this strategic plan is a collaborative process between City staff, the advisory Tree Board (PRCS Board), and the public, facilitated by an urban forestry consultant. As part of Tree Board development and education on urban forestry for both the staff and the citizens, a sustainable urban forestry matrix is used to guide the conversation and reach collective support for a solid framework for the plan.

The Urban Forest as a Natural Resource

The City of Shoreline understands that it needs to better manage its trees and urban forest. Both staff and community make the connection that it's prudent to manage trees as assets because they provide many tangible benefits to the community. Some of the benefits from Shoreline's urban forest* are:

- Reduces stormwater runoff and erosion
- Provides shade and cooling for fish-bearing streams
- Improves air quality and mitigates wind effects
- Provides wildlife habitat
- Increases property values

* For more information, see Appendix A.

Every tree also has a monetary value. For example, if one is damaged by a car crash, there is a landscape value that is considered in its replacement cost. Trees, like other assets, also have maintenance costs, such as pruning young trees for structural integrity or for clearance on roadways and trails. Trees also have public safety liabilities that must be accounted for, for instance, when they get structurally unsafe or die and fall into the road or onto a park trail or sports field. A proactive mitigation program with high risk trees, which includes removal, replacement, and where appropriate, leaving snags, is responsible stewardship of the urban forest.

Assessment of the Current Urban Forest

Recently, Shoreline had two important studies done on its urban forest. In 2011, AMEC conducted an assessment of the urban tree canopy cover for Shoreline. In 2013, Community Forestry Consultants performed a street tree inventory on the ten major corridors of the city. Both provided some interesting information about Shoreline's trees:

- The overall tree cover in Shoreline is estimated at 30.6%, an acceptable level to achieve significant ecosystem benefits.
- The average tree cover for Shoreline has remained steady for the last 20 years.
- Trees occupy over half of the possible planting area in the city.
- Over half of the city's area is covered with vegetation (grass, shrub, trees)
- The ecosystem value of the canopy for its stormwater storage capacity (compared to the cost of stormwater facility construction) is \$10.3 million.
- Air pollution removal is estimated at 203,000 lbs annually, which is valued at approximately \$457,000 in indirect costs.
- The 1,602 trees inventoried are estimated to have an appraised value of \$5 million.
- No trees on the ten major corridors were rated high risk.
- Only ten maintenance tasks of "high priority" or "immediate action" were identified.
- Majority of the street tree population (> 94%) on the corridors is in good or fair condition.
- The streetscape on the corridors is fairly well stocked with only 29 planting spaces identified.

Strategic Planning Process

In order to begin the conversation about a sustainable urban forestry program for the City of Shoreline, an "urban forest sustainability" matrix was used. The three categories - vegetative resource, resource management, and community framework, along with performance indicator spectrum and key objectives, are based on a sustainability model developed by Clark, et al (1997). The criteria in each category are comprehensive in order to demonstrate all the aspects of an urban forestry program to consider when setting goals and priorities.

The matrix was distributed to the internal city Tree Team and the Tree Board (Parks, Recreation and Cultural Services Board) to introduce these concepts. Other city staff groups (Green Team and Surface Water Environmental Services) were given the matrix as well. Each recipient was instructed to indicate on the spectrum for each criterion where they see the City is *currently* and which level is the *desired* performance benchmark to achieve for Shoreline. They were also to consider which of the 24 key objectives would be potential top priorities to focus on short-term, all the while understanding that each criterion will be addressed in the strategic plan.

The numerous responses were combined onto one matrix template that was presented to the Tree Board and City staff at a retreat on October 19, 2013. Understandably, there was a broad range of responses to contend with. The entire meeting was devoted to go over each criterion in the three categories in order to reach consensus on both the desired level (goal) and the top objectives (priorities) for the strategic plan to focus on for short-term strategies. There was no discussion on

budget, required resources, or timeline for any of these items, as that will be addressed in the strategic plan. The resulting matrix with the proposed goals and priorities is [Appendix B](#).

The Shoreline Tree Board hosted a public Open House on January 23, 2014 to talk about many aspects of trees. Along with the Street Tree List and Trees in Planning & Development, the three categories of the matrix with proposed benchmarks and priorities and the draft vision statement were on display at separate stations. Board members, City staff, and the consultant were available to discuss the criteria, and the public had several ways during the event to provide input on the proposed framework for the strategic plan.

In addition to the Open House, the City offered opportunity for public comment on the draft Urban Forest Sustainability Matrix and Vision Statement via online until February 7th. Comments from both the Open House and the online forum are in [Appendix F](#). The major themes of the feedback were:

- Public tree focus over trees on private property
- Need to balance tree canopy with other values, such as solar access, views, land use, and other landscaping desires
- Native plants have a place and need more emphasis
- The importance of making sure trees are safe (tree risk) needs to be highlighted
- Better coordination of tree work within the city and with other agencies (Seattle City Light)

At the same time, there were a few critical *misunderstandings* about the strategic plan:

- Plan will require an increase in canopy, especially on private property
- Plan will result in more private tree regulations
- Plan will prevent the removal of hazard trees because of tree canopy priority
- Increasing the diversity in the tree population will require removal of existing trees

The public input was very informative and resulted in some changes to both the vision statement and the key objectives. Furthermore, there was great effort to clarify throughout the document that this plan's primary focus is public tree management.

The draft plan was presented to the Tree Board at their March 27, 2014 meeting and at a second Open House on April 8th for further comment, with an open public comment period until April 14th. The limited feedback at this time resulted in "upgrading" a couple strategies to short-term in response to public desire for stewardship planning and education.

The final draft was introduced to City Council on April 28th for final adoption in May.

Vision & Mission Statements

The City has several established documents and plans that have guided its programs and policies, and at least four of them resonate well with an urban forest strategy. The following language in these plans support the value of an urban forestry program.

City of Shoreline Parks, Recreation, and Open Space (PROS) Plan (2011)

Provide quality parks, recreation, and cultural services, to promote public health and safety; protect our natural environment; and enhance the quality of life of our community.

Shoreline Environmental Sustainability Strategy (2008)

“The City of Shoreline will exemplify and encourage sustainable practices in our operations and in our community by:

- Being stewards of our community’s natural resources and environmental assets;
- Promoting development of a green infrastructure for the Shoreline community;...”

Shoreline Climate Action Plan (2013)

Preserve urban forests and the multi-layered benefits they provide to the community, including aesthetic appeal that attracts businesses and residents, stormwater management, air quality enhancement, wildlife habitat diversity, and shade from the hot summer sun.

City of Shoreline Vision 2029 (2009)

“People are first drawn here by the city’s beautiful natural setting and abundant trees.”

In addition to considering other City documents for key words, vision statements from Seattle and Vancouver, WA were also reviewed. After some public input, it became apparent that a separate vision and mission statement were needed. To that end, the Tree Board supports the following vision:

Shoreline’s urban forest is a healthy and cohesive ecosystem that is valued and cared for through community stewardship.

As mentioned before, the urban forest is considered a compilation of the trees and associated vegetation. The reference of it being an **ecosystem** engenders more of a community of organisms – plants, animals, fungi, microbes – that interact as a dynamic system. Biodiversity, disturbance, and succession are influences to the system. The urban forest is **cohesive** in nature, because it is an assemblage of both native and non-native species crossing public and private property lines making it contiguous and functioning as a system.

Community stewardship speaks to active management of the resource, using best practices by City and citizens alike.

For direction, a mission statement was created to capture the commitment and reason for developing on a more sustainable program:

Shoreline is dedicated to protect and manage the vibrant urban forest to enhance its benefit to the environment and its contribution to the livability of the community today and for generations to come.

Benefit to the environment refers to the ecological benefits of providing wildlife habitat and shade to fish-bearing creeks as well as performing as air & water pollution filters and mitigation of flooding and erosion.

Livability of the community pertains not only to the social and economic benefits the urban forest provides but also the importance to balance with other community values such as solar access, land use, view protection, and gardening.

Identified Key Priorities

With the work with City staff, the Tree Board, and the feedback from the public, the identified key objectives for the Shoreline Urban Forest Strategic Plan were as follows:

1. Achieve climate-appropriate degree of tree cover, community-wide.
 - a. Currently mapped urban tree cover using satellite imagery and included in city-wide GIS.
2. Establish a tree population suitable for the urban environment and adapted to the regional environment.
3. Comprehensive inventory of the public tree resource to direct its management.
 - a. Detailed understanding of the condition and risk potential of all publicly-managed trees.
 - b. Urban forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover, species diversity, and species/age distribution objectives.
 - c. All public trees are managed with safety as a high priority.
4. Develop and implement a comprehensive urban forest management plan for public property.
 - a. The ecological structure and function of all publicly-owned natural areas are protected and, where appropriate, enhanced.
 - b. Preservation and enhancement of local natural biodiversity, where appropriate.
5. Develop and maintain adequate funding to implement a city-wide urban forest management plan.
6. Employ and train adequate staff to implement city-wide urban forestry plan/program.
 - a. Ensure all city departments and other public agencies cooperate with common urban forestry goals and objectives.
7. At the neighborhood level, citizens understand and cooperate in urban forest management.
 - a. The general public understanding the role of the urban forest through education and participation. The urban forest is recognized as vital to Shoreline's environmental, social, and economic well-being.

Shoreline's Urban Forestry Goals & Strategies

This section explains the criteria in the three categories of a sustainable urban forestry program, states Shoreline's goal for each, and offers some suggested strategies. The criteria with an asterisk (*) are the identified priorities for the program, and therefore, have strategies that can be done in the near future to progress toward those goals.

A. VEGETATIVE RESOURCE

The criteria in this category relate to the composition and condition of the urban forest. The performance indicators range in the level of diversity and known health of the trees across the community. These are generally used as performance benchmarks to assess the effectiveness of resource management and the community framework, the other categories. In general, the major strategies to achieve diversity and health goals are:

- For age diversity, planned regeneration and good management and preservation of the highly valued mature trees in the community.
- For species suitability and distribution, use of a diverse and appropriate species list for all community plantings.
- For a healthier and safer tree population, responsive management to address public hazards and optimize the urban forest's role in community benefits.

1. Canopy Cover*

The two common ways to consider canopy cover is *average* cover and *relative* cover. As mentioned before, the average canopy cover for Shoreline is almost 31%, which is an acceptable amount of canopy to realize ecosystem benefits. The relative canopy cover refers to the amount of tree canopy cover compared to the amount of **available** planting space. Community forestry experts are realizing that this measurement is a better goal to focus on for resource measurement, especially if the average overall canopy cover is at a healthy level.

As stated in the UTC report (2011), planting spaces are areas where a tree can be planted, as in open ground available to plant. This can be in passive areas of parks, planting strips along streets, even landscape islands in parking lots. Technically, this can be anywhere where there is no impervious surface (roads, rooftops, etc.), but certain land uses, such as ball fields and golf courses would not be reasonable areas to include in the potential.

From the Urban Tree Canopy Assessment Project, they estimated the following percentages of existing and potential cover by area:

Total Acres of land in Shoreline – 7,412

Acres of existing tree canopy – 2,264 (30.6%); 2,126 in pervious space (28.7%)

Acres not suitable (buildings, roads, required impervious) – 2,960 (40%)

Acres w/potential for tree canopy (excluding ball fields, golf course fairways, etc.) – 1,853 (25%)

If adjusted for land use, the realistic available space (un-treed) is 1,853 acres. Combining that with the 2,126 acres of existing canopy, the total acreage of potential tree cover for the city is nearly 4,000 acres. Therefore, the existing tree canopy occupies over half of this space at 53%.

The different benchmarks along the spectrum offer levels of cover as a percentage of the potential planting space in the community. While it may seem logical to plant for tree cover in all possible

planting spaces, the key objective is to achieve a climate-appropriate degree of tree cover. In hot, sunny climates, where shade of buildings and other impervious surfaces is extremely important, as well as stormwater abatement, the amount of appropriate cover may be very high. In the Pacific Northwest, tree canopy is one of several strategies used to mitigate stormwater. This ecological function must be balanced with the need for reasonable solar access and other landscaping needs (e.g. vegetable gardening).

*Shoreline's Goal: The existing tree cover equals to 50-75% of the available planting space to maximize the ecological benefits and allow for a diverse vegetative cover and landscapes. **Quantitatively, Shoreline is in this range. Develop strategies to maintain and enhance canopy cover on public property appropriately.***

Strategies –

- Restoration projects in the park and open space system that include trees in appropriate spaces.
- Updated Tree List with space requirements for mature size.

2. Age Distribution of Trees

On a community level, the general measurement for age of trees is based on size. The larger the tree, the older it most likely is. The diameter classes referred to on the spectrum are size ranges in diameter to grossly categorize young, growing, mature, and over-mature trees in the community. Consideration of species' growth rate and mature size are factors to further determine how well the size ranges correlate with age of the population. Age diversity is key to avoiding mass age-related mortality and to ensure perpetual renewal of the urban forest.

Shoreline's Goal: None of the size classes represents more than half of the public tree population.

Strategies -

- Run reports on new street tree inventory to see the distribution of the size classes and species in the tree population and determine opportunities for best management practices to maintain age diversity.
- Develop a regeneration planting plan for the City based on areas needing new plantings.
- Identify any mature and/or rare tree species or historic groves in the community as a basis for a heritage tree program or special management program.

3. Species Suitability*

Diversity of species and the appropriateness of those species in the area are important factors to consider for a healthy urban forest.

The good news about our region is that a huge variety of tree species can grow in our climate, but not all grow well. It's important that tree selection is based on how well the species grows in the

area and has minimal maintenance issues, like drought tolerance and resistance to pests and disease. For instance, species from high elevations (ex. Colorado blue spruce, sub-alpine fir) don't do well in our coastal climate and quickly succumb to pests. Still others, like the katsura, do grow here but cannot thrive without ample irrigation.

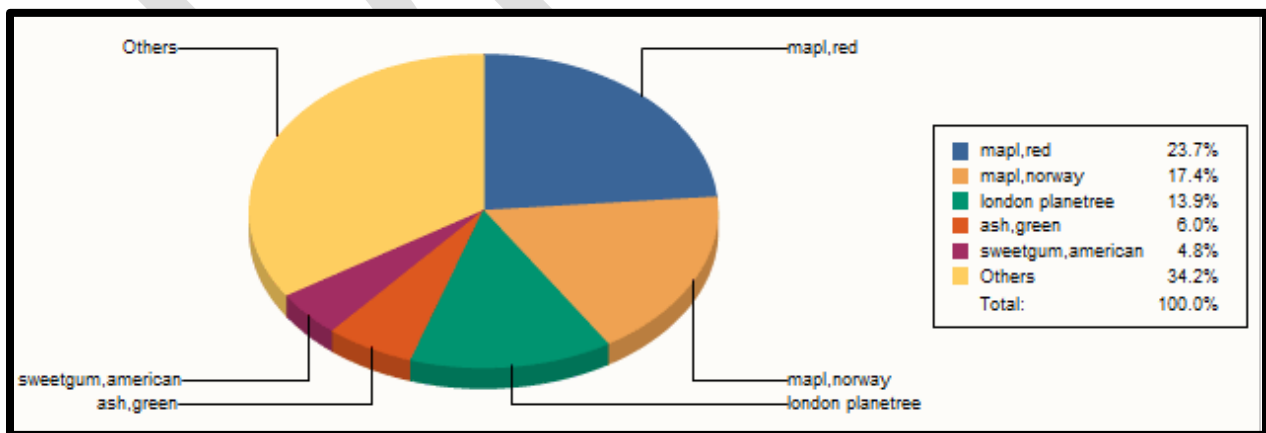
Unfortunately, some native species also are not performing well. Our state tree, the Western hemlock, is rapidly dying off in the Puget Sound area, and our native dogwood and Pacific madrone are often victims to chronic foliar and canker diseases. Urban foresters are trying to anticipate the effects of climate change locally, and many of these health issues may be connected to this shift. Above all, the community strengthens the sustainability of its urban forest by using suitable species that flourish with a low degree of maintenance.

Shoreline's Goal: More than 75% of the trees are of species considered suitable for the area.

4. Species Distribution

Diversity of the species in the population is equally critical. Too often, a small palette of trees is used in most landscape designs and in street improvements. The lack of diversity can create a situation in which a pest or disease can wipe out a significant portion of the population. The constant threat of pests and diseases heading our way cannot be ignored but rather can be alleviated through a diverse array of tree species in the community.

As stated in the Shoreline Street Tree Inventory Summary Report (2013), the ideal diversity goal is to avoid one species representing more than 10% of the population. To illustrate this, the species data from the recent inventory of 1,602 street trees show that maples represent 45% of the population inventoried, with red maple nearly a quarter of the population. The intent is to diversify the population in future plantings so that one species does not dominate the urban forest composition.



Species on Shoreline's 10 major corridors – collected in street tree inventory project, 2013.

This species diversity is best achieved by focusing on the opportunities in replacement and new planting efforts. This would be in regards to not only the street tree population but for public landscapes (parks, city properties) and required landscapes with commercial and multi-family residential development.

Shoreline's Goal: No species represents more than 10% of the street and public landscape tree population.

Strategies for species suitability and diversity -

- Updated Tree List - section for unimproved ROW, natural areas, open spaces and section for improved ROW – include detailed information on growth, space limitations, maintenance issues.
- Enforce compliance with development to put right tree in right place.
- Use list for new plantings, not as an approved list for existing trees in the ROW.

5. Condition of Publicly-Managed Trees

Understanding the condition of trees helps in prioritizing the management of the urban forest. Part of a tree inventory is rating the condition of a tree from excellent to very poor (or dead). Whether it is a sample plot inventory, such as in a park, or a complete tree inventory in the rights-of-way, assessing the condition of the trees will impact the decisions made about the City's maintenance work plan.

Along with condition, a necessary assessment of a tree is its risk of failure and likelihood to cause harm or damage. There is an industry rating system for such tree risk assessments that is commonly used as part of a tree inventory.

Shoreline's Goal: A comprehensive tree inventory of publicly-owned trees that includes detailed tree condition and risk ratings.

Supporting Resource Management Objectives:

1. Comprehensive inventory of the tree resource to direct its management.
2. Urban forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover and population diversity.
3. All public trees are managed with safety as a high priority.

Strategies -

- Analyze new street tree inventory of the ten major corridors – develop a work plan addressing priority action.
- Develop a 'state of the street trees' report to identify subsequent strategies.
- Integrate inventory data into the new Asset Management System for future use.

6. Publicly-Owned Natural Areas

The objective for this criterion is a detailed understanding of the ecological structure and function of all publicly-owned natural areas. Shoreline has documented the ecological benefits of some of its natural areas with vegetation studies (Hamlin Park, Boeing Creek, South Woods, etc.). Stewardship/management plans are developed from these studies in order to maximize the ecosystem benefits through restoration, conservation, and monitoring.

Shoreline's Goal: The ecological structure and function of all publicly-owned natural areas are documented through an ecosystem analysis and included in the city-wide GIS.

Strategies:

- Identify all public natural areas and establish a budget and timeline for performing an ecosystem analysis through vegetation studies.
- Develop management plans based on the assessments; implement; monitor.

7. Native Vegetation*

The local, natural biodiversity found in the city needs to be preserved and enhanced to support native ecosystems. The appropriate publicly-managed places with the most potential are in open spaces, reserves, and passive parklands. The appropriate actions include restoration plantings and invasive species eradication. High use and developed areas have least potential for native vegetation success.

Shoreline's Goal: Native species are specified where appropriate in publicly-managed areas; invasive species are aggressively eradicated.

Strategies:

- Review all city projects for potential and appropriateness to use native species.
- Develop (or obtain) a detailed list of native species as a City and community resource.
- Support community efforts in invasive species eradication.

B. RESOURCE MANAGEMENT

The criteria in this resource management speak to the significant components of a city urban forestry program – staff, funding, resources, planning, policy, and operations.

1. Tree Inventory*

As mentioned in the Vegetative Resource section, understanding the needs and composition of the urban forest requires comprehensive information about the tree resource to direct its management. Performing a tree inventory is the most common tool with which to collect important data such as species, size, condition, risk level, and location. Usually this is done along the rights-of-way and in

landscaped park and other public areas. For forested open space, sample plots are taken to get a snapshot of the condition and composition of that sector of the urban forest. Capturing all these data in the City's GIS mapping is particularly useful to visualize the resource in relation to other aspects of the community.

Shoreline's Goal: Complete inventory of publicly-owned trees included in the city-wide GIS.

Strategies:

- Utilize the new street tree inventory of the ten major corridors to develop a work plan and work orders.
- Ensure integration of data into the City's new Asset Management System.
- Review plant studies of the City's open space areas and try to incorporate data into GIS.

2. Canopy Cover Assessment

Mapping the urban tree cover using satellite imagery is another way to analyze different characteristics of the urban forest. Canopy cover can be compared to impervious surface to determine the proportions, especially as it relates to stormwater mitigation. The amount of possible planting area for more tree canopy can also be obtained with this tool.

In 2011, Shoreline did receive data and an urban tree canopy assessment report that discussed these different aspects of the canopy cover. In fact, the relative canopy cover calculations used in the Vegetative Resource section were from that study. The key objective to this tool is to have high resolution assessments of the existing and potential canopy cover for the entire community.

*Shoreline's Goal: Mapped urban tree cover using aerial photographs or satellite imagery included in city-wide GIS. **Shoreline has achieved this goal. Strategies would include regular assessments performed to gauge progress toward canopy cover benchmarks.***

Strategies:

- Perform an urban tree canopy assessment every five years to document change in the urban forest community-wide.
- Utilize the urban forest map with i-Tree Eco to analyze ecosystem benefits of the City's forested open space/park areas.

3. City-wide Management Plan*

A comprehensive urban forest management plan provides a specific road map for annual work and budget for public tree management that is aligned with the vision, mission, and goals of an urban forestry program. The strategies and priorities in this strategic plan are supported by the community and are a solid foundation for such a plan.

Shoreline's Goal: Comprehensive plan for publicly-managed forest resources accepted and implemented.

Strategies:

- Systematically develop an annual work plan with expected timelines, resource needs, and budget following priorities set by the community (through this plan or through adaptive management mechanisms).
- Establish performance measures for the urban forestry program to ensure actions and initiatives are aligned with priorities and goals.

4. Municipal-wide Funding*

Without funding, a management program cannot be successful. These days, cities must be creative in developing and maintaining adequate funding to execute needed work identified in the management plan. In the Pacific Northwest, urban forestry can be linked effectively to stormwater management for a city (Vancouver, WA), and therefore, funding could be garnered from other departments that have similar goals.

Shoreline's Goal: Funding to provide for a measurable increase in urban forest benefits.

Strategies:

- Demonstrate to City Council the value of the urban forest as an asset of the community to receive recognition as a viable city program.
- Quantify stormwater benefits to begin the funding conversation with City Surface Water and Environmental Services.
- Explore King Conservation District's jurisdictional grant program to fund stewardship projects.

5. City Staffing*

Along with funding, staffing resource is just as critical for the success of an urban forestry program. The key objective is to employ and train adequate staff to implement the program and plan.

Shoreline's Goal: Dedicated staff are certified and qualified with regular professional development.

Strategy:

- Identify a framework and budget to establish dedicated funding and resources for a City urban forestry program.
- Consider key staff to enroll in the Community Tree Management Institute (CTMI).

6. Tree Establishment*

Part of a resource management plan includes a planting or establishment program. Maintaining any resource requires renewal to ensure perpetuity and optimal benefits. The key objective is to ensure urban forest renewal through planning and implementation, and such a program is best driven by canopy cover, species diversity, and species distribution objectives.

Shoreline's Goal: Tree establishment is directed by needs derived from a tree inventory and is sufficient to meet canopy cover objectives.

Strategies:

- Develop a 'State of the Street Tree' report to identify subsequent strategies (including new trees).
- Review vegetation studies for recommended tasks/actions involving tree establishment; incorporate urban forest strategies.

7. Maintenance of publicly-owned, intensively managed trees

Some trees require regular maintenance in order to survive in the urban setting. Trees in the Right-of-Way are the likely candidates for this level of management. The key objective is that these types of trees are maintained to maximize current and future benefits. Tree health and condition ensure maximum longevity.

Shoreline's Goal: All publicly-owned, intensively managed trees are systematically maintained on a 5-7 year cycle, and immature trees are structurally pruned if needed.

Strategies:

- Develop a work plan and budget to complete "standard" tasks identified in the street tree inventory.
- Consider launching a separate young tree pruning program for newer trees.

8. Tree Risk Management*

Trees near people and structures have a certain level of risk to cause damage or injury. Assessing the level of risk involves evaluating the tree for defects that could increase its probability of failure and determining the size of the part likely to fail. Considering these factors with proximity to valuable targets, we can assess risks with the trees, and determine best ways to manage or minimize the risk. The key objective is that all publicly-managed trees near targets are managed with safety as a high priority.

Shoreline's Goal: Tree risk management program is in place and includes inventory with detailed tree failure risk ratings and policy to reduce hazards within a maximum of one month from confirmation of hazard potential.

Strategies:

- Perform tree risk assessment on appropriate trees in the ten major corridors and document their risk ratings.
- Establish a policy on tree risk assessment for ROW trees.

- Perform regular tree risk assessment on appropriate trees in parks, open space, and trails where there is a public presence.

9. Tree Protection Policy – Development and Enforcement

Much of the urban forest resides on private property. The benefits derived from large and mature trees are tremendous, and the ability to have them safely retained community-wide is important. Municipal policies around tree protection, especially during development can be effective to that end, and must be consistently enforced.

Shoreline's Goal: Integrated municipal-wide policies that ensure the protection of trees on public and private land are consistently enforced and supported by significant deterrents; education included in this process.

Strategies:

- Strengthen the education component to the existing tree protection policy and process.
- Consider a volunteer based forest stewardship program with neighborhood stewards to talk with neighbors about their valuable trees.
- Assess the effectiveness of compliance to consider better incentives and enforcement.

10. Publicly-owned Natural Areas Management – Planning and Implementation*

Properly managing the forested open space and natural areas of the community requires appropriate planning and implementation. A stewardship plan, which connotes a community engagement in the process, is developed to support action that protects and where needed, enhances the ecological structure and function of this part of the urban forest. These plans often include invasive eradication and urban forest renewal with appropriate native vegetation, along with community participation in the stewardship.

Shoreline's Goal: A stewardship plan in effect for each public natural area focused on sustaining the ecological structure and function of the feature.

Strategies:

- Review existing natural area vegetation studies for documented ecosystem benefits; consider using I-Tree Eco for further analysis.
- Review vegetation studies for recommended tasks/actions; incorporate urban forest strategies as needed.
- Develop a stewardship plan framework to use for the natural areas.

C. COMMUNITY FRAMEWORK

This category offers all aspects and possible community relationships that impact the sustainability of the urban forest. The criteria stress the importance of cooperation and deep understanding of the value of the urban forestry for a successful program.

1. Public Agency Cooperation*

The key objective is to ensure all city departments cooperate with common goals and objectives around the proper management of the urban forest.

Shoreline's Goal: Municipal policy implemented by formal interdepartmental/interagency teams on all municipal projects and activities.

Strategies:

- Formalize City "Tree Team" with guidelines/policy for inter-departmental coordination.
- Continue to review annual tree work plan from Seattle City Light to anticipate interagency coordination and public awareness.

2. Involvement of Large Institutional Landholders

Large landholders in the community have a potential to impact the urban forest depending on how they manage their forested lands. Schools, golf clubs, college campuses, even exclusive communities need to embrace city-wide goals and objectives for the urban forest, and ideally develop resource management plans.

Shoreline's Goal: Clear goals for tree resource by landholders; incentives for preservation of private trees.

Strategies:

- Consider using the stewardship plan framework with large landholders, including Innis Arden community, to streamline approval (incentive) for tree removal and management of their reserves.
- Offer public education opportunities on the urban forest management through the schools and colleges and other community venues.

3. Green Industry Cooperation

Nurseries, landscapers, and arborists have great influence on the public perception of proper tree selection and care. The key objective is the green industry operates with high professional standards and commits to city-wide goals and objectives.

Shoreline's Goal: Specific cooperative arrangements with local nurseries and qualified tree care professionals.

Strategies:

- Work with Sky Nursery (and other local nurseries) to promote City's updated tree list and proper tree care
- Work with Seattle City Light to promote purchase certificates for "Right Tree, Right Place."
- Consider a City vendor list of approved tree care companies for street tree work.

4. Neighborhood Action*

The key objective is citizens understand and cooperate or participate in urban forest management, ideally at the neighborhood level. The most effective way to achieve this is to engage the neighborhood associations with the program through education, advocacy and active stewardship.

Shoreline's Goal: City-wide coverage and interaction, particularly engagement of neighborhood associations with the urban forestry program.

Strategies:

- Consider a Forest Stewardship training program modeled after Master Gardeners.
- Identify knowledgeable citizens in neighborhoods as "forest stewards" and support community projects.
- Partner with other stewardship programs (Audubon, Evergreen School, Thornton Creek Alliance, Dig Shoreline).

5. Citizen-Municipal-Business Interaction

The key objective is all constituencies in the community interact for the benefit of the urban forest. With the advisory Tree Board, the City has a great venue for that interaction to evolve.

Shoreline's Goal: Informal and general cooperation with focus to improve relationship with businesses.

Strategies:

- Continue to support the PRCS Board as acting Tree Board – advisory and public outreach efforts.
- Identify with the Tree Board strategies to improve relationship with businesses.

6. General Awareness of Trees as a Community Resource*

The most effective way to get the general public understanding the role of the urban forest is through education and participation. A successful outcome is public support of a City urban forestry program and City Council approval for adequate funding of a program.

Shoreline's Goal: The urban forest is recognized as vital to Shoreline's environmental, social and economic well being.

Strategies:

- Consider a Forest Stewardship training program modeled after Master Gardeners.
- Promote advocacy through the Tree Board.
- Expand the annual Arbor Day celebration for more public interaction.
- Expand urban forestry presence on City website with UF benefits, tree care information, and local resources.
- Consider developing a Heritage Tree Program to raise the awareness of the significant trees in the community.

7. Regional Cooperation

The effectiveness of a program can be enhanced when a city provides for cooperation and interaction among neighboring communities and regional groups.

Shoreline's Goal: Communities share similar policy vehicles.

Strategies:

- Participate in the Puget Sound Urban Forestry group (meets quarterly) headed by WADNR program.
- Review Seattle's Strategic Plan and Forest Stewardship Plan for appropriate policy to adopt.

Summary of Strategies

From the above strategies to work toward Shoreline's goals for urban forestry, 28 strategic projects are identified in Appendix C. A suggested timeline for each is shown, as well as the budget implications for the strategy.

The timing of strategies is dependent on many factors. Public support of a program that encompasses the importance and value of the urban forest is necessary for the City decision makers to invest the required funding and staff to implement. Once the appropriate resources are in place, many strategies could be tackled on a shorter timeline.

As with any strategic plan, the priorities and actions can evolve, and subsequent work plans are often crafted to match the current reality of what can reasonably be accomplished. The beauty of the strategic plan is that it is just one set of navigation instructions to get from where you are to where you want to go. The City may find other ways to get to the same destination and can adjust the duration of the trip, so to speak.

Next Steps – Initial Implementation

The relationship of the short-term strategies to the key priorities for Shoreline are shown in **Appendix D**. They are considered low-hanging opportunities and/or cost-effective activities and are identified as critical to generate the necessary momentum for a sustainable urban forestry program for the Shoreline community. If the City has no capacity to take on these tasks, outside assistance may be needed to further analyze the needs and resources, develop a work plan and budget proposal, and provide a cost-benefit analysis for key initiatives.

Conclusion

Shoreline is a community that has a passion around its urban forest. Realizing it is a valued asset that needs to be taken care of, the City needed direction on how to build a sustainable urban forestry program. Through a guided process considering all aspects and components of an initiative, City staff, the Shoreline Tree Board, and interested citizens developed a comprehensive set of goals for urban forestry. Of the key objectives, Shoreline identified these priorities to focus short-term strategies:

- Maintain climate-appropriate degree of tree cover community-wide
- Establish a diverse tree population suitable for the urban environment and adapted to the region
- Acquire a comprehensive understanding of the public tree resource to direct its management
- Implement a comprehensive urban forest management plan for public trees
- Develop and maintain adequate staff and funding to implement a city-wide urban forestry program
- Citizens understand and cooperate in urban forest management, recognizing the urban forest as vital to Shoreline’s environmental, social, and economic well-being

With a clear vision of where the City wants to go, several strategies have been provided in this plan to develop the road map. Many are suggested as short-term tasks and relatively cost-effective in moving Shoreline toward a city urban forestry program. The success of the plan heavily relies on support of these strategies by both the City decision makers and the community. Adequate funding and resources committed to a program are critical to move forward to a more sustainable urban forest. In an effort to continue the momentum, the City is seeking ways to begin implementing a number of the critical strategies and further develop a program and budget proposal as soon as possible.

APPENDIX A

Urban Tree Benefits

The benefits of urban trees, sometimes called “ecosystem services”, include environmental, economic, and social values. These are direct or indirect benefits provided by urban forests and individual trees that are often dismissed or underrepresented when valuing infrastructure because they don’t readily have an associated dollar value. Types of tree benefits are listed and briefly described below. While none alone are a “silver bullet”, when combined, trees and the collective urban forest are an impressive part of the solution for sustainability during urban planning and community development.

Environmental “Services” of Urban Trees:

- ✎ Air Quality – trees absorb, trap, offset and hold air pollutants such as particulate matter, ozone, sulfur dioxide, carbon monoxide, and CO₂.
- ✎ Greenhouse Gases (GHGs) and Carbon – trees store and sequester carbon through photosynthesis as well as offset carbon emissions at the plant due to energy conservation.
- ✎ Water Quality and Stormwater Runoff Mitigation – trees infiltrate, evapo-transpire, and intercept stormwater while also increasing soil permeability and ground water recharge.
- ✎ Erosion control – tree roots hold soil together along stream banks and steep slopes, stabilizing soils and reducing sedimentation issues in water bodies.
- ✎ Urban heat island effect – trees cool the air directly through shade and indirectly through transpiration, reducing day and nighttime temperatures in cities.
- ✎ Increased wildlife habitat – Trees create local ecosystems that provide habitat and food for birds and animals, increasing biodiversity in urban areas.

Economic “Services” of Urban Trees:

- ✎ Property value – numerous studies across the country show that residential homes with healthy trees add property value (up to 15%).
- ✎ Energy conservation – trees lower energy demand through summer shade and winter wind block, additionally offsetting carbon emissions at the power plant.
- ✎ Retail and Economic Development – trees attract businesses, tourists, and increase shopping.
- ✎ Stormwater facilities – trees and forests reduce the need for or size of costly gray infrastructure.
- ✎ Pavement – tree shade increases pavement life through temperature regulation (40-60% in some studies).

Social “Services” of Urban Trees:

- ✎ Public health – trees help reduce asthma rates and other respiratory illnesses.
- ✎ Safe walking environments – trees reduce traffic speeds and soften harsh urban landscapes.
- ✎ Crime and domestic violence – urban forests help build stronger communities. Places with nature and trees provide settings in which relationships grow stronger and violence is reduced.
- ✎ Connection to nature – trees increase our connection to nature.
- ✎ Noise pollution – Trees reduce noise pollution by acting as a buffer and absorbing up to 50% of urban noise (U.S. Department of Energy study).

From: Benefits of Trees and Urban Forests: A Research List

http://www.actrees.org/files/Research/benefits_of_trees.pdf, Published August 2011

APPENDIX B



Urban Forest Strategic Plan Draft Vegetative Resource Criteria and Indicators

Green = Desired Level

Orange = Top Objective

Criteria	Performance Indicator Spectrum				Key Objective	
	Low	Moderate	Good	Optimal		
1. Relative Canopy Cover	The existing canopy cover equals 0-25% of the <u>potential</u> - available planting space.	The existing canopy cover equals 25-50% of the potential.	The existing canopy cover equals 50-75% of the potential.	The existing canopy cover equals 75-100% of the potential.	Achieve climate-appropriate degree of tree cover, community-wide	* C
2. Age distribution of trees in the community	Any diameter class (size range equating to age) represents more than 75% of the tree population.	Any diameter class represents between 50% and 75% of the tree population.	No diameter class represents more than 50% of the tree population.	25% of the tree population is in each of four diameter classes.	Provide for uneven-aged distribution city-wide as well as at the neighborhood level.	
3. Species suitability	Less than 50% of trees are of species considered suitable for the area.	50% to 75% of trees are of species considered suitable for the area.	More than 75% of trees are of species considered suitable for the area.	All trees are of species considered suitable for the area.	Establish a tree population suitable for the urban environment and adapted to the regional environment.	*
4. Species distribution	Fewer than 5 species dominate the entire tree population city-wide.	No species represents more than 20% of the entire tree population city-wide.	No species represents more than 10% of the street tree population.	No species represents more than 10% of the entire tree population at the neighbourhood level.	Establish a genetically diverse tree population city-wide as well as at the neighborhood level.	
5. Condition of Publicly-managed Trees (including ROW trees)	No tree maintenance or risk assessment. Request based/reactive system. The condition of the urban forest is unknown	Sample-based inventory indicating tree condition and risk level is in place.	Complete tree inventory which includes detailed tree condition ratings.	Complete tree inventory which includes detailed tree condition and risk ratings.	Detailed understanding of the condition and risk potential of all publicly-managed trees	*

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6. Publicly-owned natural areas (e.g. woodlands, sensitive areas, etc.)

<p>No information about publicly-owned natural areas.</p>	<p>Publicly-owned natural areas identified in a “natural areas survey” or similar document [PROS plan].</p>	<p>The level and type of public use in publicly-owned natural areas is documented</p>	<p>The ecological structure and function of all publicly-owned natural areas are documented through an Ecosystem Analysis and included in the city-wide GIS</p>	<p>Detailed understanding of the ecological structure and function of all publicly-owned natural areas.</p>	
<p>No program of integration</p>	<p>Voluntary use of native species on publicly and privately-owned lands; invasive species are recognized.</p>	<p>The use of native species is encouraged on a project-appropriate basis in actively managed areas; invasive species are recognized and discouraged; some planned eradication.</p>	<p>Native species are specified where appropriate in publicly managed areas; invasive species are aggressively eradicated.</p>	<p>Preservation and enhancement of local natural biodiversity, where appropriate.</p>	<p>*</p>

7. Native vegetation

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Urban Forest Strategic Plan Draft Resource Management Criteria and Indicators

Green = Desired Level

Orange = Top Objective

Criteria	Performance Indicator Spectrum				Key Objective	
	Low	Moderate	Good	Optimal		
1. Tree Inventory	No inventory	Complete or sample-based inventory of publicly-owned trees	Complete inventory of publicly-owned trees AND sample-based inventory of privately-owned trees.	Complete inventory of publicly-owned trees [AND <i>sample-based inventory of privately-owned trees</i>] included in city-wide GIS	Comprehensive inventory of the tree resource to direct its management. This includes: age distribution, species mix, tree condition, risk assessment.	*
2. Canopy Cover Assessment	No inventory	Visual assessment	Sampling of tree cover using aerial photographs or satellite imagery; I-Tree;	Mapped urban tree cover using aerial photographs or satellite imagery included in city-wide GIS	High resolution assessments of the existing and potential canopy cover for the entire community.	C
3. City-wide management plan	No plan	Existing plan limited in scope and implementation	Comprehensive plan for publicly-managed forest resources accepted and implemented	Strategic multi-tiered plan for public and privately-managed forest resources accepted and implemented with adaptive management mechanisms.	Develop and implement a comprehensive urban forest management plan for public property.	*
4. Municipality-wide funding	Funding for only emergency reactive management	Funding for some proactive management to improve the public portion of urban forest.	Funding to provide for a measurable increase in urban forest benefits.	Adequate private and public funding to sustain maximum urban forest benefits.	Develop and maintain adequate funding to implement a city-wide urban forest management plan	*

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<p>5. City staffing</p>	<p>No staff.</p>	<p>Limited trained or certified staff.</p>	<p>Certified arborists and professional foresters on staff with regular professional development.</p>	<p>Multi-disciplinary team within an urban forestry program.</p>	<p>Employ and train adequate staff to implement city-wide urban forestry plan</p>	<p style="text-align: center;">*</p>
<p>6. Tree establishment, planning and implementation</p>	<p>Tree establishment is ad hoc (no plan or budget)</p>	<p>Limited tree establishment occurs on an annual basis with minimal budget.</p>	<p>Tree establishment is directed by needs derived from a tree inventory or strategy</p>	<p>Tree establishment is directed by needs derived from a tree inventory and is sufficient to meet canopy cover objectives (see Canopy Cover criterion in Table 1)</p>	<p>Urban Forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover, species diversity, and species distribution objectives</p>	<p style="text-align: center;">*</p>
<p>7. Maintenance of publicly-owned, intensively managed trees (not open space)</p>	<p>No maintenance of publicly-owned trees</p>	<p>Publicly-owned trees are maintained on a request/reactive basis. No systematic (block) pruning.</p>	<p>All publicly-owned trees are systematically maintained on a cycle longer than five years; <i>all immature trees are structurally pruned.</i></p>	<p>All mature publicly-owned trees are maintained on a 5-year cycle. All immature trees are structurally pruned.</p>	<p>All publicly-owned, intensively managed trees are maintained to maximize current and future benefits. Tree health and condition ensure maximum longevity.</p>	
<p>8. Tree Risk Management</p>	<p>No tree risk assessment/remediation program. The condition of the urban forest is unknown</p>	<p>Sample-based tree inventory which includes general tree risk information; Request based/reactive risk abatement system.</p>	<p>Complete tree inventory which includes detailed tree failure risk ratings; risk abatement program is in effect <i>reducing</i> hazards within a maximum of one month from confirmation of hazard potential.</p>	<p>Complete tree inventory which includes detailed tree failure risk ratings; risk abatement program is in effect eliminating hazards within a maximum of one week from confirmation of hazard potential.</p>	<p>All publicly-owned trees are managed with safety as a high priority.</p>	<p style="text-align: center;">*</p>

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<p>9. Tree Protection Policy Development and Enforcement</p>	<p>No tree protection policy</p>	<p>Policies in place to protect public trees.</p>	<p>Policies in place to protect public and private trees with enforcement desired.</p>	<p>Integrated municipal wide policies that ensure the protection of trees on public and private land are consistently enforced and supported by significant deterrents; <i>education component included in process</i></p>	<p>The benefits derived from large-stature/mature trees are ensured by the enforcement of municipal wide policies.</p>	
<p>10. Publicly-owned natural areas management planning and implementation</p>	<p>No stewardship plans or implementation in effect.</p>	<p>Reactionary stewardship in effect to facilitate public use (e.g. hazard abatement, trail maintenance, etc.)</p>	<p>Stewardship plan in effect for each publicly-owned natural area to facilitate public use (e.g. hazard abatement, trail maintenance, etc.)</p>	<p>Stewardship plan in effect for each publicly-owned natural area focused on sustaining the ecological structure and function of the feature.</p>	<p>The ecological structure and function of allpublicly-owned natural areas are protected and, where appropriate, enhanced.</p>	<p style="text-align: center;">*</p>

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Green = Desired Level

Orange = Top Objective

Criteria	Performance Indicator Spectrum				Key Objective	
	Low	Moderate	Good	Optimal		
1. Public agency cooperation (inter-departmental and with utilities)	No communication or conflicting goals among departments and or agencies.	Common goals but no coordination or cooperation among departments and/or agencies.	Informal teams among departments and or agencies are functioning and implementing common goals on a project-specific basis.	Municipal policy implemented by formal interdepartmental/interagency teams on ALL municipal projects.	Ensure all city department cooperate with common goals and objectives	*
2. Involvement of large institutional land holders (ex. hospitals, campuses, utility corridors)	No awareness of issues	Educational materials and advice available to landholders.	Clear goals for tree resource by landholders. Incentives for preservation of private trees.	Landholders develop comprehensive tree management plans (including funding).	Large private landholders embrace city-wide goals and objectives through specific resource management plans.	
3. Green industry cooperation	No cooperation among segments of the green industry (nurseries, tree care companies, etc.) No adherence to industry standards.	General cooperation among nurseries, tree care companies, etc.	Specific cooperative arrangements such as purchase certificates for “right tree in the right place”	Shared vision and goals including the use of professional standards.	The green industry operates with high professional standards and commits to city-wide goals and objectives.	
4. Neighborhood action	No action	Neighborhood associations/HOA's exist but are minimally engaged or a limited number are engaged.	City-wide coverage and interaction; <i>Neighborhood associations are engaged with the program (education, advocacy, stewardship)</i>	All neighborhoods/HOA's organized and cooperating.	At the neighborhood level, citizens understand and cooperate in urban forest management.	*

APPENDIX B

5. Citizen-municipality-business interaction	Conflicting goals among constituencies	No interaction among constituencies.	Informal and/or general cooperation <i>with focus to improve relationship with businesses.</i>	Formal interaction e.g. Tree board with staff coordination.	All constituencies in the community interact for the benefit of the urban forest.	
6. General awareness of trees as a community resource	Trees not seen as an asset, a drain on budgets.	Trees seen as important to the community.	Trees acknowledged as providing environmental, social and economic services.	Urban forest recognized as vital to Shoreline's environmental, social and economic well-being.	The general public understanding the role of the urban forest <i>through education and participation</i>	*
7. Regional cooperation	Communities independent.	Communities share similar policy vehicles.	Regional planning is in effect	Regional planning, coordination and /or management plans	Provide for cooperation and interaction among neighboring communities and regional groups.	

APPENDIX C: Shoreline Strategies with Timeline & Budget

	STRATEGY	SHORT 1-5 YRS	MID 6-10 YRS	LONG >10 YRS	BUDGET
1	Update Street Tree List	√			\$
2	Establish policy for street tree management	√			\$
3	Develop work plan from street tree inventory	√			\$\$
4	Young street tree pruning project	√			\$
5	Integrate inventory into new Asset Management System	√			\$
6	Framework & budget for a city program	√			\$\$-\$\$\$
7	Conversation with Surface Water Environmental Services for program funding	√			\$
8	Staff to CTMI training	√			\$
9	Formalize City Tree Team – intercity, interagency communication, coordination	√			\$
10	Expand Arbor Day celebration – public awareness	√			\$-\$\$
11	Identify public planting space with GIS/UTC assessment	√			\$
12	Stewardship/regeneration plans from existing plant studies and GIS	√	√		\$-\$\$
13	Stewardship plan framework with landholders and managers	√	√		\$
14	Develop tree risk management program for street trees and parks	√	√		\$-\$\$
15	Strengthen education component for tree protection and care	√	√		\$
16	Support community invasive species removal efforts	√	√		\$-\$\$
17	Review city projects for native species use	√	√	√	\$
18	Annual program work plan using strategic plan (include performance measures)	√	√	√	\$
19	Partner with other stewardship programs	√	√	√	\$
20	Ecosystem Analysis of city open space		√		\$-\$\$
21	Urban Tree Canopy Assessment update		√		\$
22	Forest Stewardship training & volunteer program		√		\$\$
23	Analyze inventory – increase diversity		√		\$
24	Improve compliance – right tree, right place, incentives, enforcement		√		\$\$
25	Work with local nurseries, utilities to promote right tree, right place		√		\$
26	Interact with regional cities		√		\$
27	Heritage Tree Program		√	√	\$-\$\$
28	List of approved tree care companies for street tree work		√	√	\$

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\$ = \$1-5k; \$\$ = \$5-15k; \$\$\$ = at least \$25k

APPENDIX D

Shoreline's Initial Strategies for Key Priorities

1. Canopy Cover

- Identify appropriate potential planting space on public property through I-Tree/GIS analysis using Urban Tree Canopy Assessment (2011) base

2. Species Suitability

- Update ROW Tree Species List (improved and unimproved ROW categories) and include detailed information for proper selection
- Review city projects for native species use

3. Tree Inventory

- Develop a work plan from inventory addressing priority action
- Coordinate the integration of inventory data into new Asset Management system
- Implement a young street tree pruning project

4. City-wide Management Plan

- Develop stewardship/regeneration plans from existing open space/park plant studies
- Develop policy for ROW trees - removal, replacement, proper pruning, etc.
- Develop a tree risk management program for street trees and parks

5. City Funding

- Develop framework and budget for a city program
- Annual program work plan using strategic plan (with performance measures)
- Conversation with Surface Water & Environmental Services for program funding
- Explore King Conservation District's jurisdictional grant program for stewardship projects

6. City Staffing

- Formalize City 'Tree Team' with guidelines/policy for inter-departmental and inter-agency coordination
- Staff to Community Tree Management Institute (CTMI) training

7. Neighborhood Action/Increased Awareness

- Partner with other stewardship programs
- Support community invasive species removal efforts
- Expand Arbor Day event to increase public awareness
- Cost/benefit analysis of a Shoreline Urban Forest Steward Program

APPENDIX E

References

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APPENDIX F

Summary of Public Comment *(Reserved for Final Document)*