Meeting Agenda

City Council

Monday, February 12, 2018	5:30 PM	Council Chambers

Special Study Session

1.   ROLL CALL

2.   BUSINESS ITEMS

2.A   18-0150   Veterans Services Hub Update

2.B   18-0108   Downtown Medical Response Report

2.C   18-0123   Street Tree Maintenance Manual Level of Service Update

Attachments: Street Trees Maintained by the City Map

Urban Forest Strategic Plan

Street Tree Maintenance Manual Fact Sheet

Draft Street Tree Maintenance Manual

Street Tree Maintenance Levels of Service Comparison

3.   ADJOURNMENT

The City of Olympia is committed to the non-discriminatory treatment of all persons in employment and the delivery of services and resources. If you require accommodation for your attendance at the City Council meeting, please contact the Council's Executive Assistant at 360.753.8244 at least 48 hours in advance of the meeting. For hearing impaired, please contact us by dialing the Washington State Relay Service at 7-1-1 or 1.800.833.6384.

City Council

Veterans Services Hub Update

Agenda Date: 2/12/2018
Agenda Item Number: 2.A
File Number:18-0150

Type: discussion　**Version:** 1　**Status:** Study Session

Title
Veterans Services Hub Update

Recommended Action
Committee Recommendation:
Not referred to a committee.

City Manager Recommendation:
Briefing only; no action requested.

Report
Issue:
Whether to receive an update on the Veterans Services Hub.

Staff Contact:
Susan Grisham, Executive Assistant, 360.753.8244

Presenter(s):
Gary Walker, Chairman, Thurston County Veterans Advisory Board

Background and Analysis:
The Veterans Services Hub provides access to services for Thurston County area veterans in coordination with local, state, and federal partners. The Hub connects veterans to benefits, counseling, peer to peer support, housing and financial assistance, employment training, and job readiness assistance.

Attachments:
None

City Council

Downtown Medical Response Report

Agenda Date: 2/12/2018
Agenda Item Number: 2.B
File Number:18-0108

Type: study session   **Version:** 1   **Status:** Study Session

Title
Downtown Medical Response Report

Recommended Action
Committee Recommendation:
Not referred to a committee.

City Manager Recommendation:
Receive the information. Briefing only: No action requested.

Report
Issue:
Whether to receive a briefing on the Olympia Fire's Downtown medical response unit.

Staff Contact:
Greg Wright, Deputy Fire Chief, 360.753.8466

Presenter(s):
Greg Wright, Deputy Fire Chief
Robert Bradley, Assistant Chief
Mike Buchanan, Assistant Chief

Background and Analysis:
In July 2017, the Olympia Fire Department began a pilot program responding to the downtown area with a new Aid Unit. Six months of data from this pilot program has been collected and analyzed. The results will be reported and discussed. The study session will review the funding for the unit, the questions around determining the correct unit for downtown response, the implementation and key results. Non-identifying medical data, which has been collected and reviewed, has answered some questions on the needs in the downtown, and response data also reveals how the unit supports the greater mission of the Fire Department.

Additionally, a short discussion on the Department's Care Coordinator work will also be included. Results from this pilot program, focusing on frequent callers to 9-1-1, will be presented and discussed.

Neighborhood/Community Interests (if known):
N/A

Options:
Information only.

Financial Impact:
N/A

Attachments:
None

City Council

Street Tree Maintenance Manual Level of Service Update

Agenda Date: 2/12/2018
Agenda Item Number: 2.C
File Number: 18-0123

Type: study session   **Version:** 1   **Status:** Study Session

Title
Street Tree Maintenance Manual Level of Service Update

Recommended Action
Committee Recommendation:
Not referred to a committee.

City Manager Recommendation:
Receive the information. Briefing only. No action requested.

Report
Issue:
Whether to receive briefing on draft Street Tree Maintenance Manual. The Manual describes management of the street tree population downtown and on ten designated major arterials, and identifies resources needed to begin to proactively insure the long term health and viability of this $6.1 million asset. Discuss next steps for the City's Urban Forestry program.

Staff Contact:
Shelly Bentley, Urban Forester, Community Planning and Development, 360.753.8301

Presenter(s):
Shelly Bentley, Urban Forestry Program Manager, Community Planning and Development
Kate Hartman, Water Resources Habitat Biologist, Public Works
Gary Franks, Parks Maintenance Manager, Parks, Art and Recreation
Kevin McFarland, Sound Urban Forestry

Background and Analysis:
Street Tree Maintenance Manual
The Street Tree Maintenance Manual (STMM) has been developed during 2017 to address the current health and required maintenance of our trees downtown and along ten major arterial streets (see attached map). It has been guided by the City of Olympia Comprehensive Plan (2014), Urban Forestry Strategic Plan (2015), Street Tree Inventory Recommendations (2016) and community interests. The STMM (an update to the previous Master Street Tree Plan) is intended to provide City staff with the data and guidance needed to perform consistent and predictable street tree

management and maintenance for a resource worth over $6 million. The guidance in this document will help staff to:

- Prune and maintain street trees to protect their health, safety, and value;
- Maximize the benefits and reduce the cost of street trees by using resources efficiently; and
- Communicate with business owners, property owners, and community members about street tree management.

It shall also be periodically reviewed and updated to respond to changes in the tree population and industry best management practices.

Urban Forest Strategic Plan Implementation

How the City manages the urban forest, including street trees, has evolved since the completion of an Urban Forest Strategic Plan (Strategic Plan) in 2015 (See attachment). City staff having formed an interdepartmental policy and technical team to clarify roles and coordinate responsibilities, improving efficiency and consistency. The team works together to implement the recommendations outlined in the Strategic Plan.

In 2016, the City applied for and received a $15,000 grant from the Unites States Department of Agriculture (USDA) Forest Service and Washington State Department of Natural Resources Urban and Community Forestry Program to inventory all 2,500 street trees the City currently manages. The inventory data made clear the current condition of the City's managed street trees, and led to the policy team dedicating staff time and resources to develop the STMM.

Street Tree Current Conditions

In the 1990's and early 2000's, the Urban Forestry Program led to the planting of thousands of new trees citywide. The strong emphasis on planting trees significantly increased Olympia's street tree population; however, the City has struggled to provide consistent and thorough maintenance. Practicing mostly reactive management for over 15 years has resulted in a street tree population that needs significant attention.

Current conditions identified in the inventory confirm that our street trees are far below basic industry standards for tree maintenance. Continued growth without pruning will make maintenance more difficult and expensive, as tree conditions will deteriorate with longer lengths of time between pruning cycles. Not only does this current maintenance level reduce the realized benefits of street trees, but potentially raises the City's level of risk.

Street Tree Maintenance Level of Service Recommendation

Based on what was learned from the inventory, and an in-depth analysis of our street tree population and urban forestry program current conditions, the STMM outlines a recommended level of service which meets basic industry standards for tree maintenance, and how to go about achieving it.

The desired level of service includes a dedicated, permanent crew that practices safe and efficient

tree work. Shorter, more frequent pruning cycles would keep trees pruned away from street lights, traffic signs and buildings, which improves safety and reduces citizen complaints. Pruning trees when they are young also results in less work later, saving money and maximizing a street trees' benefits. Attached is a comparison of today's level of service and what's needed to reach the desired level of service identified in the draft STMM.

Next Steps

The City departments represented on the Urban Forestry Policy Team are already moving towards implementing the guidance in the STMM. For example, Parks, Arts, and Recreation has developed an annual plan for street tree inspection and maintenance in 2018 to be carried out by the department's full-time arborist. The Policy Team will also continue looking into possible funding options to reach the desired level of service identified in the STMM.

In addition to implementing the maintenance level of service recommended in the STMM, the next step recommended in the 2015 Strategic Plan is a comprehensive Urban Forest Management Plan to address the other aspects of the City's urban forest - street trees in the remaining portions of the City, trees in unopened City rights of way, habitat and open space lands, park properties, and trees on private property. Some of these aspects, such as habitat and park lands, are being addressed through up-to-date management programs and policies. However, other aspects are in need of significant work to update policies and resources to adequately support the urban forest.

The Urban Forestry Policy Team continues to explore options for starting work on at least the most urgent aspects of an Urban Forest Management Plan. Several options for how to complete a Management Plan were put forward for consideration during the 2018 budget process; however, no funding has been identified to date for this effort.

Neighborhood/Community Interests (if known):
Residents and businesses downtown and adjacent to major corridors for which the City maintains the street trees (Attachment 1) are very interested in the City's maintenance of those trees.

Staff convened a meeting of community stakeholders to develop the STMM. Several overarching themes emerged from the group's discussions:
- The acknowledgement that trees contribute greatly to the streetscape;
- The importance of maintenance, and particularly protecting sidewalks; and
- Urban forest planning is but one element of urban design along a streetscape

Options:
N/A
Financial Impact:
Street tree maintenance activities for 2018 have already been identified based on current levels of funding and staff capacity within the Parks, Arts, and Recreation Department. This maintenance level addresses street trees downtown and on ten major arterials. In addition, resources within the Water Resources and Parks Maintenance programs provide a current level of service within city-owned habitat and parks properties.
Implementing the STMM-recommended level of service would require an estimate $135,000 annually

beginning in 2019 to provide a basic industry standard for street tree maintenance downtown and on ten major arterials. This amount would create a dedicated, permanent crew to prune trees more often which keeps trees pruned back away from street lights, traffic signs, and buildings, improving safety and reducing citizen complaints. Also, trees pruned when they are young makes the work easier, cheaper, and better for tree health and infrastructure.

Beginning work on aspects of an Urban Forestry Management Plan would also require additional resources.

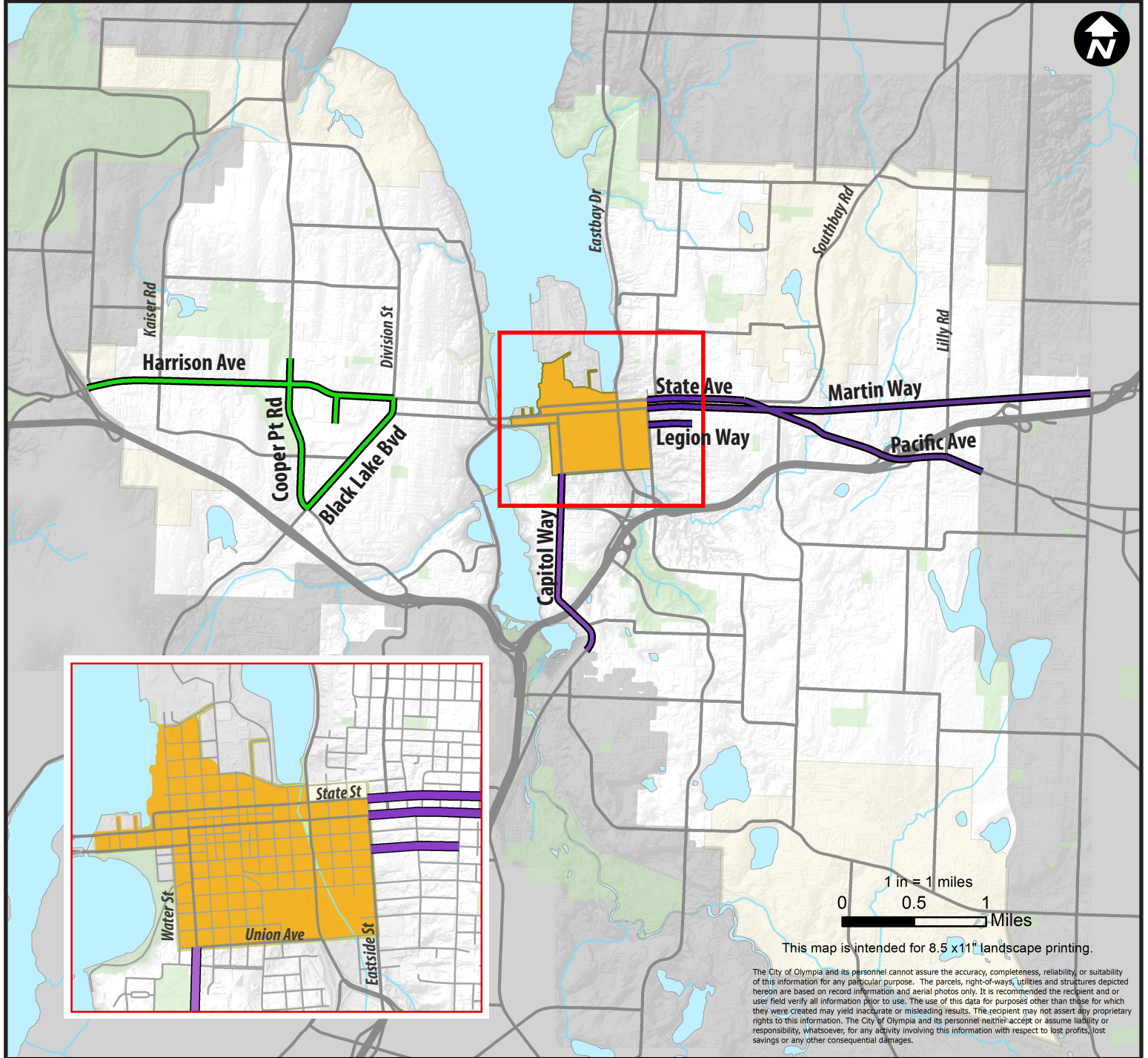**Attachments:**
Map: Street Trees Maintained by the City
Urban Forest Strategic Plan
Street Tree Maintenance Manual Fact Sheet
Draft Street Tree Maintenance Manual
Street Tree Maintenance Levels of Service Comparison

City Maintained Street Trees

Olympia™

Harrison Ave

Kaiser Rd

Division St

Cooper Pt Rd

Black Lake Bvd

Eastbay Dr

Southbay Rd

State Ave

Legion Way

Martin Way

Pacific Ave

Lilly Rd

Capitol Way

State St

Water St

Union Ave

Eastside St

1 in = 1 miles

0   0.5   1
Miles

This map is intended for 8.5 x11" landscape printing.

City Maintained Street Trees

The City of Olympia only maintains street trees in the areas noted on the above map. All other streets trees are the adjacent property owners responsibility.

Eastside Streets
- 4th Ave
- Capitol Way
- Legion Way
- Martin Way
- Pacific Ave
- State Ave

Westside Streets
- Black Lake Blvd
- Cooper Pt
- Harrison Ave
- Kenyon St

Downtown Streets
- Downtown Olympia, see inset map

Thurston County

UGA

Olympia

City of Olympia

Urban Forest Management
Strategic Proposal

Terra Firma Consulting

April 2015

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Appendix F – PRAC Urban Forestry Sub-committee Final Report (2014)

Appendix G – Sustainable Urban Forestry Matrix Survey Results

Executive Summary

The City of Olympia has a long and successful history in committing to take care of its urban forest. Several projects and programs were developed through the years and efforts to plan for and manage the valued resource are evident in policy and action. However, as a result of significant annual budget cuts, some critical elements are now missing and necessary tasks left undone due to limited resources disproportionate to program needs. Upon review of the situation in relation to city policies and components needed for a sustainable urban forestry program, four major challenges were identified:

A. *Increase the knowledge and understanding of Olympia's urban forest to direct its management.*
B. *Develop and implement a comprehensive management plan.*
C. *Clarify roles and responsibilities throughout the City and identify resource gaps and program needs.*
D. *Involve the citizens in resource management where appropriate.*

To address these challenges, a few initial strategies are identified that can be employed with little or no additional funding (outside of grants), but would require more effort and coordination amongst the city stewards of the urban forest in the Planning, Parks, and Public Works Departments. The most critical actions involve re-evaluating the duties of the City's Urban Forester and establishing an interdepartmental Urban Forest Team. This Team would be directed to creatively collaborate on developing the systems and tools, such as the initial stages of a comprehensive management plan, to better manage the urban forest community-wide. The process would be guided by the objectives identified by the Team from a sustainable urban forestry model utilized during the strategic planning process, along with current city plans and policies in place.

Introduction

There are many definitions for an *urban forest,* but it most commonly refers to all the trees and associated vegetation in a community, both on public and private property. Often trees are planted individually in the suburban and urban environment, though many preserved natural areas in a city have native forest remnants. Vegetation in residential and commercial landscapes also contributes to the urban forest. No matter the diverse origins of planned or naturally occurring trees, they all depend upon, and interact with, the natural mediums of local soil, water and climactic conditions. Therefore, a healthy urban forest is best managed as an entire forest ecosystem.

Like other progressive municipalities, Olympia has a goal to sustainably manage its urban forest; the City emphasized this commitment with a long-running urban forestry program and successful projects and partnerships throughout the last two decades. Currently the city has thousands of trees that provide tremendous benefits 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 sought a clear direction for a more effective and cost-efficient management of public trees and the urban forest. Terra Firma Consulting was contracted to work with City staff to help develop a strategies that address how to manage and enhance all aspects of the urban forest and lead the City to more specific action plans and budgets over time.

Elizabeth Walker of Terra Firma Consulting comes with nearly 25 years experience in municipal forestry assisting several communities in Western Washington, either as staff urban forester (Vancouver, WA and Kirkland) or as contract consultant or on-call city arborist. Walker has developed programs from the ground up and has worked in and with city Public Works, Parks and Planning departments, adopting and administering code and policy and engaging the public. Her expertise in facilitation and strategic planning has given her the ability to help communities develop successful strategic and management planning documents for their urban forestry program.

An urban forest strategic management plan is considered a living document that outlines where the community wants to go regarding its urban forest, and ideas of how to get there. When it's developed, the plan should include an overarching mission and vision statements under which all goals and strategies align. Language for these statements is easily found in the City's Comprehensive Plan. In concert, an effective plan should incorporate a sustainable urban forestry model to demonstrate the comprehensive nature of resource management, to identify feasible goals to strive for, and to outline key priorities in which to focus short-term action steps.

While this strategic planning process with the grant did not result in an adopted plan *per se*, the recommended strategies can guide the community over the next ten years regarding planning, management and maintenance of public and private trees based on future identified goals and priorities and dependent on funding and resource commitment. These strategies are organized based on the various requested budget scenarios, and as budget and resources become dedicated to a more formal city urban forestry program, annual work plans with budget implications could be generated from this proposal.

The exercise in examining current conditions with possible strategies during this process also intended to help promote a more unified effort to manage the entire urban forest within and between the City and other stakeholders (residents, business owners, utilities, tree stewards) in the community. Longer-term strategies can be developed to give further direction as the plan evolves and goals are identified and achieved. The foundation of these recommended strategies ensures that Olympia's urban forestry program can become more sustainable over time.

The Urban Forest as a Natural Resource

The City of Olympia understands that it needs to manage its trees and urban forest. There are numerous policy statements throughout the Comprehensive Plan to confirm this commitment. 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 Olympia's urban forest* is that it:

- 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 become structurally unsafe or die, fall into the road or onto a park trail or sports field, and impact sidewalks and other infrastructure. A proactive mitigation program with high risk trees, which includes removal, replacement, and where appropriate, leaving habitat snags, is responsible stewardship of the urban forest.

History of Urban Forestry in Olympia

As early as 1897 the City of Olympia had ordinances on the books related to the management of street trees. The first known formal program was a shade tree commission that was organized in the mid-1950's by Margaret McKinney in response to the removal of the street trees on Capitol Way. This shade tree commission included a well- known forest scientist by the name of Jack W. Duffield. The group was commissioned by then Mayor Amanda Smith.

Around 1988 the City working with Thurston Regional Planning Commission (TRPC) applied for an Urban Forestry Grant from the Washington State DNR. This grant was used to perform a volunteer based "significant" tree inventory. This inventory included trees on both public and private property.   The intent of the inventory was to document trees over a specific size. The work was performed by volunteers and coordinated by a TRPC intern with professional planning support.

In addition to the inventory, the City established a Tree Advisory Board (later to become the Urban Forestry Advisory Board).   This board was tasked with developing the foundation for an urban forestry program. This included the development of an Urban Forestry Chapter in the City's Comprehensive Plan, the crafting/adoption of the Landmark Tree Ordinance (OMC 16.56) and the crafting/adoption of the Tree Protection and Replacement Ordinance (OMC 16.60). The Tree protection and replacement ordinance, which regulated the removal of trees on private property included an exhaustive and at times contentious public engagement process, but ultimately resulted in the adoption of the ordinance in early 1992.

The legitimacy and significance of Olympia's Urban Forestry Program greatly expanded in October 1992, when the City's first Urban Forester was hired. This person was tasked with administration and enforcement of the Tree Protection and Replacement ordinance (OMC 16.60), the Landmark

Tree Protection ordinance (OMC 16.56) as well as further development of the Urban Forestry Program. The basic elements of the program as envisioned at that time were described within the Urban Forestry Chapter of the Comprehensive Plan, and all were developed to some level during this time until 2008, namely, ordinance administration, code development, a Master Street Tree Plan, and interdepartmental collaboration on several major street tree installations.

Regarding volunteer-based activities, the NeighborWoods volunteer program was funded 1997-2008 and successfully engaged residents in planting and establishing over 5,000 street trees throughout the community. The training and coordination of the program was done with contract staff. The program is currently considered *on hold*.

For the next three years, the Urban Forester's work was focused on the administration of Tree Protection and Replacement ordinance, hazard tree assessments, implementing the Legion Way long-term tree management project, and assistance to other departments. As a result of severe budget cuts to the program, temporary and contract staff was then used to fulfill minimal urban forestry duties, primarily development review and hazard tree abatement, until a part-time employee was hired in 2012. Contract work continues to be utilized to perform some of the tasks, and the staff position has just recently regained full-time status (1.0 FTE).

Existing Conditions

There are several components of a city urban forestry program that have been identified and developed through the many years and have distinguished Olympia as one of the more progressive communities in the region for its commitment to the valuable resource.

Policies, Code, and Plans

The chief guiding document for the major development of Olympia's urban forestry program was the Chapter Ten: Urban Forestry (Appendix B) of the Comprehensive Plan (1991). This chapter outlined the major elements for a new program, and it was effectively used to develop several of the components we see today:

- Tree Protection and Replacement Ordinance (last updated 1994)
- Landmark Tree Protection Ordinance (1991)
- Development of street tree standards in Engineering Design & Development Standards (1995); Green Cove Basin Residential Low Impact tree standards
- Public Tree Ordinance (1998)
- Tree-related code in Landscaping Ordinance (1995) and Critical Areas Ordinance (2005)
- Master Street Tree Plan for the Master Street Plan (2002-2011)
- Urban Forestry Manual to accompany the Tree Protection and Replacement code (1994)

To date, much needed review and revisions have not been done to any of these materials.

Current Comprehensive Plan

In the current version of the City's Comprehensive Plan (2014), policy statements relating to the value and importance of trees and canopy are readily found throughout the document. Reference to the urban forest riddles most all of the elements, particularly the Natural Environment, Land Use and Urban Design, and Transportation with some presence in Economy and Public Health, Parks, Arts & Recreation (Appendix C). Several policy statements directly support the objectives and strategies presented in this Plan and are shown in the "Program Challenges" section.

Notable language in the Comprehensive Plan can be considered for program mission and vision statements.

"Vision" statements:

> *A healthy and diverse urban forest is protected, expanded, and valued for its contribution to the environment and community.* [Natural Environment Goal 3]

> *As a result of cooperative effort, Olympia will enjoy a dense tree canopy that will beautify our downtown and neighborhoods, and improve the health, environmental quality and economy of our city.* [Our Vision for the Future: Our Natural Environment]

"Mission" statements:

> *Continuing the City's role as caretaker of Olympia's urban forest, a diverse mix of native and ornamental trees that line our streets, shade our homes, and beautify our natural areas.* [Community Values &Vision, Key Challenge and a way to minimize negative environmental impacts]

> *Natural resources and processes are conserved and protected by Olympia's planning, regulatory, and management activities.* [Natural Environment Goal 1]

Parks, Art & Recreation Plan

In 2010, the City produced *Olympia Parks, Arts & Recreation Plan,* a management plan for a sustainable park, arts and recreation system that "meets the needs of the community." As the Director states in the Introduction, "*As needs change, so does the role of the Parks, Arts & Recreation Department. Most notable is our increasing commitment to the environment…it is our job to preserve the urban forests, wetlands, and shorelines that we manage.*" Along with landscape trees and vegetation in neighborhood and community parks, the primary contributor in the parks system to the urban forest is the open space. To further illustrate the value of this urban forest component, under the Natural Resource Management (p. 28):

> *The Parks, Arts & Recreation Department is responsible for managing 963 acres of park land, which includes 15 miles of trails, 736 acres of open space and 23,466 lineal feet of waterfront. These properties are rich in wildlife and thousands of trees that [at least] absorb carbon dioxide, enhancing Olympia's air quality. We are charged with the dual tasks of preserving the*

delicate balance between active and passive recreation uses while being sensitive to the needs of the living infrastructure that makes our parks valued. OPARD will need to dedicate funds towards natural resource management to ensure that these natural areas will remain healthy. The Volunteers in Parks (VIP) program provides volunteer opportunities for environmental restoration projects such as tree plantings and invasive plant removal.

According to an Open Space Demand Analysis in the Plan, the number one response to "What parks, arts or recreation experience do you value most?" was "nature."

In addition to the trees and associated vegetation in the park system, the Department is also committed to maintain street trees in the Downtown and along arterials. According to the 2010 *Olympia Parks, Arts, and Recreation* Plan, they maintain 1,758 trees, which according to 2008 annual labor costs, required 14% of the department's total maintenance labor.

Habitat and Stewardship Strategy

The Water Resources Environmental Services Habitat Program is beginning to implement a City of Olympia 2013 *Habitat and Stewardship Strategy* with strategies based on land use and size classes, as well as stewardship tools of protection, technical assistance, incentives, partnerships, and education. These strategies include a vegetation management component that can be adopted by other entities such as Parks, Arts & Recreation with their open space management and private homeowners associations with their own stormwater facilities and/or tree tracts.

Projects & Programs

Along with the existing management responsibilities and operations, the following projects and programs are currently in place:

- Hazard tree program – assessment and abatement of hazardous street trees and park/trail trees.
- Legion Way Tree Management Program – annual work for removal and replanting efforts
- Street Tree Planting Projects – Downtown and arterial street trees with WA DNR Restoration Grant as awarded.
- Tree City USA Program and annual Arbor Day celebration
- Park Stewardship Program in Parks, Art & Recreation – Volunteer in Parks

Resource Management

During this strategic planning process, the Staff Team helped identify all the tasks and participating parties for each program component. The outcome was a spider web of mixed services and duties (Appendix D). The main management categories are Street Trees, ROW Trees, Park Trees, Private Trees, and Program Management. In order to better illustrate the linkages, while realizing gaps in resource to provide needed services, Table 1 was produced. It is important to note that this table is

the first attempt to portray the interdepartmental relationships in regard to the various urban forest related activities. It requires continued discussion amongst the parties to confirm and clarify understandings and agreements around these tasks and exploration of how to address gaps and opportunities for efficiency.

Staffing Resources

The urban forestry program, if one considers all aspects of the city program, has evolved to become quite complex and rather inefficient in depending on basically 1.0 FTE. Without some collaborated long-range visioning and resource sharing, the program cannot be either sustainable or effective. Currently, the status of staff resources by department is as follows:

- CP&D - 1.0 FTE Associate Planner/Urban Forestry Program, soon to be Certified Arborist
- Parks – 0.25 FTE Field Crew Leader, who is a Certified Arborist and soon to be Qualified Tree Risk Assessor performs park/trail tree risk and maintenance assessment, as needed; No dedicated staff for street tree management.
- Public Works – No dedicated staff for Transportation (ROW trees); Water Resource Habitat Program sufficiently staffed to manage the urban forest in Stormwater/Aquatic

    In addition, contracts for:
- Legion Way annual tree management program
- Restitution cases with Legal
- Street and ROW tree risk assessments

Other Recent Program Analysis

In 2014, a planning intern assessed the City's regulations and urban forestry program administration regarding trees in the right-of-way to identify challenges and make recommendations for strategies to improve the city program (Appendix E). The assessment is quite useful and generally reflects the challenges and issues revealed in this strategic planning process.

Additionally, the Parks and Recreation Advisory Committee (PRAC) formed a sub-committee in 2014 to better understand the current conditions of the Urban Forestry Program and formulate recommendations for how best to move the program forward. After conducting their research and holding several meetings to discuss their findings with staff and among one another, the group submitted a "Final Report" (Appendix F) in March of 2014 to the City Council. Included in the report were the following recommendations:

1. Strengthen and improve our long-term planning for the urban forest.
2. Re-establish our landmark tree program to protect and showcase historic and spectacular trees in the city.

3. Develop neighborhood teams of volunteers to support the City's urban forestry goals in a variety of ways.
4. Support tree planting and care on private property that contributes to the City's forestry goals.
5. Support acquisition of green space to help ensure that the City can maintain a healthy tree canopy cover as future development occurs.

Along with these recommendations, they offered some possible strategies to consider. They also emphasized the need to clarify the departmental roles for managing trees and urban forestry.

Strategic Planning Process

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

The matrix was distributed to City staff and members of the PRAC subcommittee on Urban Forestry in December 2014 to introduce these concepts. The designated Staff Team participants that met with the consultant throughout the process were:

- Leonard Bauer, Community Planning Deputy Director
- Steve Friddle, Principal Planner
- Joe Roush, Public Works, Habitat Program Planning Supervisor
- Stacey Ray, Senior Planner – Long Range Planning
- Dave Hanna, Parks and Recreation Associate Director
- Michelle Bentley, Associate Planner/Urban Forestry Program

Representatives for entire departments, such as for Public Works Transportation and Stormwater and for Parks, were requested to distribute the matrix to appropriate department staff members for their feedback. Each recipient was instructed to indicate on each criterion spectrum where they see the City is *currently,* and which level is the *desired* performance benchmark to achieve for Olympia. They were also asked to consider which of the 24 key objectives would be potential top priorities to focus on short-term.

TABLE 1: City's Current Tasks & Duties

	Task	CP&D	Public Works	Parks, Art & Rec	Public
Street Trees	**Downtown /Arterials**		**Transportation**		
	Customer service calls – problems, new trees, possible hazard	UF initial	Follow up	Follow up	
	Hazard tree assessment and removal	UF contracts assessment	Contract work	Hazard removals, has equipment	
	Legion Way street tree management	UF contracts annual assess	Contract work	Annual maintenance	
	Tree removal and maintenance	UF initial	Some contracting	Some work	
	Infrastructure damage	UF initial	Repair	support	
	Plantings projects	UF w/grant		Supervises WCC Crew	
	Emergency Response (Storm)		Primary responder	Some	
	Inspection and restitution matters	Legal/UF + contractor	Initial and/or Follow up	Initial and/or follow up	
	Street Project review and street tree plans for private development (commercial, residential, etc.)	UF			
ROW Trees	**Non-arterials, unopened, unimproved**		**Transportation**		
	Maintenance of adjacent to property				Implied
	Customer service calls – problems, new trees, possible hazard	UF initial + contractor		Assist if in area	
	Maintenance of unopened ROW				
	Hazard tree assessment & removal	UF contracts assessment	Mainly debris removal	Hazard removals, has equipment	
	Emergency Response		First responder	Assist if in area	
Park Trees	**Parks, open space, trails**		**WR - Habitat**		
	Tree maintenance			Crew	
	Hazard tree removal			Crew	
	Volunteer stewardship program Open space stewardship		Assisting w/ strategies	Management/ Admin	
	Emergency Response			Crew	

Storm/Aquatic	Stormwater facilities		WR - Habitat		
	Manage facilities and open space		WR - Habitat		
	Habitat restoration		WR - Habitat		
	Stewardship strategy implementation		WR - Habitat		
Private Trees	**On private property (residential, commercial/ industrial), tree tracts**				
	Plan review – tree code administration	UF			
	Tree Tract – inspection, maintenance	UF consult and review HOAs			Developer design, HOA maintains priv.
	Critical Areas – forestry review	UF			
	Conversion Option Harvest permits	UF review			
	Tree removal permits incl. vacant lots	UF			
	Inspect, enforcement and restitution	UF + contract			
	Customer service calls – problems, new trees, possible hazard/nuisance	UF			
	Technical Assistance and Incentives		WR – Habitat for stormwater		
Program Management					
	City-wide Management Plan				
	Code/Plan adoption incl. updates	Assign to UF			
	Review EDDS - projects	UF			
	Education and outreach – website, brochures/manual, volunteer recruit	Assign to UF			
	Tree resource – inventory, canopy				
	Grants application & proj. management	UF			
	Tree City USA annual submittal	UF			
	Arbor Day – annual celebration	Coordinate	Coordinate	Coordinate	Participate
	Landmark Tree Protection program				

The responses were combined onto one matrix template that was presented back to the Team on January 27, 2015. Each criterion in the three categories was discussed as well as possible varying desired levels (goals) and top objectives (priorities) for a strategic plan to focus on for short-term strategies. During these discussions, there was no emphasis on budget implications, required resources, or timeline for any item, as the intent of the process was to identify direction and immediate need.

With this valuable feedback from the matrix exercise, along with review and inquiry of existing policies, programs, and resources, the consultant identified five major challenges that need to be addressed for the success of Olympia's urban forestry program. Key objectives from the matrix and current city policy statements are linked with these challenges to help identify critical strategies that could be implemented based on the various budget scenarios.

The first draft of this Strategic Proposal was submitted to the City February 20, 2015 for review following a work session with the consultant on March 9th. The Team discussed the findings and recommendations, and the Proposal was finalized March 20th. The final report was presented to City Council on April 21, 2015.

Matrix Survey Results

With the review of the matrix survey results received from both the City staff and the Urban Forestry sub-committee (Appendix G), the following are the suggested priorities from the matrix for Olympia's urban forestry program:

1. Compile a comprehensive inventory of the tree resource to direct its management
    1.1 Detailed understanding of the condition and risk potential of all publicly-managed trees.
    1.2 All publicly-owned, highly-managed trees are maintained to maximize current and future benefits.

2. Develop and implement a comprehensive urban forest management plan
    2.1 All publicly-owned trees are managed with safety as a high priority
    2.2 Urban forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover, species diversity, and species distribution objectives.

3. Develop and maintain adequate funding to implement a city-wide urban forest management plan.

4. Employ and train adequate staff to implement the city-wide urban forest plan
    4.1 Ensure all city departments cooperate with common goals and objectives.

5. Protect the ecological structure and function of all publicly-owned natural areas and where appropriate, enhance.
    5.1 Preservation and enhancement of local natural biodiversity

6. Educate the general public to understand the role of the urban forest.
   6.1 At the neighborhood level, citizens understand and cooperate in urban forest management.

Program Challenges

With the analysis of the identified priorities from the matrix and the current state of the city's program, there are four major challenges that must be addressed. Included in this section are the supporting key objectives from the matrix and city policies from the Comprehensive Plan.

A. *Increase the knowledge and understanding of Olympia's urban forest to direct its management.*
Currently the vegetative resource has not been captured or assessed comprehensively to know the existing condition or composition of the urban forest and what would be the suitable goals to be set for the community. Priorities of inventory and canopy cover assessment are first level strategies to meet this need.

Supporting Key Objectives (Matrix) and *City Policies* (Comp Plan)

- Achieve climate-appropriate degree of tree cover, community-wide [Policy PN3.2: *Measure the tree canopy and set a city-wide target for increasing it through tree preservation and planting.*]
  o High resolution assessments of the existing and potential canopy cover for the entire community. [Policy PL7.4: *Increase the area of urban green space and tree canopy with each neighborhood proportionate to increased population in that neighborhood.*]

- Establish a diverse public tree population suitable for the urban environment and adapted to the region.
  o Build a comprehensive inventory of the tree resource to direct its management [Policy PL22.2: *Identify, protect and maintain trees with historic significance or other value to the community or specific neighborhoods.*]
    ▪ All publicly-owned, highly-managed trees are maintained to maximize current and future benefits. [Policy PT1.12: *Recognize the value of street trees for buffering pedestrians from motor vehicle traffic, to capture vehicle emissions, shade sidewalks, and protect asphalt from heat. Proper selection, care and placement are critical to long-term maintenance of trees along streets, street pavement and sidewalks.*]
    ▪ Detailed understanding of the condition and risk potential of all publicly-managed trees. [Policy PN3.6: *Protect the natural structure and growing condition of trees to minimize necessary maintenance and preserve the long-term health and safety of the urban forest.*]
    ▪ All publicly-owned trees are managed with safety as a high priority.

B. Develop and implement a comprehensive management plan

A critical component that is lacking for Olympia's urban forestry program is a city-wide management plan. This guiding document would help formalize the coordination of policy, management, and outreach around the urban forest.

Supporting Key Objectives (Matrix) and *City Policies* (Comp Plan)

- o Develop and implement a comprehensive urban forest management plan [Policy PN3.1: *Manage the urban forest to professional standards, and establish program goals and practices based on the best scientific information available.*]

- o Urban forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover, species diversity, and species distribution objectives.

- o Protect the ecological structure and function of all publicly-owned natural areas are protected, and where appropriate, enhanced. [Policy PN3.4: *Evaluate the environmental, ecologic, health, social and economic benefits of the urban forest.*]
  - ▪ Preservation and enhancement of local natural biodiversity [Policy PN11.5: *Foster a sense of place and community pride by carefully stewarding the trees, plants, and wildlife unique to Puget Sound.*]

C. Clarify roles and responsibilities throughout the City and identify resource gaps and program needs.

When performing a quick gap analysis utilizing Table 1, it is apparent that Olympia is not able to meet the current needs of an urban forestry program. It would be beneficial to gain clarity on program needs by understanding the roles and responsible parties while identifying the priority tasks and immediate ways to meet the program needs. If the City cannot increase capacity to adequately address the needs, at least there is acknowledgement of what can and cannot be done without additional resources.

Supporting Key Objective (Matrix)

- o Ensure all city departments cooperate with common urban forest goals and objectives.

From the consultant's perspective, the workload to manage Olympia's urban forest has increased without sufficient resources committed to ensure sustainable management. As illustrated in Table 1, the 1.0 FTE position is expected to perform both front line duties (code enforcement, inspections, hazard tree assessment, ROW tree maintenance coordination, etc.) along with code and program development, administration, education, contract management, and long-range program planning. This wide array of duties requires an experienced and knowledgeable individual in both arboriculture and urban forestry. More importantly, the needed skills are one of a program manager and include project management, long-range planning, code development and adoption, customer service, communications, and program development.

Supporting Key Objective (Matrix)

- o Employ and train adequate staff to implement the city-wide urban forest program.

The other major resource to contend with is the current limited funding for the urban forestry program. Table 1 assists in the conversation around priority tasks and possibly explore existing budget and resources to sustain these items for the short-term.

Supporting Key Objectives (Matrix) and *City Policies* (Comp Plan)

- o Develop and maintain adequate funding to implement a city-wide urban forest management plan. [Policy PR6.2: *Establish a dedicated and sustainable funding source for maintaining City parks, landscape medians, roundabouts, entry corridors, street trees, City buildings, and other landscaped areas in street rights-of-way.*]

D. *Involve the citizens in resource management where appropriate.*
The intersection of the public with urban forestry is throughout the whole community, both on public and private property. Education and outreach are critical pieces for a successful and sustainable program, and therefore, appropriate resources must be committed to meet this challenge.

Supporting Key Objectives (Matrix) and *City policies* (Comp Plan)

- ➢ The general public understands the role of the urban forest. [Policy PN11.4: *Provide education and support to local community groups and neighborhoods who want to monitor and care for their local park or natural area.*]
  - ▪ At the neighborhood level, citizens understand and cooperate in urban forest management. [Policy PN11.2: *Give all members of the community opportunities to experience, appreciate, and participate in volunteer stewardship of the natural environment.*]

Recommended Strategies

Below are recommended strategies to address the challenges and needs identified in the previous section. These strategies are also captured in the Budget and Timeline Table (Table 2).

A. *Increase the knowledge and understanding of Olympia's urban forest to direct its management.*

As mentioned before, no measurable targets about canopy cover, composition or condition have been set for Olympia. Part of the reason is that the make-up of the urban forest is unknown without comprehensive inventory or mapping data.

Strategies:

- Map urban tree cover using aerial or satellite imagery (or LIDAR) and include in city-wide GIS. There may be existing mapping tools and resources available in-house to begin assessment and analysis of the tree canopy.

- Consider setting a relative canopy cover target, both city-wide and at neighborhood level to determine if appropriately meeting Land Use Policy 7.4.

- Develop a city tree inventory system:
  - Compile existing inventory data to identify gaps and needs.
  - Utilize existing Asset Management System to capture street tree data as maintenance (including removal and planting) is done; incorporate a risk rating attribute in the inventory system.
  - Consider purchasing tree inventory software that integrates with GIS. Data can be migrated into the city's Asset Management System or managed separately.
  - Apply for WADNR tree inventory grant (limited data collection to ~ 2,000 trees)
  - Consider a NeighborWoods program to have volunteer groups collect tree data.
  - Consider a student internship to perform the data collection

- Compare species and age distribution and suitability from inventory data to performance indicators and set goals.

B. *Develop and implement a comprehensive management plan.*

A city-wide urban forest management plan is the key document to connect city policies to program goals, priority actions, annual work plans with budget, responsible parties, and sufficient committed resources (funding and staffing) for implementation. The development of such a plan must be coordinated with the responsible City departments.

The task of developing such a plan is a major undertaking however there are several pieces in place that can be assembled to identify priority work to tackle with sufficient funding and support.

Strategies:

- Evaluate and prioritize existing plans and standards; consider minor updates as short-term tasks; refer to planning intern recommendations (Appendix E).

- Utilize this suggested working framework for a city-wide plan:
  1. Public Tree and Urban Forest Resource
     a. Urban Tree Canopy Assessment (LIDAR)
     b. Street tree inventory
     c. Park tree resource analysis

  2. Street Tree Management Plan
     a. Street Tree Ordinance (Code) and policy
     b. Legion Way Tree Management Program
     c. Hazard Tree Assessment and Removal Program
     d. Street Tree Master Plan -
        i. City Tree list and EDD Standards
     e. Street tree planting projects

  3. Park Tree Management
     a. Hazard tree assessment and removal
     b. Stewardship Plan – planting, invasive removal
     c. Park/Tree Stewardship volunteer program
     d. Habitat Strategy

  4. Public Tree Management (ROW, Stormwater, public facilities)
     a. Public Tree Ordinance
     b. Habitat Stewardship Strategy
     c. City Tree Nursery?

  5. Private Tree Management
     a. Tree Protection and Replacement Ordinance
     b. Landscaping Ordinance
     c. Critical Areas Ordinance
     d. Green Cove Basin Residential Low Impact Tree Standards?
     e. Urban Forestry Manual
     f. Tree Planting

  6. Urban Forestry Program
     a. Strategic program planning and visioning (veg. resource goals)
     b. Olympia Urban Forest Team (**OUFT**!)
     c. Education/Outreach (internal/public)
     d. Grant application and management
     e. Landmark Tree Protection ordinance
     f. NeighborWoods volunteer program
     g. Emergency Response Plan (city-wide)

C. Clarify roles and responsibilities throughout the City and identify resource gaps and program needs.

A key to improve program implementation is coordination among the City departments. Furthermore, upon review of the existing staff resources and division of duties, a re-assessment of the division of labor across the board is advisable in order to effectively accomplish priority tasks.

Strategies:

- Refine the city-wide task and roles table (Table 1) to accurately reflect reality and identify resource and service gaps.

- Establish urban forestry priorities to meet program needs.

- Establish an interdepartmental Urban Forest Team to ensure all city departments cooperate with common urban forest goals and objectives.
  - Members are from CP&D, Parks, Arts & Recreation, Public Works – Transportation, and Public Works – Stormwater and Facilities.
  - The Team meets regularly for project coordination, information and resource-sharing, and ideally, to collectively develop the city-wide program goals, needed public tree code and policy, and work plans.
  - Suggested Team projects:
    - Assemble and review existing documents for a city-wide management plan; needs analysis and prioritize.
    - Inventory and canopy cover data and mapping projects
    - Craft Street Tree Ordinance (review 1999 version)
    - Update Street Tree Master Plan
    - Coordinate stewardship plans and programs
    - Update public tree code and standards – Public Tree Ordinance, EDDS, City Tree List, etc.
    - Emergency Response Plan

- Clarify role of the City's urban forester position as a program manager. Primary duties would be:
  - UF Team Administrator – schedule, facilitate meetings, agenda, follow-up
  - Program development, administration and management
    - City-wide program visioning, planning, communication
    - Public education and outreach (Arbor Day, Tree City USA, educational materials, volunteer training, Landmark Tree Protection program)
    - Internal education/training
    - Urban forest code and plan review (including amendments)
    - Grant application and management
    - Program webpage management
    - Professional training & development (CTMI, Municipal specialist)

- If the position remains in CP&D, include Planning Arborist duties (with departmental assistance i.e., building, zoning inspectors)
  - Project permit forestry review (including PW plan review)
  - Tree removal permit inspections (on private property)
  - Code enforcement and development-related inspections

- Evaluate staff resources in other departments and coordinate priority workload through the UF Team.
  - Other departments should consider assuming the front line duties in maintaining the public trees (pruning, removal, replacement, watering, etc.), particularly the street trees.
  - Project/contract management – Legion Way tree management plan, hazard tree assessment and removal program (contract management and initial response), street tree planting projects, street tree inventory project, Street Tree Master Plan update, etc.
  - Volunteer program coordination (For example, Parks could recruit and coordinate volunteers under their Forest Stewards program while the Urban Forester provides training, and PW and Parks provide support, equipment, supplies.)
  - Revisit the City Tree Nursery program.

D. *Involve the citizens in resource management where appropriate.*

According to the Urban Forest sub-committee, it appears that a part of the community wants to participate in the management of the urban forest.

Strategies:

- Stewardship opportunities in the Parks, Arts & Recreation Department.

- Adoption of a Street Tree Ordinance that will clarify roles, including property owners' responsibilities, and develop public education materials to enable them to be good tree stewards (watering, selection, planting, hazard tree determination, pruning, etc.)

- Renew a NeighborWoods-type program as a volunteer training opportunity to help citizens become involved in managing the urban forest (parks, street trees). With the extensive planting efforts in the past, the focus of the program could be more on proper maintenance, mature tree care, basic hazard tree assessment, etc. This may include assistance in the City Tree Nursery program.

- Consider Coalition of Neighborhood Associations as partner (*Mission: to promote and enhance the quality of life in our neighborhoods by providing a forum to collaborate to achieve common goals.*)

Table 2: Olympia Strategies with Budget Indicators & Timeline

	STRATEGY	First Action No New $	Short Term (1-5 years)	Long Term (6-10 yrs)	Ongoing cost
	***Challenge A**: Increase knowledge and understanding of urban forest to direct its management.*				
1	Map Urban Tree Cover		$		
2	Set Relative Canopy Cover Targets		$		
3	Develop City Tree Inventory		$$		Ongoing
4	Set Performance Indicators and Goals		$		
	***Challenge B**: Develop & implement a comprehensive management plan*				
5	Evaluate and Prioritize Existing Plans and Standards	√			
6	Develop Management Plan		$$		
	***Challenge C**: Clarify roles & responsibilities; identify gaps and needs*				
7	Define Tasks and Roles – Resource Gaps	√			
8	Establish Priorities	√			
9	Establish Urban Forestry Team	√			
10	Clarify Urban Forestry Manager Roles and Responsibilities	√			
11	Coordinate Workload Through Urban Forestry Team		$$		Ongoing
	***Challenge D**: Involve the community in resource management where appropriate*				
12	Coordinate Volunteer Stewardship Through Parks Program		$		Ongoing
13	Clarify Property Owners Role in Maintaining Street Trees		$		
14	Renew NeighborWoods Program			$$	Ongoing
15	Partner with CNA	√			

$ = low cost or additional resource   **$$ = higher cost; budget implication**

Conclusion

The City of Olympia has a long and successful history in committing to take care of its urban forest. Several projects and programs were developed through the years and efforts to plan for and manage the valued resource are evident in policy and action. However, as a result of significant annual budget cuts, some critical elements are now missing and necessary tasks left undone due to limited resources disproportionate to program needs. Upon review of the situation in relation to city policies and components needed for a sustainable urban forestry program, four major challenges were identified:

A. *Increase the knowledge and understanding of Olympia's urban forest to direct its management.*
B. *Develop and implement a comprehensive management plan.*
C. *Clarify roles and responsibilities throughout the City and identify resource gaps and program needs.*
D. *Involve the citizens in resource management where appropriate.*

To address these challenges, a few initial strategies are identified that can be employed with little or no additional funding (outside of grants), but would require more effort and coordination amongst the city stewards of the urban forest in the Planning, Parks, and Public Works Departments. The most critical actions involve re-evaluating the duties of the City's Urban Forester and establishing an interdepartmental Urban Forest Team. This Team would be directed to creatively collaborate on developing the systems and tools, such as the initial stages of a comprehensive management plan, to better manage the urban forest community-wide. The process would be guided by the objectives identified by the Team from a sustainable urban forestry model utilized during the strategic planning process, along with current city plans and policies in place.

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 CO_2.
- 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

CHAPTER TEN: URBAN FORESTRY

> NOTE: An asterisk (*) denotes text material adopted by Thurston County as the joint plan with Olympia for the unincorporated part of the Olympia Growth Area.

BACKGROUND

There are cities whose reputation for attractiveness and livability rests heavily on the abundance of "stately trees" and "tree-lined streets." Such reputations do not come easily. They are born of appreciation, care, and effort over many years. Olympia can and should be such a community: a "City of Trees" with many large old trees bearing witness of the heritage we leave for our children.

Olympia is still a city of many grand trees, though their numbers are declining. The City lost approximately 430 acres of wooded areas between 1980 and 1990. To stem the loss of trees and to encourage replanting, this chapter of the Comprehensive Plan sets policies for the protection and replacement of our urban trees. One of the most urgent concerns is to encourage preservation and appreciation of the magnificent trees that still remain. In so doing, we hope to awaken our citizens to the many important contributions trees make to the city's quality of living. Trees contribute to cleaner air and water, flood and erosion control, summer shade, beauty in bud, bloom, leaf, and structure. Often overlooked or ignored is the contribution of trees to the serenity of natural silence because they absorb or mask noise from surrounding sources. And, somewhat less tangible, they give a sense of continuity with forms of life which began long before our own, and which will carry on long after our passing.

Urban areas--especially older, established ones--offer a rich assortment of trees not only in terms of size and maturity but also in terms of species. Along with trees native to the region, such areas abound in a wide variety of non-native trees, planted by immigrants bringing seeds and seedlings as living reminders of flora they had left behind. Such trees, tenderly cared for, are now ours to enjoy in the magnificence of their maturity. As we enjoy them it is well to consider that they represent in part our forebears' tenuous hold on immortality. As we care for them and add to them, we shape an important part of our lives, and leave a legacy for our descendants.

VISION

This is the vision of Olympia in our future:

Trees of various species, ages, and sizes are growing in all parts of the city, contributing to a green and healthy community. Tall slender conifers accentuate and add beauty to the skyline. Graceful tree branches arch over busy thoroughfares and quiet residential streets. Wooded corridors weave through the city, providing for coexistence of wildlife habitat, play areas for children and recreational space for all citizens. These trees give character to the City's neighborhoods and shopping areas. Trees create streets friendly to walkers and a buffer between people and the hard edges of buildings and roads. People of all ages and walks of life are active in planting and caring for trees, demonstrating their faith in, and commitment to, posterity. Evergreen trees grow throughout the city, a visual reminder of the special character of the Pacific Northwest. Deciduous trees mark the seasons, connecting us visually with the passage of time. Shady areas in public places welcome citizens on a summer's day and provide shelter from the rain. These trees help ensure that this Olympia of the future will remain a most livable community.

THE VALUE OF AN URBAN FORESTRY PROGRAM

Trees are a valuable public resource, an important element of our daily lives. They enhance the quality of our working environment, and are an important backdrop to our activities with family and friends. They help to provide visual buffers and natural beauty, preserve the natural character of an area, and soften the impact of buildings and streets. They help reduce air pollution, noise and glare. They cool us in summer and insulate us in winter. They prevent soil erosion, and reduce siltation and flooding. They provide habitat for wildlife, and are a source of food and materials for human habitation as well.

The City of Olympia should preserve and enhance this natural resource, by encouraging the preservation and maintenance of trees on public and private lands, protecting trees from unnecessary removal or damage during development, and promoting the planting of new trees. The City should be a leader in urban forestry practices, including the development of state-of-the-art standards and criteria for design, planting and maintenance, for both public and private development projects.

It is also important to plant or preserve "the right tree in the right place." With respect to overhead utilities, for example, an appropriate tree for retention would be one which either has a very low potential for failure; or one which, if it were to fall or blow over, would not land on overhead utilities. An appropriate tree for planting near overhead utilities would be one which would not need excessive pruning to allow for the proper clearance of power and other utility lines. This can include short-growing trees that are not expected to grow tall enough to need clearance pruning. It can also include narrow columnar trees which, when planted to one side of the utility lines, will not need excessive clearance pruning.

When people appreciate the value and contribution of trees, they are more likely to protect them. The City should therefore emphasize public education regarding the benefits derived from trees, bringing the issues relating to trees to public attention, and reinforcing the value of trees to the public and to property owners. Ordinances will be needed to ensure appropriate and equitable management of the urban forest. Good planning and design, and the efforts of many people, will be needed to make the vision a reality. Recognition and encouragement should be given to residents, developers, and other citizens who enhance the urban forest. All these will be important in making Olympia truly a "City of Trees."

GOALS AND POLICIES

GOAL TREE1. To recognize and use trees in the city to help achieve our other land use goals.

POLICIES:

TREE 1.1   Existing trees and new tree plantings should be a significant part of Olympia's visual identity, contributing to a special "sense of place" within the Pacific Northwest.

TREE 1.2   Incompatible land uses and activities should be separated by preserving wooded areas or by planting appropriate new trees to create a wooded buffer area.

TREE 1.3   Residential neighborhoods should be buffered from the adverse effects of adjoining roadways and development by using stands of existing or planted trees.

GOAL TREE2. To make Olympia a beautiful place to live in or visit by lining our High Density Corridors and our entry and exit corridors with trees.

POLICIES:

TREE 2.1   Street trees should be a high priority for any public improvements within Olympia's High Density and Entry/Exit Corridors. Tree plantings in both public and private development should adhere to the design guidelines for those corridors.

TREE 2.2   New tree plantings within the Corridors, including both street trees and trees on private development, should create a pattern of visual continuity and a sense of visual order, define a strong edge to the street corridor, and reinforce the sense of gateway or entrance to the City.

GOAL TREE3. To bring a sense of natural beauty into the Downtown, our most urban area, by planting trees.

POLICIES:

TREE 3.1   A coordinated pattern of street trees should be planted and maintained within the Downtown, with consideration given to impacts on views, utilities, and pedestrian/vehicular traffic.

TREE 3.2   Tree plantings should be designed to lend variety and provide a sense of human scale to the street, enhancing the pedestrian environment.

TREE 3.3   The few remaining large trees in downtown, such as those in Sylvester Park and along Legion Way, should be given special care and protection.

TREE 3.4   Other tree plantings should adhere to the Downtown Area Design Guidelines.

TREE 3.5   The City should work with downtown groups on public/private cooperative efforts in tree planting and preservation.

TREE 3.6   In the vicinities of the Port and West Bay Drive, trees should be used to create a buffer between terminal or industrial operations and adjacent land uses (without blocking views).

GOAL TREE4. To recognize the special requirements for preserving and enhancing the urban forest so that the human environment can exist in harmony with nature.

POLICIES:

TREE 4.1   An urban forestry program should be established to provide education, encouragement and assistance for planting and preserving trees on private property and street frontages.

TREE 4.2   Public entities and private interests should work together on a city-wide beautification program.

TREE 4.3   The City should encourage design and installation using tree species appropriate to an urban setting. Tree placement, size and species selection should consider hardiness, traffic safety and sightline restrictions, pedestrian safety, potential for damage to property, impacts on existing and proposed utilities, and contributions to habitat. *[See also utility policies U 9.1 and U 9.2 in Chapter Five, Utilities and Public Services.]*

TREE 4.4   Placement of new overhead wires, sidewalks and underground utilities should be designed to minimize impact on existing or proposed trees, within public rights-of-way and on private development. *[See also utility policies U 9.1 and U 9.2 in Chapter Five, Utilities and Public Services.]*

TREE 4.5   All land development and site work should be conducted in a manner which preserves appropriate existing vegetation and trees.

TREE 4.6   Existing trees within a development project should be an important factor in its site planning, including determination of building and parking locations and their specific configuration.

TREE 4.7   In order to preserve existing trees, buildings, parking and other development should minimize grading or terrain alteration around or within the dripline of such trees, using structural alternatives to minimize disturbance where needed.

TREE 4.8   Native tree species should be used to enhance the habitat as appropriate in new project landscaping.

TREE 4.9   Opening up views, or protecting views, should be one consideration in deciding whether to preserve or plant trees.

TREE 4.10   Sizes, densities and placement of trees should be commensurate with the scale of parking areas and should help reduce their visual impact.

TREE 4.11   Sizes, species and locations of trees should foster a sense of human scale and enhance the urban street environment.

TREE 4.12   Design of tree planting and preservation plans should reflect current professional standards.

TREE 4.13   On lands being converted from timber production, a variety of appropriate tree species in naturalistic settings should be preserved for use in future development of the property.

TREE 4.14   Planting and preservation designs for public and private development should consider the environmental benefits of trees, such as reduction of soil erosion and flooding, aquatic habitat protection, replenishment of oxygen, filtration of dust and air pollutants, and reduction in the rate of global warming. (Ord. #6140, 08/28/01)

GOAL TREE5. To take advantage of the economic value contributed to the City by its trees.

POLICIES:

TREE 5.1   Requirements for protecting existing trees and planting new ones should recognize the role trees play in enhancing the value of private property.

TREE 5.2   Trees should be an important part of public investments being made for

economic development and redevelopment activities.

TREE 5.3   Substantial tree plantings will contribute to Olympia's natural beauty and potential for tourism, and should form an important part of a network of scenic roadways and streets.

GOAL TREE6*. To manage the urban forest to maximize its contribution to wildlife habitat and recreational opportunities.

<u>POLICIES</u>:

TREE 6.1   Projects should be designed so that stands of existing and planted trees on contiguous property are linked, wherever possible, to provide a continuity of habitat for the movement of wildlife throughout the city.

TREE 6.2*   Existing and planted trees should be a significant part of a system of pedestrian walkways, bike paths, urban trails and other open space corridors linking neighborhoods in Olympia and its Growth Area with each other and with nearby communities.

GOAL TREE7. To manage the urban forest in a way that recognizes its effect on wise energy use.

<u>POLICIES</u>:

TREE 7.1   Allowing for appropriate levels of solar access, wind protection, or shade to living spaces within a development and/or on adjacent property should be considered in decisions to preserve existing trees or plant new trees.

GOAL TREE8. To maintain strong and healthy neighborhoods by planting and protecting trees.

<u>POLICIES</u>:

TREE 8.1   Tree plantings within neighborhoods should be used to help foster a sense of neighborhood identity.

TREE 8.2   Existing trees with historic significance or other value to the whole community, as well as to specific neighborhoods, should be identified, protected and maintained.

ELEMENTS OF AN URBAN

FORESTRY PROGRAM

To implement Olympia's Urban Forestry Policies, an Urban Forestry Resource Management Program, incorporating elements such as the following[1], may be developed and implemented by the City:

- An Urban Forestry Management Plan for Olympia, to include capital improvements, on-going maintenance, programs, and public events coordination, design review, development of design manuals and educational materials, and enforcement. Public and private utilities should be invited to participate in the development of the Urban Forestry Management Plan.

- A Landmark Tree Protection Ordinance to apply to trees which have been identified by the community as needing protection due to their special value in that they are irreplaceable by any means.

- A Tree Protection and Replacement Ordinance to apply to private and public development, restricting land clearing and requiring use of state of the art techniques in site design, grading design, tree protection, and mitigation of construction impacts.

- Modifications to the existing Landscape Ordinance to encompass new tree planting and tree replacement requirements which enhance habitat.

- A new Street Tree Master Plan for Olympia, to include major arterials, the downtown area and neighborhoods.

- Funding mechanisms to ensure full implementation of the Urban Forestry Management Plan.

- Professional staffing needed to implement the Management Plan, providing appropriate expertise in the fields of urban forestry, landscape architecture and arboriculture.

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[1] Although the ultimate names or organizational format may change, each of these elements may be included in the Urban Forestry Resource Management Program.

- Training programs for City staff and the development community to increase their effectiveness in planting and preserving trees in an urban setting.

- A public involvement program to encourage volunteer participation in planting and caring for trees.

- An Interdepartmental Coordination System, to include Parks, Public Works, Community Development and Planning, as well as all appropriate public and private utilities.

- Standards and Criteria Manuals for design, implementation and maintenance, incorporating best management practices (BMP's) from the fields of urban forestry, landscape architecture and arboriculture.

- Educational material for the public and for design professionals, such as a Citizens Street Tree Guide, a List of Recommended Species, Techniques for Tree Planting and Maintenance, and Plantings which Enhance Wildlife Habitat.

wp60.urban-fo.ele

APPENDIX C

Community Values & Vision

The Natural Environment element description "Focused on elements of the community's environment that were not built by people; it includes the City's shoreline goals and policies, and addresses means of reducing land use impacts on the natural environment - such as urban forestry."

What Olympia Values: Our Natural Environment

Olympians value our role as stewards of the water, air, land, vegetation, and animals around us, and believe it is our responsibility to our children and grandchildren to restore, protect, and enhance the exceptional natural environment that surrounds us.

Our Vision for the Future:

A beautiful, natural setting that is preserved and enhanced.

Olympia's unique natural setting will continue to make Washington State's capital city great. By working closely with surrounding governments we can successfully preserve, protect and restore the natural heritage we share.

As a result of this cooperative effort, Olympia will enjoy a dense tree canopy that will beautify our downtown and neighborhoods, and improve the health, environmental quality and economy of our city.

Key Challenge:

A growing population will put more pressure on these resources; to remove trees, to replace natural land surfaces with roads, buildings, and parking lots, and to encroach on environmentally sensitive areas

As Olympia continues to grow, it will be essential to reach a careful balance between planning for growth and maintaining our natural environment.

As a key land steward, the City's role is to encourage and regulate new development and land management practices in a way that minimizes negative environmental impacts by:

- Continuing the City's role as caretaker of Olympia's urban forest, a diverse mix of native and ornamental trees that line our streets, shade our homes, and beautify our natural areas.

> **GN1: Natural resources and processes are conserved and protected by Olympia's planning, regulatory, and management activities.**

> **GN3: A healthy and diverse urban forest is protected, expanded, and valued for its contribution to the environment and community.** SHARE

PN3.1 Manage the urban forest to professional standards, and establish program goals and practices based on the best scientific information available.

PN3.2 Measure the tree canopy and set a city-wide target for increasing it through tree preservation and planting.

PN3.3 Preserve existing mature, healthy, and safe trees first to meet site design requirements on new development, redevelopment and city improvement projects.

PN3.4 Evaluate the environmental, ecologic, health, social and economic benefits of the urban forest.

PN3.5 Provide new trees with the necessary soil, water, space, and nutrients to grow to maturity, and plant the right size tree where there are conflicts, such as overhead utility wires or sidewalks.

PN3.6 Protect the natural structure and growing condition of trees to minimize necessary maintenance and preserve the long-term health and safety of the urban forest.

> **GN11: All members of the community can experience the natural environment through meaningful volunteer experiences, active recreation, and interactive learning opportunities.** ⊕ SHARE

PN11.1 Ensure that all members of the community have access to a nearby natural space that gives them opportunities to see, touch, and connect with the natural environment.

PN11.2 Give all members of our community opportunities to experience, appreciate, and participate in volunteer stewardship of the natural environment.

PN11.3 Provide environmental education programs, classes, and tours that teach outdoor recreation skills and foster an understanding and appreciation for the natural environment.

PN11.4 Provide education and support to local community groups and neighborhoods who want to monitor and care for their local park or natural area.

PN11.5 Foster a sense of place and community pride by carefully stewarding the trees, plants, and wildlife unique to Puget Sound.

Land Use and Urban Design

Urban Design

In particular, trees provide a valuable public resource, enhance the quality of the environment, provide visual buffers and natural beauty, preserve the natural character of an area, and soften the impact of buildings and streets. Trees and other landscaping help reduce air pollution, noise and glare, provide cooling in summer and wind protection in winter, and in some cases provide materials and food for wildlife and humans.

> **GL3: Historic resources are a key element in the overall design and establishment of a sense of place in Olympia.** ⊕ SHARE

PL3.2 Preserve those elements of the community which are unique to Olympia or which exemplify its heritage.

PL3.7 Identify, protect and maintain historic trees and landscapes that have significance to the community or a neighborhood, including species or placement of trees and other plants.

> **GL6: Community beauty is combined with unique neighborhood identities.**

PL6.11 Plant and protect trees that contribute to Olympia's visual identity and sense of place.

PL6.12 Separate incompatible land uses and activities with treed areas, including buffering residential areas from major streets and freeways.

> **GL7: Urban green space is available to the public and located throughout the community and incorporates natural environments into the urban setting, which are easily accessible and viewable so that people can experience nature daily and nearby.** <kbd>+ SHARE</kbd>

PL7.1 Provide urban green spaces in which to spend time. Include such elements as <mark>trees</mark>, garden spaces, variety of vegetation, water features, "green" walls and roofs, and seating.

PL7.4 Increase the area of urban green space and tree <mark>canopy</mark> within each neighborhood proportionate to increased population in that neighborhood.

Urban Corridors <kbd>+ SHARE</kbd>

Portions of our major arterial streets are lined with low-density residential and office uses and typical strip-commercial development. Driveways to each business interrupt and slow the flow of vehicular and pedestrian traffic; the pattern of buildings behind parking lots makes pedestrian access difficult and uninviting; and the disjointed signage, landscaping, and building designs are often unattractive. As a result, these areas have limited appeal as places to live, work, and shop.

Over time, thoughtful planning will change some of these sections of major streets into 'urban corridors' that will have a mix of high-density uses, and where people will enjoy walking, shopping, working, and living. See Transportation Corridors Map. Urban corridors like this are key to avoiding sprawl by providing an appealing housing alternative for people who want to live in an attractive, bustling urban environment close to transit, work and shopping. Redevelopment along these corridors will be focused in areas with the greatest potential for intensive, mixed-use development so that public and private investment will have maximum benefit. These corridors, first described in the 1993 Thurston Regional Transportation Plan 🗗, also should include land uses that support the community, such as community centers, day care centers, social service offices, educational functions, parks, and other public open space.

In cooperation with Lacey, Tumwater and Thurston County, this Plan calls for gradually redeveloping these urban corridors (listed below) with:

- Compatible housing, such as apartments and townhouses, within or near commercial uses

- Excellent, frequent transit service

- Housing and employment densities sufficient to support frequent transit service

- Wide sidewalks with <mark>trees</mark>, attractive landscaping, and benches

- Multi-story buildings oriented toward the street rather than parking lots

- Parking spaces located behind the buildings or in structures

The land use designations along these streets vary (see Future Land Use Map at the end of this chapter), to promote a gradual increase in density and scale of uses that supports and remains in context with the adjacent neighborhoods. Slightly less intensive land uses at the fringes of these corridors will create a gradual transition from the activity of the major street edge to less-dense areas in adjacent neighborhoods. Similarly, areas furthest from the downtown core are expected to infill and redevelop with excellent support both for cars and for those who walk, bike and use public transit.

These outer reaches of the urban corridors will feature buildings and walkways with safe and easy pedestrian access. Walkways will link those on foot to bus stops, stores, neighboring residences, free-standing businesses on corners, and perimeter sidewalks.

"Gateways" to Olympia are to be located at the entry/exit points of landscaped "civic boulevards," at city boundaries, topographical changes, transition in land use, and shifts in transportation densities. Three of the eight gateways are located at the city limits and may include "Welcome to Olympia" signage. Gateways provide a grand entrance into the capital city of the State of Washington. Gateways are to be densely planted with trees and native understories; consideration will be given to the maximum landscaping and amenities feasible. Each civic boulevard will have a distinctive special environmental setting that is shaped by a public planning process that involves citizens, neighborhoods, and city officials. Civic boulevards are to be densely planted with trees and native understory; consideration will be given to the maximum landscaping and amenities feasible.

> **GL13: Attractive urban corridors of mixed uses are established near specified major streets.**

PL13.3 Transform urban corridors into areas with excellent transit service; multi-story buildings fronting major streets with trees, benches and landscaping; parking lots behind buildings; and a compatible mix of residential uses close to commercial uses.

> **GL18: Downtown designs express Olympia's heritage and future in a compact and pedestrian-oriented manner.**

PL18.7 Plant, maintain, and protect downtown trees for enjoyment and beauty; coordinate planting, with special attention to Legion Way and Sylvester Park and a buffer from the Port's marine terminal.

> **GL22: Trees help maintain strong and healthy neighborhoods.** SHARE

PL22.1 Use trees to foster a sense of neighborhood identity.

PL22.2 Identify, protect and maintain trees with historic significance or other value to the community or specific neighborhoods.

PL22.3 Encourage the use of appropriate fruit and nut trees to increase local food self-sufficiency.

Economy

> **GE3: A vital downtown provides a strong center for Olympia's economy.**

PE3.4 Protect existing trees and plant new ones as a way to help encourage private economic development and redevelopment activities.

Transportation

Complete Streets ⊕ SHARE

Streets with wide sidewalks and <mark>trees</mark> invite us to walk to the store or a friend's house. Bike lanes make biking to work more appealing and convenient. The way we design our streets will create new opportunities for how we travel within our city, and how we interact with one another.

> **GT1: All streets are safe and inviting for pedestrians and bicyclists. Streets are designed to be human scale, but also can accommodate motor vehicles, and encourage safe driving.**

PT1.4 Reduce the impact of traffic on pedestrians by creating buffers such as on-street parking, <mark>trees</mark>, planter strips, wide sidewalks, and creating interest along the street with amenities and building design.

PT1.5 Create attractive streetscapes with sidewalks, <mark>trees</mark>, planter strips, and pedestrian-scale streetlights. In denser areas, provide benches, building awnings, and attractive and functional transit stops and shelters.

PT1.12 Recognize the value of street <mark>trees</mark> for buffering pedestrians from motor vehicle traffic, to capture vehicle emissions, shade sidewalks, and protect asphalt from heat. Proper selection, care and placement are critical to long-term maintenance of <mark>trees</mark> along streets, street pavement and sidewalks.

Walking ⊕ SHARE

This plan aims to make streets safe and inviting for walking for more people. The City can accomplish this over time by designing streets that are "human scale," places where people can enjoy walking, sitting and interacting with others. Building and retrofitting streets by planting <mark>trees</mark>, creating landscaped strips and installing decorative lighting can encourage people to walk and create an active street life.

When streets are designed for people, rather than dominated by cars, neighbors interact, businesses thrive, and people feel more engaged in their community. All of this can stimulate activity, attract development, and improve the quality of life, even as the population increases.

Public Health, Parks, Arts and Recreation

> **GR6: Olympia's parks, arts and recreation system investments are protected.**

PR6.2 Establish a dedicated and sustainable funding source for maintaining City parks, landscape medians, roundabouts, entry corridors, street <mark>trees</mark>, City buildings, and other landscaped areas in street rights-of-way.

Park Trees

tree maintenance
open space stewardship
removal, ha. (permitting)
volunteer stewardship program

Citizen •

ORD • CPD • UF

OTHER
unopened ROW ?
public prop.
unimproved ROW

(inspection)
lesson Way restitution

Downtown • arterials

Street Trees

Hazard tree prog.
Emergency Response
Maintenance - S.t
infrastructure plan.
planting

Private Trees

tree tracts
development
plan review
enforcement
Vacant prop.
CDH • critical areas

private tree claims

Code admin long range planning
Code adoption
design standards
(inventory)
proj. management
Turf. Arbor Day

Program Duties
education
Coordination
landmark tree *
N'hoods *

PW Trans

Storm/Aquatic

Storm • Citizen (developer)

S/W facilities
open space
habitat restoration
stewardship

UF • PW Trans

project review

APPENDIX E

Olympia Urban Forestry Program Review, Findings, Recommendations
By Planning Intern, Kate Haefele
August 14, 2014

PROJECT GOALS

Assess the City of Olympia regulations and urban forestry program administration regarding trees in the right of way.

- What are the existing conditions?
- What are the challenges?

Research and summarize options for meeting these challenges.

- What have other cities done to solve these challenges? What model plans and ordinances are available?
- Make recommendations for strategies to improve. Prioritize strategies for various funding scenarios.

EXISTING CONDITIONS

1) **The City has easements on the rights-of-way. The City can use the ROW for the public good (roads, utilities etc.) and the public can travel over the land, but it belongs to the adjacent property owner.**
   OMC 18.02.180 defines easement as: "A right of one owner of land to make lawful and beneficial use of the land of another, created by an express or implied agreement," and right of way as: "The right of one to use or pass over the property of another."

2) **The City transfers the responsibility for tree maintenance and hazard mitigation to the adjacent property owner.**
   EDD 4B.020, Table 2, Footnote 4: "Unless otherwise agreed upon by the City of Olympia, maintenance of street trees, turf or other landscaping within the planting strips is the responsibility of the adjacent landowner."

3) **It is the responsibility of the City to maintain the safety of the ROW.**
   When the City becomes aware of a risk/potential risk, it becomes liable for any consequences that occur before it takes action to mitigate. Therefore it is in the City's interest to respond to known hazard trees with pruning or removal. In practice, the City will sometimes ask the adjacent property owner to mitigate hazards. The City will act on hazards if the property owner will not, or if the hazard is imminent.

4) **The City assumes responsibility for street tree maintenance downtown, the major arterials and median strips.**
   The Master Street Plan, 2001-2011 (pages 5-10) lists the specific areas the City is responsible for maintaining. The 1998 Draft Street Tree Ordinance calls these areas Streetscape Enhancement Areas (page 2).

5) **Responsibility for ROW tree-related work spread across 3 City departments.**
   The Master Street Tree Plan (page 16) specifies the responsibilities for each department
   - Community Planning and Development

Urban Forester – Administration of Tree Protection and Replacement ordinance; streetscape project management; hazard tree evaluation and abatement; education and public relations

- o Parks, Arts and Recreation
  Maintenance II Worker/Arborist – Street tree maintenance in Streetscape Enhancement Areas
- o Public Works
  Street section – emergency cleanup after storms

6) **The City grants utility companies (ex. PSE) the right to construct and maintain facilities in the rights of way, including trimming trees to preserve line clearances.**

PSE is required to notify the Urban Forester about pruning activities and adhere to International Society of Arboriculture pruning standards. PSE spends lots of money topping street trees, and it is in their best interest to remove existing tall trees under power lines and replace with appropriate species.

7) **Street trees can be problematic for sidewalks.**

Tree roots can buckle sidewalks, causing a hazard and complicating the division of responsibility and risk in the ROW. Sidewalks are technically the adjacent property owner's responsibility to maintain.

CHALLENGES

1) **Lack of staff/resources**

The Urban Forester position is currently half-time, which only allows time for reacting to problem situations and keep up with current development. Staff cannot monitor known hazards, enforce code, secure program funds, oversee public information and volunteer recruitment campaigns, or plan program innovations.

2) **Lack of functioning hazard tree program**

There is not a functioning hazard tree program, which exposes the City to excessive liability. Staff are not able to be proactive by mitigating imminent hazards in a timely fashion, regularly monitoring known problem trees, and inventorying the urban forest to identify others. Asking property owners to mitigate hazard trees can be ineffective, as many owners cannot afford to have the work done, or may refuse to comply. Piecemeal communication with owners can cause conflict. In general there is an inefficient and inconsistent response to tree hazards.

3) **Lack of clarity in the regulations**

The regulations about trees in the right of way are difficult to understand and interpret, and therefore, enforce. Critically, the responsibilities of the City and the adjacent property owner for tree maintenance and hazard abatement are ambiguous. This exposes the City to excessive liability.

Unclear regulations also result in a loss of institutional knowledge and case-by-case approach to judgments about ROW trees. This is an inefficient use of public resources, and makes enforcement difficult and inconsistent, and can cause conflict in communication with property owners.

APPENDIX E

List of vague or out of date regulations:

A) Responsibilities of City and property owners not specified in tree ordinances, and are only stated in an obscure part of the EDD (EDD 4B.020, Table 2, Footnote 4)

B) EDD 4B.020, Table 2, Footnote 4 states that it is the property owners responsibility to maintain street trees, but does not explicitly state hazard mitigation, but that is what the City has been sometimes asking property owners to do

C) The Master Street Tree Plan implies that there are specifies areas (downtown, arterials etc.) where the City is responsible for maintaining street trees, but it is not explicitly stated in the MSTP or anywhere else, and there are no clear maps of these areas

D) Regulations do not specify whether property owners have the right to maintain trees in Streetscape Improvement Areas to City standards, or whether they have no rights at all to work on trees

E) No definition of which actions constitute maintenance (property owners responsibility) vs. hazard abatement (City's responsibility)

F) Tree planting process is not specified. It is unclear who has the right to plant a tree, which type of tree, and in what way

G) Nothing written in any tree regulation about utility pruning

H)   "Public trees" not defined in 16.60 or 12.44

I) "Fee-simple" not defined in 16.58

J) Definition of "street tree" unclear/missing
  o 16.58.020: "Street Tree. Trees growing within the City's rights-of-way."
  o 16.60.020: "'Street trees' is trees located within the street rights-of-way, adjacent to public or private streets, including undeveloped areas."
  o 12.44: no definition

K) 16.60.170 and 16.60.180(Specimen Tree Evaluation and Pruning Standards for Public Trees) refer to public trees, but are in the Tree Protection and Replacement chapter

L) OMC 12.44.070 "Trimming or pruning of trees" contains out-of-date regulations and is different than OMC 16.60.180 "Tree pruning standards for Public Trees"

M) Confusion about what is a street tree, which trees are the City's responsibility, and which trees are public property. According to 12.44, only trees that have been planted are street trees, and that they are public property. According to 16.58, any tree in the ROW is a street tree, but only ones on fee-simple land are public. 16.60 includes undeveloped land, which creates confusion about whether trees in unopened ROWs are street trees. Volunteer trees are another grey area. Since they were not intentionally planted, are they street trees?
  o 12.44.060 states that trees "All ornamental, shade or other trees which have been planted and are now situated in the streets or parking strips within the city are declared to be public property and subject to the control of the city."
  o 16.58.020 states that a "Street Tree" is "growing in the City's rights-of-way," and a "Public Tree" is "growing on property owned fee-simple by the City of Olympia."

> o   16.60.020 states that "street trees" are "located with the street rights-of-way, adjacent to public or private streets, including undeveloped areas."

4) **Lack of clarity about which City departments are responsible for trees**
The Master Street Tree Plan (page 16) specifies the responsibilities for CPD, PARD and Public Works for street trees, but it is years out of date. The current arrangement appears to contribute to conflict between the departments and is impacting the City's ability to perform tree work in a timely and efficient manner.

5) **Citizens/property owners don't understand their responsibility for street trees**
The City has not communicated with the public. There is a large misconception that the rights of way are public and therefore street trees are the City's responsibility to maintain. Piecemeal response to calls about tree ownership is inefficient, and the lack of prior knowledge and information can cause conflict in communicating with property owners.
   N) City of Olympia Urban Forestry website is very out of date, past Urban Forester is named as contact
   O) Lack of public education about right of way easements, trees, views and property
   P) Lack of outreach to commercial tree and landscape services about right of way easements, trees, views and property

6) **Lack of current guiding documents about street trees**
The Master Street Tree plan is out of date. The Urban Forestry Manual lacks standards for proper tree planting and pruning practices. This leaves staff without up to date guidance for program operations

7) **Tree management practices called for in ordinances are not up to current best management practices**
Unclear definitions and out of date recommendations make code enforcement difficult and inefficient
   Q) 16.60.180 pruning standard unclear/out of date
   R) Definition of "hazard tree" in 16.58.020 and 16.60.020 is one with "a combination of structural defect and/or disease (which makes it subject to a high probability of failure) and a proximity to persons or property which makes it an imminent threat". "High probability of failure" is vague

8) **Forms are difficult to understand and interpret**
The "Builders Guide to Olympia's Tree Protection Ordinance," and especially the "Homeowners Guide to Olympia's Tree Protection Ordinance" and the information on the City website are confusing. They do not clearly define "tree units". Helping users to understand and use forms is an inefficient use of staff resources and unclear forms contribute to poor public image and customer dissatisfaction

APPENDIX E

RECOMMENDATIONS

1) **Commit adequate resources for a full time urban forester and hazard tree program**
   Restore Urban Forester to a full time position. A full time Urban Forester will be able to track and monitor known hazards, enforce code, secure program funds, oversee public information and volunteer recruitment campaigns, participate in the planning process, design program innovations, and other activities necessary for successful urban forestry program.

2) **Design and implement hazard tree monitoring program**
   A hazard tree program would facilitate timely and consistent response to hazards, reducing the City's liability and potentially reducing insurance costs. It would also give structure to the City's response to hazard trees, minimizing conflict and improving customer service and public image. Urban Forestry staff should work with City risk managers to design the program. (See "The Natural Tree Hazard Management Strategy" from the City of Surrey and "The Urban Tree Risk Management Guide" from USFS).

   A hazard tree program should at minimum:
   - facilitate a quick response to imminent hazards
   - maintain a database of known hazard trees
   - schedule regular monitoring of known hazard trees

   A model program would also:
   - seek to reduce the creation of hazard conditions through maintenance and design standards
   - inventory the urban forest to identify previously unknown hazards

3) **Consolidate and clarify tree ordinances**
   Clear regulations would simplify interpretation and enforcement, facilitating efficient use of resources and easier public interactions. First priority in a rewrite would be to reduce the City's liability by explicitly stating the responsibilities of the City, the adjacent property owner and utilities and clearly and consistently defining terms. Rewritten regulations would also provide structure for decision making, clarify relationships between City departments and confer responsibility and authority to the Urban Forester and other staff. (See "Guidelines for Developing and Evaluating Tree Ordinances," from Phytosphere Research)

   Consolidate ordinances about trees into either:
   - One Chapter under Title 12 that combines 16.58 and 12.44, and provides a reference to 16.60 in a section on street tree protection (in this case, 16.60 should also be updated to clarify definitions) -OR-
   - A separate Title devoted exclusively to trees that combines 12.44, 16.58 and 16.60

APPENDIX E

One ordinance is straightforward and easy for developers, citizens and staff to understand, and makes it less likely for sections to be overlooked in the updating process and for inconsistencies to develop. It also means that tree ordinances may be unnoticed by developers and property owners if they are not referenced in related sections of the code.

The consolidated ordinance should (in order of priority):
A) Provide separate sections explicitly stating the responsibilities of:
  o The City (hazards and maintenance in the Streetscape Improvement Areas)
  o Property owners (regular maintenance)
  o Utilities (maintaining line clearances)
  (See Moscow, ID municipal code, Title 5 Sec. 8-9, and Vancouver, WA municipal code, Secs. 12.04.060 and 12.04.070)
B) Define street tree consistently in all regulations, explicitly include trees in all unopened rights of way, include all trees in the ROW regardless of how and by whom they were planted (this will include volunteer trees, which will make hazardous volunteer trees in the ROW the City's responsibility. The clarity that assuming this responsibility provides outweighs this extra responsibility)
C) Explicitly state the responsibilities and authority of the Urban Forester
D) Explicitly state the responsibilities of the City departments involved in tree related work
E) Clearly define (and ideally map) the Streetscape Enhancement Areas
F) Define exactly which activities property owners have the right to do in Streetscape Improvement Areas
G) Clarify the all definitions listed in Item 1 in the Challenges section above
H) Reference best management practices for pruning, planting and maintenance in the updated Urban Forestry Manual
I) Explicitly state that the City does not prune or remove trees in critical areas or the rights of way to improve views
J) Clarify the distinction between public (park) trees and street trees
K) Explicitly forbid topping and use of spurs for pruning in all street and public trees, with exceptions at the discretion of the Urban Forester
L) Staff should consider adding to the ordinance:
  o Requirement for property owner to show through inspection by a qualified professional that a tree is causing property damage in order to claim it is a nuisance. This is to make the property owner responsible for proving a nuisance situation, reducing the workload of urban forestry staff
  o A City-wide licensing and certification program required for all for-fee tree services, and a permitting process for fee and non-fee tree work to control topping and other damaging practices (See Moscow, ID municipal code Sec. 8-7)
  o A no-fee permit requirement for planting trees in the right of way, to control species selection and provide an opportunity to educate about proper tree selection and planting practices

4) **Clarify the roles and responsibilities between CPD, PARD and Public Works**

Clearly defined roles would facilitate efficient resource use, timely response to tree work needs, and easier coordination and communication between departments (See "Protecting and Developing the Urban Tree Canopy" from the United States Council of Mayors for survey results about other cities organization of urban forest work)

   A) Develop an Urban Forestry Strategic Plan that includes new organizational strategies for the three departments
   B) In the street tree ordinance or some other appropriate official document, explicitly state the roles and responsibilities of the Urban Forester and PARD and Public Works staff for tree-related work
   C) Consider a tree advisory board with members from all three departments and interested citizens. Advisory boards can help integrate and advocate for urban forestry goals across departments, and encourage public interest and participation in urban forestry. However, they can be costly. Investigating the cost benefit analysis of such a board is a necessary first step.

5) **Create a public education program about City regulations and property owners' responsibilities for street trees**

Public education would help address misconceptions about responsibility for street trees. Prior notification of property owner responsibility could help limit the City's liability and reduce conflict in communicating with property owners.

   A) Update the City's Urban Forestry website with information about ROW easements, property owner responsibilities for street tree maintenance and current staffing contacts
   B) Create a brochure/mailer about easements and property owner maintenance responsibilities for distribution at City Hall and an annual mailing. Include anti-tree topping information and an explanation of regulations regarding removal and pruning in critical areas and the ROW regarding views and any other topics that are frequently problematic for staff
   C) Develop educational strategies for commercial tree and landscape services about property owner responsibilities for trees in the right of way, so that they can educate their clients and perform work according to code

6) **Perform a street tree inventory**

A current inventory would provide data for the Urban Forest Management Plan and the hazard tree program

7) **Develop an Urban Forest Management Plan**

An up to date plan would help ensure the long term health and stability of the urban forest, and provide structure for decision making and program evaluation. The process of writing the plan would also provide an opportunity for goal setting, program assessment, and public involvement and education

   A) Set City-wide and sub-area canopy cover, species diversity and green space goals

B) Consider including a preference for evergreens for their benefits to stormwater management, and represent them in species selection lists accordingly

C) Develop design guidelines for development and planting plans for infill areas

D) The Hazard Tree Program may be a part of this Plan

In the Urban Forest Management Plan, or a chapter of the Downtown Plan

E) Develop maintenance schedule and planting plan for street trees in the Streetscape Enhancement Areas

8) **Update the Urban Forestry Manual**

There may be overlap in the requirements set by the Manual and the Management Plan. The Management Plan is a broad document which sets goals and strategies for the entire urban forest across scales, while the Manual is designed to guide current development at the site scale. An up to date manual would provide structure for code enforcement, and ensure that site design and planning support the overall canopy cover and tree protection goals set in the Management Plan. Where appropriate, specific guidelines in the Plan should be written into the Manual and vice versa.

A) Specify ANSI A300 Standards, Part 1 for pruning and Part 6 for planting and transplanting. This is the industry standard for tree work and will continue to be updated to reflect the best available science

B) Define "hazard tree" using the Tree Risk Assessment Qualification. This will add a barrier to hiring employees and consultants, but TRAQ is the industry standard and is very rigorous. Adopting the standard may limit liability and will help push the green industry forward in its use of performance measures

C) Consider minimum soil volume and quality requirements in design and planting guidelines

9) **Look for ways to create or strengthen relationships with partner organizations and leverage resources to make the most of the program with what's available**

A) Consider partnering with Evergreen/SPSCC faculty
   o Natural resources/science students for internships
   o Arts students for an arts-based public information campaign about property owner responsibilities and proper tree care
   o GIS students for mapping projects
   o Horticulture students for young tree maintenance work

B) Locate organizations with volunteers and interest in tree planting and *especially* maintenance
   o Consider a stewardship mapping project to locate organizations and organize outreach (See" Stewardship Mapping: Understanding the Groups That Work for Urban Greening" from Arborist News)

C) Reach out to local tree care companies for pro-bono citizen training in exchange for good press –tree pruning workshop for neighborhood volunteers to prune young street trees

D) Consider other outreach strategies to build citizen interest in urban forestry and create an energetic volunteer base

10) Rewrite tree protection forms and website materials

Clearly written forms will reduce staff time spent answering questions and helping customers.

A) Explicitly define and explain "tree units" at the top of the form in everyday language

11) Perform canopy cover, ecosystem services and urban forest appraisal survey(ies)

Assessment of the services and economic value of the urban forest could be used to encourage interest in urban forestry from the public and decision makers. It could also be used to identify areas for improvement, set goals and evaluate the performance of the urban forest and the program.

FUNDING SCENARIOS

Without further knowledge of City structure and operations, recommendations for improving the program at current levels of funding cannot be addressed here. Based on the research and interviews done in the course of writing this document, these changes are recommended to improve the program at three potential funding levels. Priority is placed on risk management.

1) **Minimum program operations** (City assumes responsibility for only imminent hazards)
   A) Restore Urban Forester to full time
   B) Develop/implement database and monitoring program for known hazard trees
   C) Develop/implement plan to mitigate imminent hazards
   D) Communicate responsibility to property owner to mitigate other hazard trees
   E) Develop/implement Urban Forestry Strategic Plan to provide organizational strategies for the departments involved in tree work

2) **Program adhering to current best management practices** (City assumes responsibility for all hazards)
   A) Restore Urban Forester to full time
   B) Develop/implement database and monitoring program for known hazard trees
   C) Develop/implement plan to mitigate hazards, prioritizing to minimize risk
   D) Develop/implement Urban Forestry Strategic Plan to provide organizational strategies for the departments involved in tree work
   E) Perform street tree and hazard tree inventory
   F) Develop/implement Urban Forestry Management Plan
   G) Update Urban Forestry Manual
   H) Clarify and consolidate ordinances

3) **Model program operations**
   All in Item 2 above, and:

I) Identify volunteer organizations and develop programs to utilize volunteer labor for tree planting and maintenance. Consider a stewardship mapping project.

J) Perform City-wide canopy inventory and ecosystem services survey using i-Tree and GIS

K) Update tree density requirements for development according to percent canopy cover rather than trunk diameter at breast height

L) Create a tree advisory board to advocate for urban forestry goals across City departments and encourage public interest and participation in urban forestry; include staff from all three departments involved in tree work, and interested citizens

M) Partner with local educational institutions to recruit interns and mentor students in urban forestry

N) Require a City-wide licensing and certification program required for all for-fee tree services, and a permitting process for fee and non-fee tree work

O) Require no-fee permit for tree planting in the right of way

RESOURCES

Planning and Ordinance Guides

Swiecki, T. J., Bernhardt, E. A. Guidelines for Developing and Evaluating Tree Ordinances. Phytosphere Research, Vacaville, CA. http://phytosphere.com/treeord/index.htm.
Saved on calvin: TreeOrdinanceGuidelines.pdf
(Step by step guide for writing and evaluating ordinances, with lots of examples from other cities)

Schwab, James C. Planning the Urban Forest: Ecology, Economy and Community Development. American Planning Association. Planning Advisory Service Report Number 555.
http://na.fs.fed.us/urban/planning_uf_apa.pdf
Saved on calvin: APA_Planning_Urban_Forest.pdf
(Thorough planning guide with discussion of integrating green infrastructure into planning)

Pokorny, Jill D. Urban Tree Risk Management: A Community Guide to Program Design and Implementation. USDA Forest Service, Northeastern Area.
http://www.na.fs.fed.us/spfo/pubs/uf/utrmm/urban_tree_risk_mgmnt.pdf
Saved on calvin: Ordinance and Planning Guides\USFS Urban Tree Risk Mgmt.pdf
(Discussion of program design and implementation looks especially useful)

Protecting and Developing the Urban Tree Canopy. The United States Council of Mayors.
Saved on calvin: Ordinance and Planning Guides\Mayors_Council_Planning_UF.pdf
(Includes surveys of mayors across the country about the structure of their programs)

Wolf, K.L. 2013. Stewardship Mapping: Understanding the Groups That Work for Urban Greening. Arborist News 22, 6: 54-58.

APPENDIX E

(Discusses strategies for using GIS to identify and map potential volunteer organizations for stewardship of the urban forest)

Example Plans and Ordinances

Gurney, S., Ward, G., Wegner, D. Natural Tree Hazard Management Strategy. City of Surrey, Parks, Recreation and Culture. http://www.surrey.ca/files/TreeHazardStrategy.pdf
Saved on calvin: Other Cities Ordinances and Plans\TreeHazardStrategy_Surrey.pdf
(Outlines risk management strategy used by Surrey, BC, Canada)

Moscow Municipal Code Title 5, Chapter 8
Saved on calvin: Other Cities Ordinances and Plans\Moscow_T05,C08.pdf

Vancouver Municipal Code Chapter 12.04
Saved on calvin: Other Cities Ordinances and Plans\Vancouver_012.004.pdf

APPENDIX F

**Parks and Recreation Advisory Committee's Subcommittee on Urban Forestry
Final Report
March 26, 2014**

From: Robert Dengel (Chair); Judy Bardin, Thad Curtz, David Hanna, Micki McNaughton, and Jim Nieland

**Vision Statement
Build an urban forestry program that protects and multiplies Olympia's trees
to benefit our community, our environment and future generations.**

Introduction -

The Olympia Master Street Tree Plan adopted by Council in 2002 clearly articulated some of the reasons that trees are an important and valuable feature in the City's life, an important asset that the government should protect and develop:

> Trees save energy and reduce noise pollution. They shade buildings, cool the air, provide protection from the wind and absorb unwanted noise.
>
> Trees improve water and air quality. They reduce erosion and filter pollutants out of the air, water and soil.
>
> Trees beautify our community, enhance property values and provide wildlife habitat.
>
> Trees provide a connection to nature, healthy ecosystems, and places to recreate and rejuvenate.

Since then, other aspects of the benefits urban forests provide have come into sharper focus for us. Areas that attract people to get out and walk improve their physical and mental health. The City's trees (particularly its evergreens) provide a range of ecosystem services, playing a significant role in reducing stormwater levels, shading and helping to preserve asphalt in the summer, and reducing CO_2 levels by capturing and holding carbon as they grow. A wide variety of research about the ways in which urban forests benefit cities is available through:

> Green Cities: Good Health (www.greenhealth.washington.edu)
> Green Cities Research Alliance (http://www.fs.fed.us/pnw/research/gcra/)
> Human Dimensions of Urban Forestry and Urban Greening (http://www.naturewithin.info/)

Comprehensive Plan Goals and Policies

The final draft of the update to the Comprehensive Plan emphasizes the importance our community attaches to its trees in a new section dedicated to the City's urban forest. The sections on the Natural Environment as well those on Land Use, Transportation, Utilities and even Economy contain policies related to trees.

In particular, a new section on the urban forest in the Natural Environment establishes a clear long term policy vision for this area:

> GN3. A healthy and diverse urban forest is protected, expanded through planting new trees, and valued for its contribution to the environment and community residents.
>
>> PN3.1 Manage the urban forest to professional standards, and establish program goals and practices based on the best available science.
>>
>> PN3.2 Measure the tree canopy and set a city-wide target for increasing it through tree preservation and planting.
>>
>> PN3.3 Preserve existing mature, healthy, and safe trees first to meet site design requirements on new development, redevelopment and city improvement projects.
>>
>> PN3.4 Evaluate the environmental, ecologic, health, social and economic benefits of the urban forest.
>>
>> PN3.5 Provide new trees with the necessary soil, water, space, and nutrients to grow to maturity, and plant the right size tree where there are conflicts, such as overhead utility wires or sidewalks.
>>
>> PN3.6 Protect the natural structure and growing condition of trees to minimize necessary maintenance and preserve the long-term health and safety of the urban forest.
>>
>>> Planning Commission Recommendation,
>>> Introduction to the Comprehensive Plan

Brief History

As the final draft of the Comprehensive Plan points out, our citizens have expressed basically the same vision and desires since the beginning of comprehensive planning in the State:

> ...during community outreach for the 1994 plan, citizens expressed a desire for Olympia to become a "City of Trees." In response, the community developed several goals and policies to guide a new Olympia Urban Forestry Program. Since then, we've planted thousands of street trees, and been consistently recognized by the National Arbor Day Foundation as a Tree City USA.
>
>> Planning Commission Recommendation,
>> Natural Environment

However, since 2007, as one of the responses to its ongoing budget shortfall, the City has progressively reduced the staff and resources available to support this vision. The urban forestry program's budget has shrunk dramatically. Three FTE have been eliminated, leaving one half time City Forester to try to cope with ongoing needs and issues that kept several full time staff busy a few years ago. Currently, the Forester is so overworked than her voice mail warns callers that she may not be able to respond to questions about clearing, planting or removing hazardous trees for a couple of weeks, due to her backlog of calls, and that the City cannot provide any

more ordinary support for questions about identifying or caring for trees. This is not an acceptable level of service.

Over the last several years, the City has devoted a lot of time, money and energy to *Imagine Olympia!*, developing an updated Comprehensive Plan articulating the vision and policies to govern the City's growth over the next decades. Our budget has stabilized, and seems likely to grow stronger over the next few years. As part of the upcoming Action Plan to develop practical plans to realize the new Comprehensive Plan's goals, we need to take a number of steps to reestablish and strengthen our programs to protect and develop the City's urban forest.

1. Strengthen and improve our long-term planning for the urban forest.

> a. **Change the City's budget processes to treat the City's trees on the same basis as other infrastructure assets, and track its condition through the new asset management system (if that's a suitable tool).**
>
> According to the 2012-2017 Capital Facilities Plan, Council has established "Maintenance or general repair of existing infrastructure," as the top priority in its general guidelines for prioritizing Capital projects. However, the pruning and replacement of the City's deteriorating urban forest, and the removal of invasive species which threaten large areas of trees is not currently a priority at anything like the same level as re-roofing or patching asphalt.
>
> (Since 1994, Seattle has defined its trees as infrastructure, and funded a good deal of its ambitious urban forestry program from the City's Cumulative Replacement Fund.) We should adopt this practice, and include the City's trees in our regular budget processes for maintaining and developing the City's capital facilities.
>
> **b. Reestablish a citizen's advisory committee to make ongoing recommendations to the Council on urban forest issues.**
>
> This might be constituted by bringing together a representative from other relevant advisory committees, such as PRAC, the Heritage Commission, and the UAC, or might be a separate committee, like the Tree Advisory Committee which fulfilled this role for a number of years.
>
> Over the next couple of years, this committee should be charged with reviewing and making recommendations to the Council on ongoing issues about the City's trees, including:
>
> > i. Implementing the new comprehensive plan's policies relating to urban forestry, urban green space, and Gateways to the City. These policies all address increasing the number of trees and the extent of the tree canopy in Olympia.
> >
> > ii. Reducing the City's potential liability from hazard trees on City property.
> >
> > iii. Improving development regulations to maintain or provide trees close to new houses as well as in tree tracts somewhere on the margins of new developments.
> >
> > iv. Developing an easement program to create adequate growing space for really large trees in the right of way in residential neighborhoods by curving the sidewalk out into what would otherwise be private front yards.
> >
> > v. Exploring contained bamboo plantings as an evergreen tool for stormwater management.
> >
> > vi. Exploring tree plantings in combination with stormwater ponds, like the pond behind the

school garden at Stevens Field.

vii. Exploring the possible need for solar easements in the future.

viii. Putting any future wires that are not undergrounded on the south side of the street, to reduce the chance that people will not want to plant larger trees where the wires allow it because they do not want the shade falling directly on their houses and front yards.

ix. Exploring the extent to which the City's current arrangements for monitoring and enforcing the regulations on land clearing and tree removal, as well as the long term agreements for the maintenance and protection of tree tracts are (or are not) functioning effectively.

x. Exploring ways to increase the percentage of evergreens in the City's tree tracts, neighborhoods, and urban forest over the long run, so as to increase the benefits canopy foliage provides for stormwater management during the periods of heavy rain when we need them the most.

xi. Exploring changes in regulations and incentives to increase the number of spaces for really large trees in the city, such as requiring planting spaces in the corners of parking lots that are deeded to the City and used for planting and protecting such trees over time, and having areas in each City park and on school grounds dedicated to such trees.

xii. Expanding the coverage requirements of the Green Cove Creek area to the basin of the City's next most healthy stream, probably Ellis Creek.

xiii. Exploring collaborating with the Port to replace the parking lot at the mouth of Moxlie Creek with a short stretch in which the creek is open to the air and surrounded by trees.

xiv. Exploring developing a pocket park program to maintain at least one lot every few blocks in forest cover.

c**. Draw on these recommendations to create or revise an Urban Forestry Master Plan for the entire City through collaboration between staff, interested citizens, and other significant landowners, particularly the State**.

The 2000-2011 Master Plan for Street Trees has expired. We need an updated, revised and expanded plan, one that also provides long-term planning for the health of the City's entire forest, considered as an ecosystem including the trees in the City's parks and open spaces and those on private land. (Ideally, we should include State and Port land in the City in our strategic thinking as well.) The new urban forestry plan should include quantified yearly performance targets for forestry needs such as street tree planting and replacement, invasive species control, and the identification and removal of diseased and hazard trees which pose risks to the public or the health of the ecosystem. The effort should also address the roles and responsibilities for how urban forestry is managed across the City's departments, in order to ensure better coordination and collaboration.

2. Reestablish our landmark tree program to protect and showcase historic and spectacular trees in the city.

See the website for Portland's Heritage Tree program,

http://www.portlandoregon.gov/parks/40280

for example. (It recognizes over 300 trees for their "unique size, age or historical or horticultural significance," and provides a number of resources for learning more about them, including a slideshow with handsome photographs.)

In fact, our Council established a program like this in 1991, which is codified in Chapter 16.56 of our Municipal Code. This landmark tree program called for the creation within a year of an inventory of trees of exceptional value to the community because of factors like their association with historic figures, events, or properties; their being examples of rare or unusual species, or their exceptional aesthetic quality. It also established a system for protecting them. Unfortunately, the program it set up has not yet been carried out.

3. Develop neighborhood teams of volunteers to support the City's urban forestry goals in a variety of ways.

For the foreseeable future, the City will not have anything like the resources it would need to have staff alone successfully deal with the maintenance and development of the City's trees. (In 2006, to take one example, the Street Tree Master Plan estimated that we had 28,497 spaces available for street trees in the City, a stocking level of 21%, compared to average levels of 60% to 80% around the country and the state.) We must find effective ways to leverage staff efforts through collaboration with neighborhood associations and volunteers. The dramatic results of the Plant One Thousand Trees Day some years ago suggest that a great deal can be achieved that way.

> **a. Recruit volunteers to update and expand the City's inventory of its trees, so it includes the rest of the City's street trees, trees in parks, trees on state land, and trees on private property.** (The City's current inventory only includes data on the street trees downtown from several different surveys between 2002 and 2011, and a 2007 survey of street trees in two neighborhood areas.) In addition to providing the foundation for long term planning and maintenance, a complete inventory would necessary for FEMA damage reimbursement in the event of large scale tree losses.
>
> See, for example, Portland's Tree Inventory Program, through which volunteers have mapped, measured and identified 40,000 street trees:
>
> > http://www.portlandoregon.gov/parks/53181
>
> An impressive free open source program, OpenTreeMap, is being used by a number of cities, including San Francisco, Philadelphia, and Seattle, to support deep community engagement with those cities' forests.
>
> > http://www.seattletreemap.org
>
> **b. Recruit, train and support volunteers to plant and maintain neighborhood trees, and to keep City staff informed about needs for more professional maintenance.**
>
> See Portland's Neighborhood Tree Steward program as an example:
>
> http://www.portlandoregon.gov/parks/45124

And Portland's Friends of Trees for another:

http://www.friendsoftrees.org/plant/neighborhood-trees

   c. **Create and support neighborhood fruit tree teams, on the model of Portland's Fruit Tree Project.**

These volunteers cared for local trees, picked 70,000 pounds of fruit which might otherwise have ended up on sidewalks and in storm drains, and shared that harvest with over 9,000 families. The Project also maintains three community orchards. See:
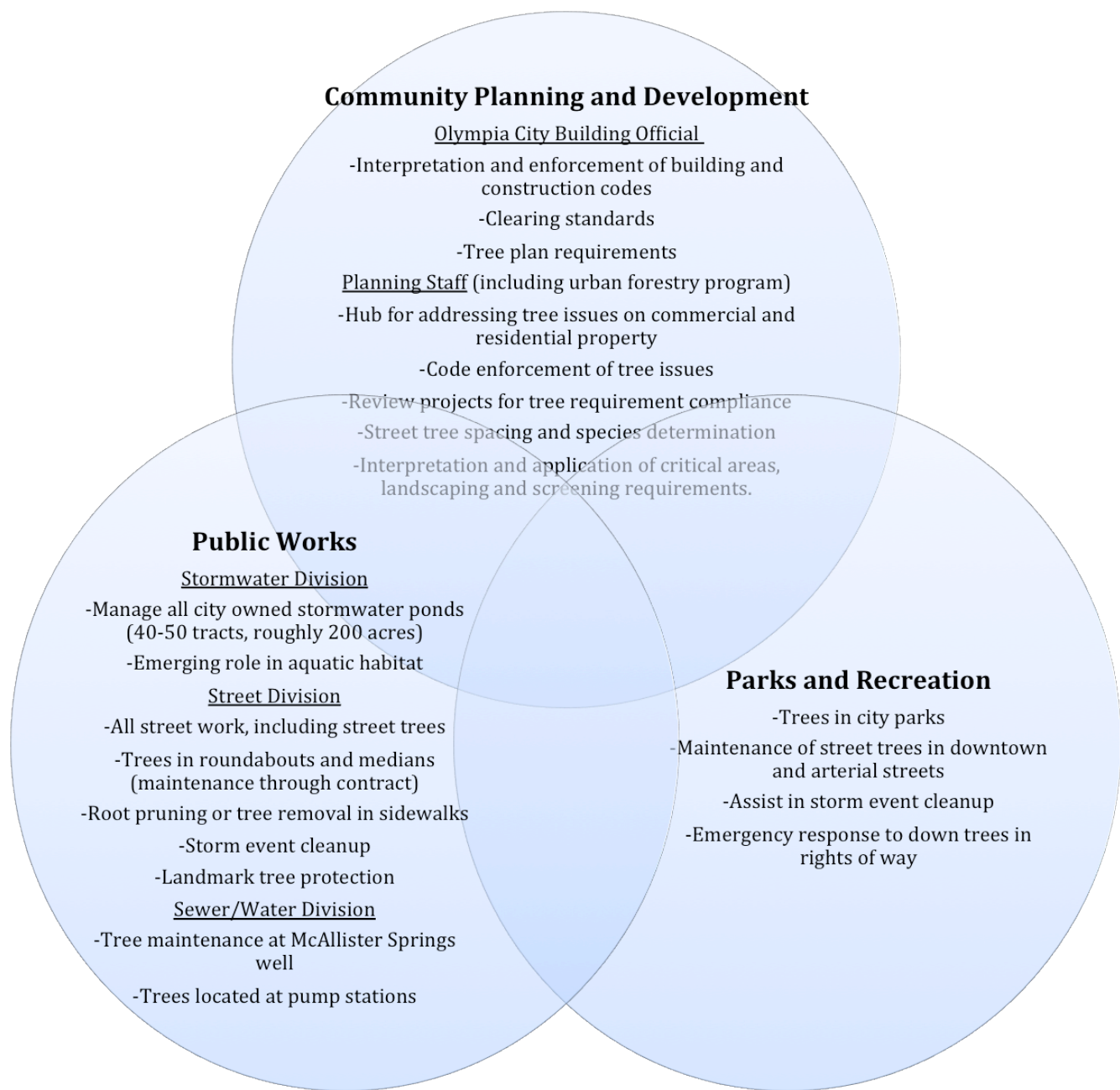
http://media.portland.indymedia.org/images/2013/11/425884.jpg

Clarify Management of Urban Forestry

Currently the City of Olympia does not have clearly defined departmental roles for managing trees and urban forestry. With regard to street trees, for example - Community Planning and Development (CPD) is in charge of determining tree spacing and species, Public Works (PW) is in charge of overseeing tree maintenance as a whole, and Parks and Recreation (PR) undertakes major portions of the work involved in maintaining arterial street trees. This ambiguity is one result of budget reductions and staff from other departments doing their best to respond to the ongoing losses in urban forestry. However, at the outset of our subcommittee's meetings it was clear that communication between departments about urban forestry could be improved.

There seem to be some general rationales for the departments' different tasks and responsibilities. CPD has been in charge of code enforcement and developed the previous tree plan. PR appears to take on more of a land manager role, predominately managing trees on most of the City's major open and green spaces. PW performs a hybrid role, with responsibility for enforcing regulations about clearing and landmark trees, as well as managing the trees in the areas around city wells and stormwater facilities. A clearer definition of roles and better communication and coordination among the departments could be beneficial in urban forestry efforts.

This diagram illustrates the current roles and responsibilities of City departments:

Community Planning and Development

<u>Olympia City Building Official</u>

-Interpretation and enforcement of building and construction codes

-Clearing standards

-Tree plan requirements

<u>Planning Staff</u> (including urban forestry program)

-Hub for addressing tree issues on commercial and residential property

-Code enforcement of tree issues

-Review projects for tree requirement compliance

-Street tree spacing and species determination

-Interpretation and application of critical areas, landscaping and screening requirements.

Public Works

<u>Stormwater Division</u>

-Manage all city owned stormwater ponds (40-50 tracts, roughly 200 acres)

-Emerging role in aquatic habitat

<u>Street Division</u>

-All street work, including street trees

-Trees in roundabouts and medians (maintenance through contract)

-Root pruning or tree removal in sidewalks

-Storm event cleanup

-Landmark tree protection

<u>Sewer/Water Division</u>

-Tree maintenance at McAllister Springs well

-Trees located at pump stations

Parks and Recreation

-Trees in city parks

-Maintenance of street trees in downtown and arterial streets

-Assist in storm event cleanup

-Emergency response to down trees in rights of way

4. Support tree planting and care on private property that contributes to the City's forestry goals.

> **a. Provide ongoing professional development opportunities for local tree workers.**

> **b. Create a voluntary City professional certification program for tree workers, and/or business license requirements for tree work.**

> See Portland's Local Tree Care Providers' Workshop program:

>> http://www.portlandoregon.gov/parks/article/424016

> **c. Incentivize adding and maintaining trees with public value on private property**

through purchase rebates, cost sharing for work by arborists, free City nursery stock for planting, property tax reductions, etc.

d. Create neighborhood tree plans that provide suggestions and advice for possible tree plantings and care that will contribute to the long term development and maintenance of a beautiful urban forest experience in each neighborhood. Promote equal distribution of trees among neighborhoods, with special attention to maintaining equity for dense urban neighborhoods, where finding good planting spaces and protecting trees is harder.

e. Based on the tree inventory process, clarify the ownership and maintenance responsibilities for the trees in the right of way on each property.

f. Provide public educational workshops and materials, like suggestions about appropriate local trees for particular situations, regardless of whether participants wish to commit to volunteer work.

5. Support acquisition of green space to help ensure that the City can maintain a healthy tree canopy cover as future development occurs.

24-Jan-15

Vegetative Resource Criteria and Indicators

Current Level   Desired Level

* Subcommittee priority

Criteria	Performance Indicator Spectrum						Key Objective
	Low	Moderate	Good	Optimal			
1. Relative Canopy Cover	The existing canopy cover equals 0-25% of the potential.	The existing canopy cover equals 25-50% of the potential.	The existing canopy cover equals 50-75% of the potential. **(4)**	The existing canopy cover equals 75-100% of the potential. **(3)**		1 *	Achieve climate-appropriate degree of tree cover, community-wide
2. Age distribution of trees in the community	Any relative 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. **(2)**	No diameter class represents more than 50% of the tree population. **(1)**	25% of the tree population is in each of four diameter classes. **(2)**			Provide for uneven-aged distribution city-wide as well as at the neighborhood/ROA 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. **(3)**	All trees are of species considered suitable for the area. **(2)**		1	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 entire tree population city-wide. **(5)**	No species represents more than 10% of the entire tree population at the neighbourhood level.		1	Establish a genetically diverse tree population city-wide and 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. **(2)**	Complete tree inventory which includes detailed tree condition and risk ratings. **(6)**		4	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.)	No information about publicly-owned natural areas.		Publicly-owned natural areas identified in a "natural areas survey" or similar document [PROS plan].		The level and type of public use in publicly-owned natural areas is documented **(1)**	The ecological structure and function of all publicly-owned natural areas are documented through an Urban Tree Canopy Analysis and included in the city wide GIS **(7)**	2 *	Detailed understanding of the ecologicalstructure and function of all publicly-owned natural areas.
7. Native vegetation	No program of integration		Voluntary use of native species on publicly and privately-owned lands; invasive species are recognized.		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. **(4)**	The use of native species is required on a project-appropriate basis in all public and private managed areas; invasive species are aggressively eradicated. **(3)**	4	Preservation and enhancement of local natural biodiversity

APPENDIX G

24-Jan-15

Resource Management Criteria and Indicators

■ Current Level   ■ Desired Level

* Subcommittee Priority

Criteria	Performance Indicator Spectrum					Key Objective
	Low	Moderate	Good	Optimal		
1. Tree Inventory	No inventory / Partial inventory	Complete or sample-based inventory of publicly-owned trees	Complete inventory of publicly-owned trees AND sample-based inventory of privately-owned trees. **(2)**	Complete inventory of publicly-owned trees AND sample-based inventory of privately-owned trees included in city-wide GIS **(7)**	3 *	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 **(7)**	2	High resolution assessments of the existing and potential canopy cover for the entire community.
3. City-wide management plan	No plan	Existing plan limited in scope and implementation	Comprehensive plan for publicly-owned, intensively- and extensively-managed forest resources accepted and implemented **(3)**	Strategic multi-tiered plan for public and private intensively- and extensively-managed forest resources accepted and implemented with adaptive management mechanisms. **(5)**	*	Develop and implement a comprehensive urban forest management plan for private and 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. **(3)**	Adequate private and public funding to sustain maximum urban forest benefits. **(6)**	6 *	Develop and maintain adequate funding to implement a city-wide urban forest management plan

APPENDIX G

5. City staffing	No staff.	Limited trained or certified staff.	Certified arborists and professional foresters on staff with regular professional development. **(3)**	Multi-disciplinary team within an urban forestry program. **(7)**	6 *	Employ and train adequate staff to implement city-wide urban forestry plan
6. Tree establishment, planning and implementation	Tree establishment is ad hoc (no plan or budget)	Limited tree establishment occurs on an annual basis with minimal budget.	Tree establishment is directed by needs derived from a tree inventory or strategy **(2)**	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) **(8)**	1	Urban Forest renewal is ensured through a comprehensive tree establishment program driven by canopy cover, species diversity, and species distribution objectives
7. Maintenance of publicly-owned, intensively managed trees (not open space)	No maintenance of publicly-owned trees	Publicly-owned trees are maintained on a request/reactive basis. No systematic (block) pruning.	All publicly-owned trees are systematically maintained on a cycle longer than five years. **(3)**	All mature publicly-owned trees are maintained on a 5-year cycle. All immature trees are structurally pruned. **(7)**	4	All publicly-owned, intensively managed trees are maintained to maximize current and future benefits. Tree health and condition ensure maximum longevity.
8. Tree Risk Management	No tree risk assessment/ remediation program. [Request based/reactive system?] The condition of the urban forest is unknown	Sample-based tree inventory which includes general tree risk information; Request based/reactive risk abatement program system. **(3)**	Complete tree inventory which includes detailed tree failure risk ratings; risk abatement program is in effect eliminating hazards within a maximum of one month from confirmation of hazard potential. **(3)**	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. **(4)**	6	All publicly-owned trees are managed with safety as a high priority.

APPENDIX G

9. Tree Protection Policy Development and Enforcement	No tree protection policy	Policies in place to protect public trees.	Policies in place to protect public and private trees [with enforcement desired]. **(2)**	Integrated municipal wide policies that ensure the protection of trees on public and private land are consistently enforced and supported by significant deterrents **(7)**	2 *	The benefits derived from large-stature/mature trees are ensured by the enforcement of municipal wide policies.
10. Publicly-owned natural areas management planning and implementation	No stewardship plans or implementation in effect.	Reactionary stewardship in effect to facilitate public use (e.g. hazard abatement, trail maintenance, etc.)	Stewardship plan in effect for each publicly-owned natural area to facilitate public use (e.g. hazard abatement, trail maintenance, etc.) **(2)**	Stewardship plan in effect for each publicly-owned natural area focused on sustaining the ecological structure and function of the feature. **(7)**	3 *	The ecological structure and function of allpublicly-owned natural areas are protected and, where appropriate, enhanced.

Community Framework Criteria and Indicators

	Current Level	Desired Level

* Subcommittee Priority

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. **(6)**		Municipal policy implemented by formal interdepartmental/ interagency working teams on ALL municipal projects. **(3)**		4 *	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. **(6)**		Landholders develop comprehensive tree management plans (including funding). **(1)**		*	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" **(3)**		Shared vision and goals including the use of professional standards. **(5)**		2	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. **(2)**		City-wide coverage and interaction. **(3)**		All neighborhoods/HOA's organized and cooperating. **(4)**		2 *	At the neighborhood level, citizens understand and cooperate in urban forest management.

APPENDIX G

5. Citizen-municipality-business interaction	Conflicting goals among constituencies		No interaction among constituencies.		Informal and/or general cooperation. **(3)**		Formal interaction e.g. Tree board with staff coordination. **(5)**		1	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. **(1)**		Urban forest recognized as vital to the communities environmental, social and economic well-being. **(6)**		2 *	The general public understanding the role of the urban forest.
7. Regional cooperation	Communities independent. **(2)**		Communities share similar policy vehicles. **(2)**		Regional planning is in effect		Regional planning, coordination and /or management plans **(2)**			Provide for cooperation and interaction among neighboring communities and regional groups.

Street Tree Maintenance Manual Fact Sheet

What is a Street Tree?

"*Street trees* [are] located within the street rights-of-way." (OMC 16.60.020) Parks staff are responsible for maintaining the trees shown in the **City Maintained Street Trees** map attached to your staff report. All other street trees in Olympia are the responsibility of the adjacent property owner. (OMC 16.60.100-140)

What is the Street Tree Maintenance Manual?

The Street Tree Maintenance Manual (STMM) is primarily an internal document that will be used to maintain street trees according to best professional practices.

It provides data and guidance to:

- prune and maintain trees to protect their health, safety, and value.
- maximize the City's return on investment for street trees.
- manage a financially sustainable maintenance program.
- communicate with the public about street tree management.

A healthy and diverse urban forest is protected, expanded, and valued for its contribution to the environment and community.

Olympia Comprehensive Plan - Natural Environment Goal 3

What is Street Tree Maintenance?

Consistent maintenance is crucial to protect infrastructure, prevent hazards, and protect tree health and condition.

Industry maintenance best practices include:

- Pruning every 3-5 years.
- Weeding and maintaining tree grates.
- Mulching to conserve water and improve soil.
- Planting and watering new trees.
- Removing trees when necessary.

Olympia's Street Trees

Most of our street trees are currently in good condition, with minor structural defects that can be corrected with pruning.

If maintenance is deferred for several more years, many trees will become too mature for structural pruning to be effective.

In 2015 the City - maintained street tree population was worth over **six million dollars.**

Why Maintain Street Trees?

Regular maintenance improves the health and condition of street trees. Trees in good condition provide more of the benefits our community values from the urban forest.
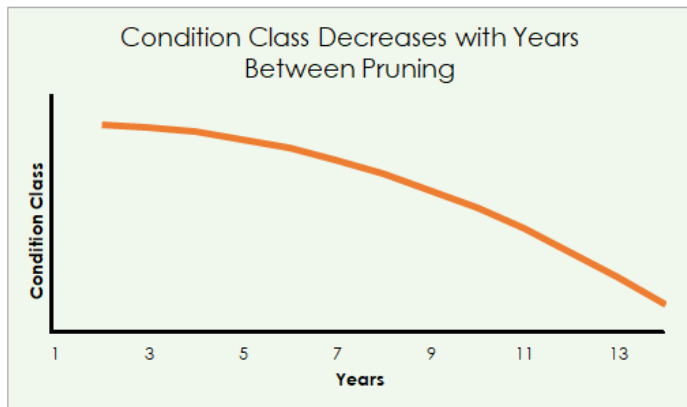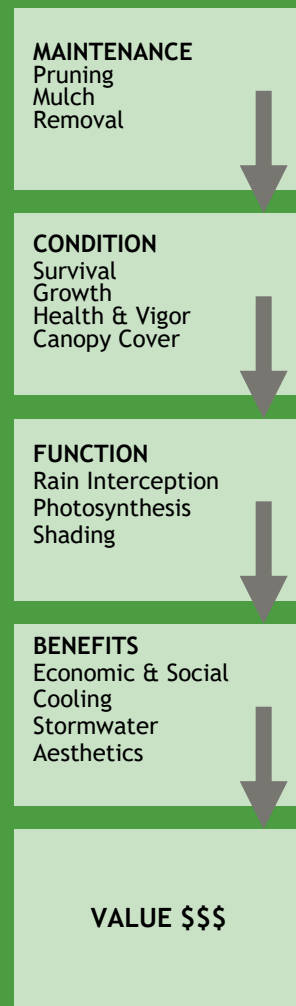

The condition of trees declines as the number of years since the last pruning increases.
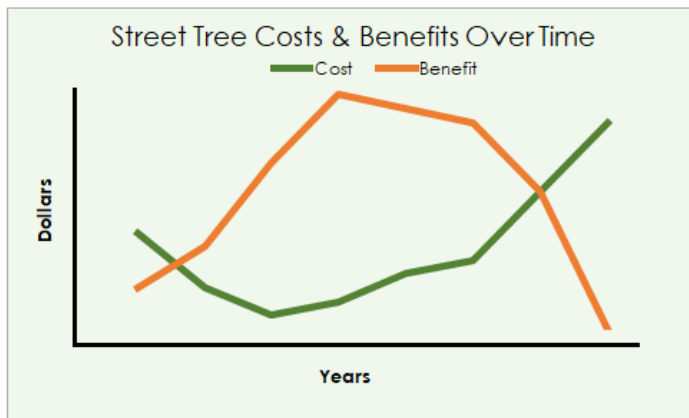
Regular pruning is especially important for younger trees to develop good canopy structure. If trees are pruned in their early years, the cost of maintenance declines with age. The cost of deferred maintenance in older trees tends to be expensive.

Benefits of The Urban Forest

- Increased property values
- High quality retail environment supports local business
- Decreased stress and violence
- Walkability and motivation for exercise
- Greater social cohesion and sense of place
- Stormwater management
- Shade and summer cooling
- Improved air quality

MAINTENANCE
Pruning
Mulch
Removal

↓

CONDITION
Survival
Growth
Health & Vigor
Canopy Cover

↓

FUNCTION
Rain Interception
Photosynthesis
Shading

↓

BENEFITS
Economic & Social
Cooling
Stormwater
Aesthetics

↓

VALUE $$$

Next Steps for Our Trees...

The STMM is part of a process to improve Olympia's urban forestry program outlined by the Urban Forestry Strategic Plan (2015). Developing an Urban Forestry Management Plan (UFMP) is the next step in the process. An UFMP will set policy and guide management for the entire urban forest including developed and undeveloped areas, and both public and private property.

DRAFT Street Tree Maintenance Manual
December 7, 2017

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LIST OF FIGURES AND TABLES

1. Scope

The Street Tree Maintenance Manual (STMM) is an internal technical document used by City staff to guide maintenance decisions for the street trees downtown and on the 10 major arterials shown in Figure 1. OMC 16.60.020 defines street trees as "trees... located within the street rights-of-way".
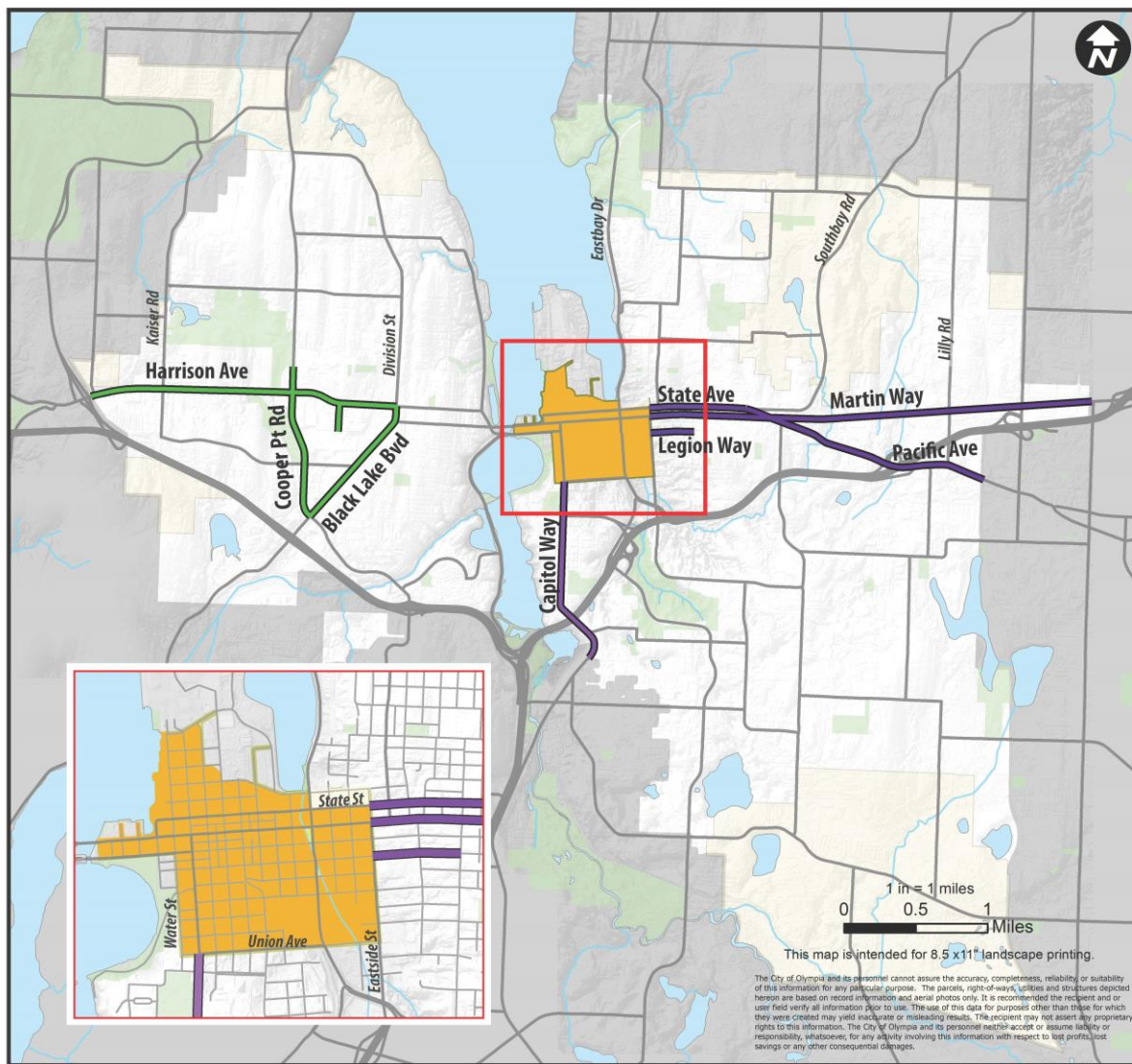
City Maintained Street Trees

City Maintained Street Trees

The City of Olympia only maintains street trees in the areas noted on the above map. All other streets trees are the adjacent property owners responsibility.

Eastside Streets
- 4th Ave
- Capitol Way
- Legion Way
- Martin Way
- Pacific Ave
- State Ave

Westside Streets
- Black Lake Blvd
- Cooper Pt
- Harrison Ave
- Kenyon St

Downtown Streets
- Downtown Olympia, see inset map

Thurston County

UGA

Olympia

Figure 1: City Maintained Street Trees Map

2. Purpose

The STMM is intended to provide City staff with the data and guidance needed to perform consistent and predictable street tree management and maintenance. The guidance in this document should help staff to

- maximize the benefits and reduce the cost of street trees by using resources efficiently.
- manage a financially sustainable program.
- prune and maintain trees to protect their health, safety, and value.
- communicate with business owners, property owners, and community members about street tree management.

The STMM is a living document written to reflect and carry out urban forestry policy. It shall be periodically reviewed and updated as policies change.

3. Application

The STMM standards and protocols shall apply to all City staff members, consultants, and contractors responsible for managing the street trees downtown and on the 10 major arterials shown in Figure 1.

The STMM standards and protocols shall not take precedence over applicable industry safe work practices.

4. Street Tree Maintenance Program Goals

- Prune and maintain trees to protect their health, safety, and value as well as City and private infrastructure.
- Establish and maintain a regular pruning cycle that is financially sustainable while also protecting tree health and longevity.
- Maintain current street tree data by making inventory updates part of the regular work day.
- Provide ongoing staff training and apply current best professional practices.

5. Staff Qualifications

All City staff members, consultants, and contractors performing maintenance, management, or removal work on street trees in the field shall be trained in the current arboricultural best management practices.

Arboricultural training shall be provided to City staff members, including
- International Society for Arboriculture (ISA) Arborist certification.
- ISA Tree Risk Assessment Qualification (TRAQ) training.
- Ongoing training needed to maintain those certifications.

All work crews shall have a minimum of one ISA Certified Arborist present in the field. The Certified Arborist staff member shall be responsible for determining pruning objectives, pruning amount, and guiding the team in the use of best management practices.

All City staff members, consultants, and contractors performing tree risk assessments shall have ISA TRAQ certification.

All City staff members, consultants, and contractors performing updates to the Street Tree Inventory or the Tree Appraisal data should be trained to use ESRI Collector and have their own unique login ID.

6. Street Tree Maintenance Program Current Conditions

Historical Conditions

During the 1990s and early 2000s, the urban forestry program planted thousands of new trees (see Appendix F: History of Street Tree Management in Olympia). No dedicated budget or staff was provided for street tree maintenance, leading to the large maintenance backlog seen today.

Program resources were sufficient for a "Reactive" Level of Service:
- Pruning and other maintenance performed in reaction to emergencies and citizen/business owner requests.
- Removal of dead and hazardous trees.

Legion Way trees were the exception. Since the early 2000's they have received:
- Yearly assessment and maintenance/removal prioritization performed by a consulting arborist.
- Pruning and removal of moderate-high risk trees by contracted tree work crews and Parks maintenance staff in years 2012-14.

Current Conditions

As of 2017, Parks has the resources to achieve the "Current" Level of Service:

Annual Cost:
- $174,000 current budget

Staff:
- All staff dedicated 80% to street trees and 20% to park trees
- 1 permanent Maintenance Worker (Arborist)
- 1 permanent Maintenance Worker pulled from other Parks maintenance work for 4 months.
- 1 temporary Maintenance Worker as ground support for 8 months/year.

"Current" LOS Yearly Maintenance Work	
Trees	**Maintenance**
70	1-6" diameter trees (15 year cycle)
47	7-12" diameter trees (15 year cycle)
29	13-24" diameter trees (17 year cycle)
5	25-36" diameter trees (17 year cycle)
17	Removals (5 year cycle)
All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)
162	20 minute Post-Pruning Inspection
10	Newly planted trees & watering

Table 1: "Current" LOS Yearly Maintenance Work

15/17 Year Pruning Cycle:
- Younger trees pruned every 15 years
- Older trees pruned every 17 years

Equipment:
- 1 aerial lift truck.
- 1 10 inch chipper.
- Outdated climbing gear/saws.

Analysis:
- Arborist is not currently ISA Certified.
- A second climber/dedicated ground support staff is needed.
    - Pulling Maintenance Worker III from other maintenance work impacts overall Parks operations.
    - Arborist cannot be expected to climb every work day, impacting work efficiencies and the level of service that can be provided.
- The 15/17 year pruning cycle length is below basic industry standards.
    - Tree condition will deteriorate in the length of time between prunings.
    - Trees will grow, making work more difficult and expensive.
    - Liabilities such as clearance pruning cannot be proactively managed.
- Equipment/Vehicles need to be replaced.
    - Lift truck too large to be used efficiently in the ROW and has high maintenance costs.
    - Chipper is older and has high maintenance costs.

In addition to the regular street tree maintenance program, there are several special projects and contracts.
- On-call removal contractor for projects outside the capacity of Park's staff or equipment.
- Continued yearly assessments of Legion Way trees by a consulting arborist. The numbers of problem trees are steadily decreasing over time.
- On-call pruning contractor for clearance pruning and work on moderate-high risk trees on Legion Way and other arterials shown in Figure 1.

7. Street Tree Population Current Conditions

In 2016 the City completed an inventory of the street trees downtown and on the 10 major arterials shown in Figure 1. Surveyors collected data many tree attributes, including species, condition, height, trunk diameter, and appraised value.

Olympia's street tree inventory is a critical tool for tree management that must be regularly updated to accurately reflect changes in the population. See the Street Tree Inventory Update Protocol in Section 9 for details on consistently updating the inventory. For more information about the inventory methodology, see Appendix J.

The following sections describe the street tree population existing conditions as found by the inventory and additional field assessments performed in 2017.

Population Diversity

A genetically diverse street tree population will more resilient to threats such as pest and disease outbreaks, storms, drought, and climate change. Current industry guidelines recommend no more than 20% of the population in a single genus and 10% in a single species. The existing diversity conditions of the City's inventoried street trees are listed below.

- 82 tree species.
- Norway maple (*Acer platanoides*) and flowering pear (*Pyrus calleryana*) both at 10% of the population, close to exceeding industry guidelines for species diversity.
- Over 60% of the street tree population inventoried is represented by 5 genera: *Acer* (maple), *Carpinus* (hornbeam), *Pyrus* (flowering pear), *Quercus* (oak).
- *Acer* (maple) at 24% of the population exceeds industry guidelines for genus diversity.

[Insert Figure 2: Current Street Tree Population Diversity]

Appraised Value

The value of the inventoried street tree population was assessed using methods developed by the Council for Landscape Appraisers. The value of each tree is assessed using data on its height, canopy spread, diameter, and growing location.

Appraised Street Tree Value		
Work Cycle Zone	**Value**	**Total Number Of Trees**
Downtown	**$2,546,440**	**1178**
West Side	**$1,171,090**	**583**
Harrison Ave	$308,720	296
Cooper Pt	$488,010	98
Kenyon St	$266,590	40
Black Lake Blvd	$107,770	149
East Side	**$2,424,780**	**666**
Legion Way	$706,170	78
Capitol Way	$736,210	166
4th Ave	$142,750	129
State Ave	$93,530	48
Pacific Ave	$94,470	36
Martin Way	$651,650	209
Total City Wide	**$6,142,310**	**2427**

Table 2: Current Appraised Street Tree Value

Pruning and Removal

Tree diameter at breast height (DBH), tree condition, and growing site condition are all attributes used to determine pruning objectives, the amount of time allotted to prune, and the need for removal. See Table 8 for more information about assigning condition ratings to trees in the inventory.

Tree Condition

Trees	Percent	Condition	Description
1,395	57	Good	Minor issues or defects that do not require immediate attention.
970	40	Fair	Well-defined issues such as dead branches or co-dominant stems that need maintenance within several years.
85	3	Poor, Very Poor, Dead	Dead or major structural defects that warrant removal.

Table 3: Current Street Tree Population Condition

Tree Size and Age

Trees	Percent	Diameter	Description
1,133	46	1-6"	Young
735	30	7-12"	Young to Semi-Mature
502	20	13-24"	Semi-Mature to Mature
63	2	25-36"	Mature
13	Less than 1	Over 36"	Mature to Over-Mature

Table 4: Current Street Tree Population Size and Age

[Insert Figure 3: Current Street Tree Condition by Diameter]

Analysis
- The downtown area contains the highest number of young trees (561) and the highest number of recommended removals (47).
- 90% of recommended removals are less than 12" in diameter.
- All trees recommended for removal are low risk.
- The most urgent maintenance need is clearance pruning. Street trees blocking visibility in the roadway is a liability for the City.
- Structural pruning is also needed for the majority of trees. The street tree population is young and healthy enough that many of the structural defects present can be corrected with pruning. If maintenance is deferred for several more years, many trees will become too mature for structural pruning to be effective. For more information about structural defects, see Appendix A: Definitions.

Other Maintenance Requirements

- Soil - reference current EDDS (standards) related to new tree planting
- Mulch is applied sporadically? Irregularly? for the majority of street trees.
- Watering for new City-managed plantings is inconsistent, resulting in some tree death.

Planting

- There are low numbers of entirely new or replacement plantings due to coordination issues, budget constraints and maintenance shortfalls.
- The majority of new City-managed plantings are associated with capital facility projects.
- The new planting that are not City-managed are required by private developments. The developers are responsible for maintaining these trees for the first 3 years, after which they are the City's responsibility.
- Young trees need more frequent structural pruning than older trees. As development continues, the percent of young trees in the population may increase, effecting tree work schedules.

8. Street Tree Maintenance Program Desired Conditions

The following resources are needed to achieve the "Desired" Level of Service, which will provide industry-standard maintenance for the City-maintained street population. See also Appendix E: Levels of Service Comparison.

Annual Cost:
- $313,000

Staff:
- All staff dedicated 80% to street trees and 20% to park trees.
- 1 permanent Maintenance Worker (Arborist).
- 1 permanent Maintenance Worker (Arborist).
- 1 temporary Maintenance Worker I as ground support for 8 months/year.

5/7 Year Pruning Cycle:
- Younger trees pruned every 5 years.
- Older trees pruned every 7 years.

Trees	Maintenance
211	1-6" diameter trees (5 year cycle)
143	7-12" diameter trees (5 year cycle)
71	13-24" diameter trees (7 year cycle)
11	25-36" diameter trees (7 year cycle)
17	Removals (5 year cycle)
All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)
487	20 minute Post-Pruning Inspection
15	Newly planted trees & watering

Table 5: "Desired" LOS Yearly Maintenance Work

Equipment:
- New lift truck.
- Ford F350 Quad Cab truck with chip box.
- New Vermeer chipper.
- New climbing gear/saws.

Analysis:
- Minimum of 1 ISA Certified Arborist on the tree work crew.
- Dedicated, permanent crew with multiple staff trained to climb will make tree work safer and more efficient.
- The 5/7 year pruning cycle length meets basic industry standards.
  - Keeps trees pruned back away from street lights, traffic signs, and buildings improving safety and reducing citizen complaints.
  - Prunes trees when they are younger, making the work easier, cheaper, and better for tree health.
  - Liabilities such as clearance pruning can be proactively managed.
- Replaced equipment/Vehicles reduce cost and improve safety and efficiency.

The special projects and contracts listed in Section 6 will continue in addition to the regular street tree maintenance program

9. Street Tree Population Desired Conditions

Population Diversity

- To guard against insect and disease outbreaks, increase the population diversity at the genus and species level.
- The Allowed Species List (Appendix B) shall be used to plan future street tree planting for both City and private projects. It contains selections that are less likely to damage infrastructure and not susceptible to known pests outbreaks. It also places a moratorium on Callery pears and Norway maples, which are over-represented in the population.
- When planning plantings choose less-well represented species and genera as appropriate.

Pruning and Removal

- The Pruning Standard (Section X) shall be used to plan and implement all pruning work.
- All pruning work shall be recorded in the Street Tree Inventory
- Secure funding and commitment toward street tree pruning on a regular pruning cycle.
- Reference the Prioritized Work Plan for Tree Maintenance (Appendix X) when planning maintenance.

Planting

- Secure funding and commitment toward street tree planting and establishment.
- New street tree plantings shall be added to the Street Tree Inventory data set.
- The method described in the Street Tree Planting Standard (Section X) shall be used when planting.

10. Street Tree Inventory Update Protocol

Purpose and Scope

a) Olympia's street trees are living infrastructure; their population will change over time as trees are planted, grow, and are maintained. In order to apply the street tree inventory for management planning, it must be updated to accurately reflect these changes in the population.
b) The following sections describe the protocol for comprehensive and consistent inventory updates.
c) Table 8 defines the tree condition attributes, and Table 6 defines the other data attributes in the inventory. To ensure data is collected consistently, these definitions should be referenced while performing updates.

Staff Qualifications/Responsibilities

a) Staff members with authority to update the street tree inventory should have knowledge and professional experience in arboriculture, urban forestry, and urban tree best management practices.
b) Each staff member should have access to a device with ESRI Collector installed and the Trees Inspections & Work feature class enabled. Staff should be trained to use the device and the Collector app.
c) Each staff member updating the inventory should have their own Collector login ID. The person signed in should be the only one to enter data.
d) To enable updates whenever they are needed, staff should always carry the device in the field.

Inventory Update Frequency

a) When staff are performing tree maintenance, removal, planting or other field work, they should update the inventory to
   a. Record the work performed.
   b. Correct any inaccurate data (wrong species, incorrect DBH, etc.).
   c. Record any new defects, sidewalk damage, or site conditions.
b) Inventory Attribute Table Organization
   a. There are 3 data tables associated with each tree point, see Table 6 for definitions of data attributes in each table.
      i. The main attribute table contains general information about each tree. It is immediately visible when tree points are selected or created.
      ii. The Defects and Work Performed tables are sub-tables related to the main table. Previously entered data can be viewed or new data entered.

Inputting Data

a) Staff should record the date and identify themselves in the appropriate fields.
b) To identify themselves when updating the inventory, staff should use the login ID they use for Collector and other City computers.
c) Staff should fill in all applicable fields in the main table, the Defects table, and the Work Performed table with the new or corrected tree data.

d) Inputting Tree Condition attributes should occur only after a Post-Pruning Inspection. See Post-Pruning Tree Inspection Protocol (Section 11) for details.
e) When new trees are planted fill in the Tree Source and Year Planted fields. If the species is not in the Species list in the inventory, contact the GIS Analyst to add it.

Main Attribute Table		
Field Name	**Definition**	**Entry Method**
Site ID	Unique ID for tree site	Fill in the blank.
Created	Date tree point is created.	Dropdown menu.
Modified	Date tree point is updated.	Dropdown menu.
AddrNum	Address number of tree site.	Fill in the blank.
Street	Street of tree site.	Fill in the blank.
Park/Facility	Park/Facility name (if applicable).	Fill in the blank.
Grow space	Describe the width and/or character of the planting site.	Dropdown menu.
Utilities	Type of utilities above or below tree.	Dropdown menu.
Land Use	Type of land this tree site is on.	Dropdown menu.
Site Type	Information about what the site is.	Dropdown menu.
Species	Botanic & common name for the tree	Dropdown menu.
Diameter	Diameter at breast height using a diameter tape	Fill in the blank.
Height	Approximate height of the tree	Fill in the blank.
Spread	Approximate spread of the crown	Fill in the blank.
Trunks	Number of trunks	Fill in the blank.
Condition	Condition of tree. See Table 8. (Dead, Very Poor, Poor, Fair, Good, Excellent)	Dropdown menu.
Landmark Tree	Note if the tree has Landmark status	Dropdown menu.
Specimen Tree	Note if the tree has Specimen status	Dropdown menu.
Tree Source	Information about where the tree came from.	Fill in the blank.
Notes	Comments or notes with regard to the tree or tree site.	Fill in the blank.
Year planted	Year the tree was planted.	Fill in the blank.
SidewalkDamage	Measurement of sidewalk lift.	Dropdown menu.
Tree Inspections and Work - Defects Related Table		
Field Name	**Field Name**	**Field Name**
Defect_type	Defect_type	Defect_type
Defect	Defect	Defect
Created	Created	Created
Comments	Comments	Comments
Tree Inspections and Work - Work Related Table		
Field Name	**Field Name**	**Field Name**
WorkPerformed	WorkPerformed	WorkPerformed
DateWorkPerformed	DateWorkPerformed	DateWorkPerformed
Comments	Comments	Comments

Table 6: Inventory Data Attribute Definitions

11.   Tree Appraisal Protocol

Scope and Purpose

a) Understanding the monetary value of Olympia's street trees allows for accurate accounting and provides justification for funding tree maintenance programs. Therefore it is important to keep up-to-date records of the appraised value of the street tree population.
    a) The following sections describe the protocol for comprehensive and consistent updates to the Street Tree Appraisal data.
b) Appraisal Method
    a) Street trees should be appraised using the methods developed by the Council for Landscape Appraisers.
    b) Staff or consultants responsible for appraising street tree value should be have training and have professional experience with the above methods.
c) Update Frequency.
    a) The Street Tree Appraisal data should be updated every 5 years.
d) Inputting Data
    a) Placeholder

Tree Appraisal Attribute Table		
Field Name	**Definition**	**Entry Method**
Diameter	Diameter at breast height using a diameter tape.	Autofilled from Tree Inspections and Work feature class.
Height	Approximate height of the tree.	Autofilled from Tree Inspections and Work feature class.
Spread	Approximate spread of the crown.	Autofilled from Tree Inspections and Work feature class.
Condition	Condition of tree. (Dead, Very Poor, Poor, Fair, Good, Excellent)	Autofilled from Tree Inspections and Work feature class.
Location	An average of the site, contribution and placement percentage rating. Very high: 90-100% High: 80-89% Average: 70-79% Low: 60-69% Very: low 10-59%	Fill in the blank.
Appraisal Value	Appraised monetary value of tree.	Calculated from other fields.

Table 7: Street Tree Appraisal Data Attribute Definitions

12. Post-Pruning Inspection Protocol

Purpose and Scope

   e) Street trees must be inspected after pruning in order to assess how well the work achieved the pruning objectives and to assign a condition rating.
   f) The following sections describe the protocol for comprehensive and consistent Post-Pruning Inspections and updates to the street tree inventory.

Staff Qualifications

   g) Staff members conducting inspections should have knowledge and professional experience in arboriculture, urban forestry, and urban tree best management practices.

Inspection Frequency

   h) Inspection should be performed at least one growing season after the pruning work, preferably during the winter when other tree work is less pressing and the branch architecture is easily seen.
   i) To increase efficiency in the field, the Post-Pruning Inspection can be performed during the same field visit as Tree Grate Maintenance (see Section 14).
   j) Inspections should take no more than 5-10 minutes per tree and should be performed on foot.

Tools and Equipment

   k) ESRI Collector installed and the Trees Inspections & Work feature class enabled.
   l) Hand-lens and binoculars (optional but helpful for viewing tree canopy, diagnosing diseases, etc.).

Inspection Procedure

   m) Look over the inventory data for the tree in question. Note tree species, DBH, height and spread, previous work performed, current condition rating, and any site or structural defects.
        i. Walk all the way around the tree, carefully inspecting the:
            ▪ Growing site.
            ▪ Root zone and root flare.
            ▪ Trunk and scaffold branches.
            ▪ Canopy.
        ii. Note the following conditions:
            ▪ Tree response to pruning (healthy growth and structure vs. sprouting, over-vigorous growth, or dieback).
            ▪ Overall health and vigor of the tree (average shoot length, signs of insect/disease, etc.).

- Any defects or damage since the last inspection.
- Problems with the growing site (missing tree grate, etc.)
- Inaccurate inventory data (wrong species, incorrect DBH, etc.).

iii. If the tree is potentially hazardous (down, leaning, large cracks or dead limbs, etc.), follow the Hazard Tree Protocol (See Section x.x)

Inputting Data

n) Staff should record the date and identify themselves in the appropriate fields.
o) To identify themselves when updating the inventory, staff should use the login ID they use for Collector and other City computers.
p) Staff should fill in all applicable fields in the main table, the Defects table, and the Work Performed table with the new or corrected tree data.
q) Staff should update the Tree Condition attribute, referencing Table 8 to assign a condition rating.

Attribute	Definition	Example
Excellent	None or only very minor issues.	
Good	Minor issues that do not need immediate attention and can wait until a later pruning cycle AND good overall health indicators	• Dead branches under 2"diam. • Codominant stems under 4" diam. • Trunk or basal scar under 2" diam. • Good health: full crown, no dieback, vigorous growth, green leaves, etc.
Fair	Well-defined issues that need to be addressed in the next pruning cycle OR minor issues and fair health indicators	• Dead branches over 2"-4" diam. • Codominant stems 4"-6" diam. • Trunk or basal scar under 2" diam. • Fair health: Thin crown, less than 25% dieback, poor growth, dull or yellow leaves, etc.
Poor	Defects that cannot be corrected but do not pose an immediate hazard OR more minor defects and poor health indicators.	• Codominant stems over 6" diam. • Trunk or basal scar over 2" diam. • Poor health: 25-50% crown dieback, poor or no growth, dull or yellow leaves, stress crop of fruit or cones, adventitious sprouts, etc.
Very Poor	Major defects that cannot be corrected but do not pose an immediate hazard.	• Over 50% crown dieback. • Included bark or split branches over 6" diam. • Trunk or basal cavity or conks.
Dead	Dead standing tree. See Tree Removal Protocol.	

Table 8: Tree Condition Attribute Definitions

13. Pruning Standard

Scope and Purpose

    a. This section provides standards that are in accordance with current best professional practice for the pruning of street trees in the City of Olympia.
    b. Reasons for pruning include:
        i. Reducing risk.
        ii. Improving or maintaining tree health.
        iii. Developing strong crown structure.
        iv. Improving appearance.
        v. Preventing interference with public and private infrastructure.
    c. This standard shall apply to all City staff members, consultants, and contractors responsible for managing the street trees downtown and on the 12 major arterials shown in Figure 1.1.
    d. For more detailed information on pruning, see ANSI 4300 (Part 1)-2017.

Staff Qualifications

    a. All City staff members, consultants, and contractors performing maintenance, management, or removal work on street trees in the field shall be trained in the current arboricultural best management practices.
    b. All work crews shall have a minimum of one ISA Certified Arborist present in the field. The Certified Arborist staff member shall be responsible for determining pruning objectives, pruning amount, and guiding the team in the use of best management practices.

Safety and Protection of Property

    c. This standard shall not take precedence over applicable industry safe work practices.
    d. The location and type of utilities and other obstructions shall be considered prior to pruning operations.
    e. City staff shall not work within 15 ft. of energized conductors. All electrical utility line clearance shall be performed by trained and licensed contractors.

Pruning Process

    f. Before beginning pruning work, one or more pruning objectives shall be determined based on field observations and the results of any previous Post-Pruning Inspections (see Section 11).
    g. When determining pruning objectives and the pruning amount, the following shall be considered:
        i. Tree health.

    ii. Growth habit.
   iii. Structure.
   iv. Species characteristics.
    v. Expected response.
   vi. Observed response to any previous pruning.
  vii. The ability of a plant to sustain the amount of pruning proposed.

h. Objectives should include, but are not limited to, one or more of the following:

    i. Manage risk
- Reduce or remove branches, codominant leaders and/or other parts (living or dead) to lower or eliminate the likelihood of failure and impact to targets.

   ii. Manage health
- Remove damaging parts, ex: branches that are dead or dying, diseased or infested, rubbing, weakened or broken, or parasitic plants, etc.

  iii. Develop structure
- Initiate early to enhance benefits and value, and reduce long-term costs and potential for failure.
- Develop dominant leader(s) and desirable scaffold branches appropriate for the species and site.
- Subordinate or remove competing leaders, branches and shoots. If necessary, subordinate larger branches over multiple growing seasons to avoid making large cuts and removing excessive amounts of material.

   iv. Provide clearance
- Determine clearance amount according to intended site use, planned maintenance interval, and characteristic form of the plant, including shape, growth rate and likely growth response following pruning.
- Use directional pruning to encourage growth away from the specified clearance area and to develop compatible and stable structure.

    v. Improve aesthetics
- Selectively reduce or remove branches, leaders or other parts to achieve aesthetic objectives.

i. The following types of pruning shall be used to achieve the pruning objectives:

    i. Crown cleaning
- Selective pruning to remove one or more of the following: dead, diseased, infested, rubbing, declining, detached and/or broken branches.

ii. Crown thinning
- Selective pruning to reduce density of branches and foliage.

iii. Crown raising
- Pruning of branches to provide vertical clearance below the crown.

iv. Crown reduction
- Decreasing branch length, or plant height and/or spread. Leaders and large branches should be reduced over multiple growing seasons to avoid making large cuts, causing resprouting and stress to the tree.

v. Crown restoration
- Pruning to redevelop structure, form, and appearance of topped or damaged woody plants.

Inventory Updates

j. The Street Tree Inventory shall be updated after any pruning work is performed. For the Street Tree Inventory Update protocol, see Section 9.

Inspection

k. Street trees should be inspected after pruning in order to assess their reaction to the work.
l. Inspection should be performed at least one growing season after the pruning work.
m. For the Post-Pruning Inspection protocol, see Section 11.

Pruning Practices

n. The smallest diameter cut that meets the objective should be preferred.
o. The number and size of cuts that expose heartwood should be minimized.
p. Branches shall be precut when necessary to avoid splitting of the wood or tearing of the bark (see Figure 4).
q. A branch removal cut shall be made without cutting into the branch bark ridge or branch collar, or leaving a stub. The adjacent bark should be firmly attached. (see Figure 4)
r. Reduction Cuts
    i. A reduction cut should be made to a live lateral branch or codominant stem when it can be expected to sustain the remaining branch or stem.
    ii. The remaining lateral branch should typically be at least one-third the diameter of the stem or branch being removed.
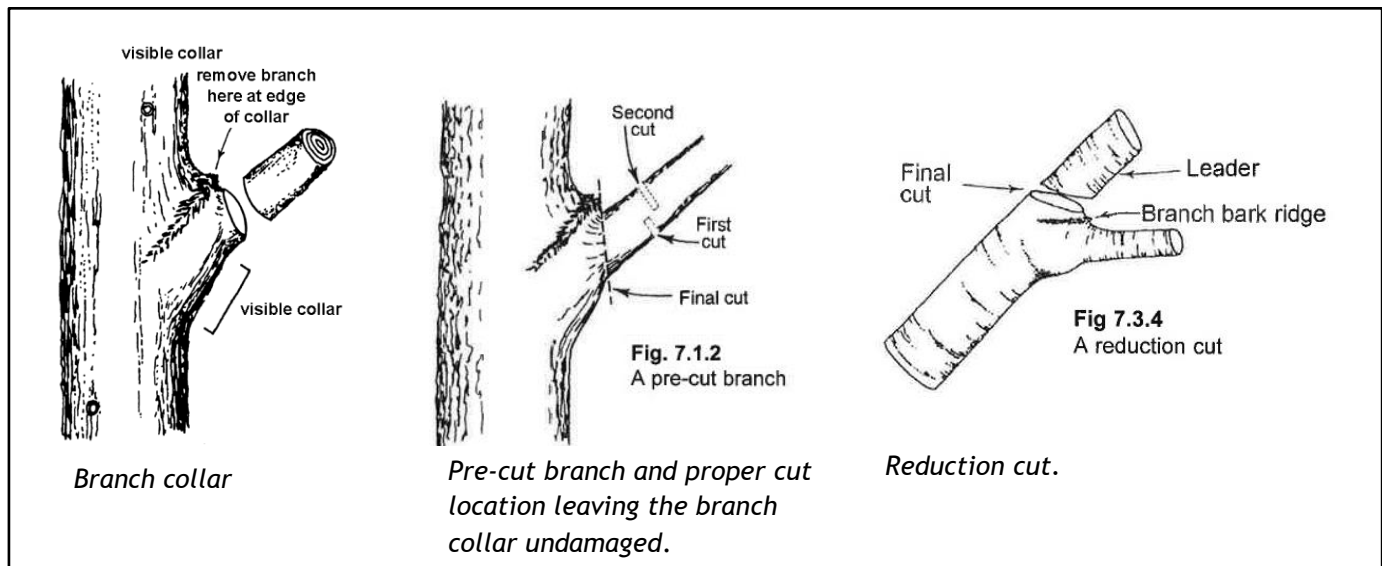
Figure 4: Pruning Cuts

   s. Heading Cuts
       i. A heading cut should only be made when necessary to conform with certain pruning objectives, such as structural development on young trees.
       ii. A heading cut should only be made when it can be expected that the remaining lateral(s) or shoots that grow from retained buds are able to sustain the remaining branch.
   t. The following pruning practices are unacceptable and shall not be performed:
       i. Topping
           1. Reduction of tree size by cutting to stubs without regard for long-term tree health or structural integrity.
       ii. Lion Tailing
           1. The removal of interior lateral branches that results in a concentration of growth at branch ends.
       iii. Flush Cut
           1. Pruning cut that removes the branch bark ridge and/or branch collar.

Work Practices

   u. Climbing spurs shall not be used except during tree removals or in a medical emergency.
   v. Wound treatments should be used only when necessary to prevent the spread of pests or for other specified reasons. Wound treatments that damage the plant shall not be used.
   w. Appropriate precautions shall be taken when necessary to prevent the spread of pests and disease, ex: seasonal timing, sterilization of tools, and handling/disposal of debris/by-products.

14. Planting Standard

[Placeholder]

15.   Tree Grate Maintenance Protocol

Maintenance Frequency

    a) Tree grates should be inspected and maintained annually, preferably during the winter when other tree work is less pressing.

    b) To increase efficiency in the field, tree grate maintenance can be performed during the same field visit as the Post-Pruning Inspection.

Staff Qualifications and Responsibility

    c) Tree grate maintenance should be performed by the Parks arborist crew or other staff with training and professional experience with arboriculture, urban forestry, and urban tree best management practices.

Performing Maintenance

    d) Inspect tree grate and well and perform the following maintenance tasks as needed. See Figure 6.1 for a diagram of maintained tree well and grate.

        a. Replace broken or missing grate.

        b. If tree has grown into the grate or is close, enlarge it by removing the smallest ring around the opening.

        c. If grate opening cannot be enlarged further, remove grate entirely. Apply mulch to 2 inches deep or as needed to bring mulch level with the tree well, making sure not to bury the root flare.

        d. Remove any trash and/or weeds.

        e. Prune any root or trunk sprouts, cutting as close as possible to the tree without damaging the root flare or trunk.

        f. Expose buried root flare if needed. You may need to remove excess soil in order to apply 2 inches of mulch without covering the root flare.

        g. If roots are exposed, add soil to cover them, making sure not to bury the root flare.

        h. Add or replace bark mulch to a depth of 2 inches.

16. Tree Maintenance/Removal Response Protocol

[Placeholder]

17.   Response To Sidewalk Damage Protocol

[Placeholder]

Appendix A: Definitions
[Placeholder]

Appendix B. Recommended Species
[Placeholder]

Appendix C. Prohibited Species

The following species are prohibited and shall not be planted as street trees in the City of Olympia.

Common Name	Scientific Name
Ash	*Fraxinus* sp.
Aspen	*Populus tremuloides*
Bigleaf maple	*Acer macrophyllum*
Black locust	*Robinia pseudoacacia*
Boxelder	*Acer negundo*
Callery pear	*Pyrus calleryana*
Cottonwood	*Populus* sp.
English (cherry) laurel	*Prunus laurocerasus*
English hawthorn	*Crataegus monogyna*
English holly	*Ilex aquifolium*
European mountain ash	*Sorbus aucuparia*
Japanese zelkova	*Zelkova serrata*
Little-leaf linden	*Tilia cordata*
London plane	*Platanus* x *acerifolia*
Mountain ash	*Sorbus americana*
Norway maple	*Acer platanoides*
Ornamental cherries	*Prunus* sp.
Poplar	*Populus* sp.
Purple leaf plum	*Prunus cerasifera*
Red alder	*Alnus rubra*
Silver maple	*Acer saccharinum*
Sweetgum	*Liquidambar styraciflua*
Sycamore maple	*Acer pseudoplatanus*
Tree of heaven	*Ailanthus altissima*
Willow	*Salix* sp.
White poplar	*Populus alba*

Table 9: Prohibited Species

Appendix D: 2017 Work Plan for Tree Maintenance

Purpose: To identify and manage our department's tree work in a proactive manner, with an overall goal to reduce the amount of nuisance tree-related calls, to address potential tree failures before they occur, and to help insure a healthy urban tree population.

Background: In 2016, the City utilized grant funding to have an inventory and assessment performed on its street trees (I.E., those which are on the City's main arterials, and/or in tree wells in the downtown vicinity, and also those which have been identified as having been previously maintained by the City's Parks department). The project called for the identification, inventory, and condition assessment of (up to) 2,500 street trees. This effort did not gather data on trees in any other areas that the Parks department is tasked to maintain (I.E. trees within Parks, and various other trees that may have been previously maintained by the Parks department). The zones inventoried and assessed through the grant were then prioritized by City staff, and are as follows:

Area 1 (Downtown, 1187 trees):

Downtown core

Area 2 (Eastside, 666 trees):

2) Legion Way, 3) Capitol Way, 4) 4th avenue, 5) State avenue, 6) Pacific avenue, 7) Martin Way

Area 3 (Westside, 583 trees):

8) Cooper Point, 9) Kenyon street,10) Harrison avenue, 11) Black Lake boulevard, 12) W. Harrison avenue, 13) N. Cooper Point

Staffing: The City has recently filled its vacant Arborist position, as well as has secured funding for additional support from a temporary (seasonal) Maintenance Worker 1 position. These two positions will be committed to working exclusively on tree-related issues. As the term for the seasonal Maintenance Worker 1 comes to an end, a Maintenance Worker 2 will backfill the position until the MW 1 position is refilled in the late winter/early spring.

Rationale: Begin with (1) documented issues (I.E. those identified in tree risk assessments), then (2) move onto previous, non-addressed tree complaints beginning with those that have the most merit (I.E. have the ability to cause injury or harm to people and/or structures) Then begin to work proactively on the inventoried zones with a prioritized approach (I.E. utilizing historic knowledge of most typically identified areas of requests/knowledge of already identified issues) and also to respond to tree emergencies as they may arise (I.E., storm response, exceptional citizen requests, etc.)

The approach is a follows:

1. *Current, yet to be completed tree assessments:*
    a. LBA Woods, Bentridge parcel
    b. Springwood (Zabels Rhody Garden)
2. *Backlog of certain citizen, etc. requests:*
    a. 110 5th Avenue (corner of Capitol and 5th)
    b. 4th and Washington-3 trees on building (adjacent to "Dillingers")
3. *Area "1" (downtown):*
    a. 4th Avenue from the bridge to Plum street
    b. State Avenue from Plum street to Water street
    c. 5th avenue from Columbia to Plum
    d. Legion Way from Columbia to Plum
    e. Olympia avenue from Columbia to Franklin street
    f. Thurston/Olympia avenues from Columbia avenue to East Bay drive *
    g. A avenue from Columbia street to Washington street
    h. B avenue from Columbia street to Washington street
    i. Corky avenue/Market street from Columbia street to Franklin street
    j. 8th avenue from Capitol Way to Washington street
    k. 9th avenue from Washington street to Jefferson street
    l. 10th avenue from Columbia street to Jefferson street
    m. Union avenue from Capitol Way to Adams street
    n. Capitol Way from Corky avenue to Union avenue
    o. Washington street from Market avenue to Union avenue
    p. Franklin street from Olympia avenue to Union avenue
    q. Adams street from State avenue to Union avenue
    r. Jefferson street from Marine drive to 10th avenue
    s. Cherry avenue from 4th avenue to 8th avenue
    t. Chestnut street from Olympia avenue to 8th avenue
    u. Plum street from Legion avenue to Union avenue
    v. Pear street from Olympia avenue to Legion Way
    w. Quince street from 4th avenue to Legion Way
    x. Eastside street from 4th avenue to 7th avenue
4. *Area "2" (Eastside arterials, and S. Capitol Way)*
    a. Legion Way from Plum street to Central street
    b. Capitol Way from Union avenue to Carlyon avenue
    c. 4th avenue from Plum street to Chambers street
    d. State avenue from Plum street to Wilson street
    e. Pacific avenue from Phoenix street to Lansdale road
    f. Martin Way from Ensign road to College
5. *Area "3" (Westside arterials)*
    a. Cooper Point road from Black Lake blvd to Harrison avenue
    b. Kenyon street from Harrison avenue to Mall Loop drive
    c. Harrison avenue from Division street to Cooper Point road
    d. Black Lake blvd/Division street from Harrison avenue to Cooper Point road
    e. Harrison avenue from Cooper Point road to Greenwood drive
    f. Cooper Point road from Harrison avenue to Conger avenue

Appendix E: Levels of Service Comparison

"Current" Level of Service	"Desired" Level of Service
Annual Cost	
$174,000 current budget	Additional $135,400
Staff (dedicated 80% to street trees, 20% to park trees)	
a) 1 permanent Maintenance Worker (Arborist). b) 1 permanent Maintenance Worker pulled from other Parks maintenance work for 4 months. c) 1 temporary Maintenance Worker as ground support for 8 months/year.	Additional Maintenance Worker (Arborist) and associated vehicle and equipment.
Pruning Cycle	
• Younger trees pruned every 15 years • Older trees pruned every 17 years	• Younger trees pruned every 5 years • Older trees pruned every 7 years

Yearly Maintenance Work					
Cycle Length	Trees	Maintenance	Cycle Length	Trees	Maintenance
15 yrs	70	Pruning 1-6" diameter trees	5 yrs	211	Pruning 1-6" diameter trees
	47	Pruning 7-12" diameter trees		143	Pruning 7-12" diameter trees
17 yrs	29	Pruning 13-24" diameter trees	7 yrs	71	Pruning 13-24" diameter trees
	5	Pruning 25-36" diameter trees		11	Pruning 25-36" diameter trees
5 yrs	17	Removals	5 yrs	17	Removals
N/A	All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)	N/A	All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)
	162	20 minute Post-Pruning Inspection		487	20 minute Post-Pruning Inspection
	10	Planting & watering new trees		15	Newly planted trees & watering

Table 10: Levels of Service Comparison

Analysis

Trees are pruned 2-3 times more often in the "Desired" LOS.

"Current" LOS	*"Desired" LOS*
Far below basic industry standards for tree maintenance.	Meets basic industry standards for tree maintenance.
Pulling Maintenance Worker from other maintenance work impacts overall Parks operations.	Dedicated, permanent crew will make tree work safer and more efficient.
Longer pruning cycle • Tree condition will deteriorate in the length of time between prunings. • Trees will grow, making work more difficult and expensive. • Liabilities cannot be proactively managed.	Shorter pruning cycle • Keeps trees pruned back away from street lights, traffic signs, and buildings improving safety and reducing citizen complaints. • Prunes trees when they are younger, making the work easier, cheaper, and better for tree health.

Appendix F: History of Street Tree Management in Olympia

In the 1990's and early 2000's, the Urban Forestry Program focused heavily on street tree planting, installing thousands of new trees during the first decades of the program. Trees were planted downtown and on major arterials as capital (City-funded) projects, and through volunteer efforts. OMC 16.60 required every new development project to protect, retain, and plant trees, including street trees. Subsequently, new development contributed greatly to the increase in street trees citywide. In addition, the NeighborWoods program organized and trained citizen volunteers to plant street trees in neighborhoods.

The strong emphasis on planting trees has significantly increased Olympia's street tree population, creating tree-lined streets and opportunities to experience the benefits previously noted. However, trees grow and change as they mature, so ongoing maintenance is critical to maintaining a healthy and safe street tree population.

The Urban Forestry Program has experienced challenges to providing consistent and thorough street tree maintenance. Examples include a need for greater inter-departmental coordination and common agreement about priorities, responsibilities, and resource allocation. Additionally, funding for tree work has not allowed for the staff needed to perform regular tree work. For years the maintenance program has been only able to react to urgent problems rather than prevent them, resulting in a large maintenance backlog. The City has also lacked comprehensive and up-to-date data to guide street tree asset management. Several inventories were performed over the years, but have not been maintained or integrated into management planning across departments.

Olympia's urban forestry program has evolved in the last several years to a more collaborative and inter-departmental approach to management. Based on recommendations from the Strategic Plan completed in 2015, City staff formed an interdepartmental urban forestry policy team to clarify roles and responsibilities and coordinate responsibilities for urban forest management among three departments: Community Planning & Development, Public Works, and Parks, Arts, and Recreation. Parks recently hired an arborist who is responsible for park and street tree management. The new street tree inventory, and the standards, protocols and management actions called for in the STMM will continue to build on past successes to develop a more sustainable and resilient Urban Forestry Program.

Below - Table 11: Olympia's Street Tree Planting History

Year	Location	Notes
1970s and 1980s (400-500 trees total)	Washington St outside the Washington Center	Red oak
	Percival Landing	
	Capital Way	
	5th Ave RUDAT Demonstration Project	Honeylocust
	4th Ave west of Franklin St	
	Pacific Ave between Dehart and Pattison Sts	Green ash
	Cooper Point Rd by Capitol Mall	London plane – several were root pruned due to sidewalk damage and later died from anthracnose infection; replaced in 2000 or 2001
	Black Lake Blvd	Damaged in 1996 ice storm and replaced over time
1992	Capitol Way north of State Ave	20 trees - Hedge maple and little leaf linden
	Martin Way	250 trees - Autumn Applause ash and Norwegian Sunset maple - planted as part of a Local Improvement District project
	State Ave between Capitol Way and Franklin St	40 trees
	Capitol Way north of State	Approx 20 trees
1994	State and 4th Aves between Franklin and Chestnut or Plum	100 trees
1995	Capitol Way from 14th Ave to city limits	23 trees - Pacific Sunset Maples (14th to 18th Ave) 45 trees – Red oak (18th Ave to 25th Ave) 49 trees – Chanticleer pear (25th Ave to city limits)
1998 (100 trees total)	Washington St, Legion Way, 4th Ave	
	North end of Black Lake Blvd	Planted by volunteers with hedge maple and thornless upright Washington hawthorn - hawthorns all did poorly and were replaced over time; this area has very challenging soils and exposed southwest aspect making species election challenging
Early 2000s	Mud Bay Rd	*Magnolia denudata* - planted during road improvement project; most died and were replaced with ash (by Rite Aide property owner) and black gum (by city)
2001	South end of Black Lake Blvd	50 trees - American mountain ash
	State and 4th Aves between Plum or Chestnut and Sawyer St	200 trees; includes structural soil demonstration project on State Ave
	Cooper Point Rd by Capitol Mall	15 trees - Replacement London planes
	Franklin St	30 trees
2006	Harrison Ave between Cooper Pt Rd and Yauger Way	

Appendix G: Benefits of Olympia's Street Trees

Olympia's urban forest is an important natural resource that provides a multitude of benefits. City trees reduce cooling costs by creating more comfortable summer microclimates[1]. Trees contribute to positive health outcomes for city dwellers, including decreased stress and instances of violence[2], lower overall mortality rates[3], increased social cohesion, and greater motivation to exercise[4]. Studies show that street trees provide numerous economic values, including boosting property values and increasing the price consumers are willing to pay for goods[5].

In light of these benefits, the City of Olympia (City) recognizes that the urban forest must be managed as an integral element of our infrastructure. The strategies, and management actions, and maintenance protocol in the Street Tree Maintenance Manual (STMM) enhance the benefits and reduce the costs associated with street trees by providing guidance for caring for this valuable asset.

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[1] Wolf, Kathy. 1998. Human Dimensions of the Urban Forest Fact Sheet #3: Urban Forest Values: Economic Benefits of Trees in Cities. Center for Urban Horticulture, University of Washington.
[2] Wolf, Kathy. 1998. Human Dimensions of the Urban Forest Fact Sheet #1: Urban Nature Benefits: Psycho-Social Dimensions of People and Plants. Center for Urban Horticulture, University of Washington.
[3] Donovan, Geoffrey H. et. al. 2013. The Relationship Between Trees and Human Health: Evidence from the Spread of the Emerald Ash Borer. Am J Prev Med. 44 (2): 139-145.
[4] Douglas, Ian. 2012. Urban ecology and urban ecosystems: understanding the links to human health and well-being. Current Opinion in Environmental Sustainability. 4:385–392
[5] Wolf, Kathy. 1998. Human Dimensions of the Urban Forest Fact Sheet #5: Trees in Business Districts: Positive Effects on Consumer Behavior!. Center for Urban Horticulture, University of Washington.

Appendix H: Emerging Challenges for Olympia's Street Trees

There are several known emerging challenges that will impact the health and/or diversity of our urban forest within the next decade. While we may not see the anticipated impacts of these emerging conditions yet, urban forestry management best practices include learning from the research and the experience of other communities as to how to effectively plan for how to prepare and adapt to these conditions when they do occur.

Climate Change. Models predict that as the global climate changes, the Puget Sound region will experience warmer, rainier winters with more extreme storms, and hotter, more drought-prone summers. These changes in regular climate cycles and conditions will make it difficult for some tree species to survive without intense maintenance, and will alter the planting palate of regionally adapted trees. Trees that can't adapt to changes in climate will become stressed, which will increase vulnerability to invasive species, pests, and diseases. This cycle will be exacerbated as certain pests and diseases may become more, and new ones may emerge. [6]

Sea Level Rise. Sea level rise will significantly impact street trees downtown, where periodic salt water inundation and/or urban flooding may become a more regular occurrence in coming decades. Few trees that can withstand inundation are also appropriate as street trees. Solutions may include limiting the planting palate, planting above-ground with a more frequent removal and replacement rotation, or accommodating more non-traditional street trees with greater soil volumes and alternative planting designs.

Pests/Diseases. Pest and disease epidemics have catastrophic effects on street tree populations, particular those that consist of only several different species. The emerald ash borer (EAB) and Asian longhorn beetle (ALB) are two insects that have caused the devastating removal of entire urban forests in other parts of the country. These insects are expected to arrive in Washington in the next several years. Maintaining street tree population diversity and selecting pest-resistant varieties will reduce the damaged anticipated by possible outbreaks.

Street Redevelopments Downtown. The Downtown Strategy calls for the reconstruction of five street sections in downtown during the life of the STMM. The recommendations in this plan will allow operations staff to plan and implement regular maintenance for the newly planted trees that result from re-development.

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6 Mauger, G.S., J.H. Casola, H.A. Morgan, R.L. Strauch, B. Jones, B. Curry, T.M. Busch Isaksen, L. Whitely Binder, M.B. Krosby, and A.K. Snover, 2015. State of Knowledge: Climate Change in Puget Sound. Report prepared for the Puget Sound Partnership and the National Oceanic and Atmospheric Administration. Climate Impacts Group, University of Washington, Seattle. doi:10.7915/CIG93777D

Appendix I: Regulatory Framework

The Street Tree Maintenance Manual is part of a larger regulatory framework used by the City to manage the urban forest. Other plans, standards, and regulations related to the management of street trees are described below.

Policy Documents

Policy documents set high level goals and priorities for Olympia's urban forest and urban forestry program.

> **2001-2011 Master Street Tree Plan.** The STMM replaces the 2001-2011 Master Street Tree Plan to reflect new best professional maintenance practices, as well as the current state of the street tree population and the maintenance program. The Master Street Tree Plan presented and analyzed a street tree inventory for downtown and the 12 arterials, as well as limited data for residential streets. The 2001-2011 Plan also:
>
> - Discussed streetscape design considerations.
> - Set priority areas for tree planting.
> - Described street tree management programs, roles, and responsibilities.
> - Established tree management standards.
>
> **Comprehensive Plan.** The Comprehensive Plan is a 20-year plan for the city's growth and development required by the state Growth Management Act. It includes the community's values and vision. It also establishes goals and policies, which direct other planning efforts. Three chapters, Transportation, Land Use and Urban Design, and Natural Environment, include goals and policies to achieve a healthy and diverse tree canopy.
>
> **Urban Forest Management Strategic Proposal (Strategic Plan).** The Strategic Plan was completed in April, 2015. The Strategic Plan assessed the existing policies, codes, roles and responsibilities, and other elements of the City's Urban Forestry Program. The Strategic Plan identified major challenges and included recommendations for addressing those. Several recommendations, such as developing a tree inventory system and establishing an inter-departmental urban forestry team, have been accomplished. Completion of the STMM is will fulfill additional recommendations, including: clarifying the program roles and responsibilities.

Downtown Strategy. The Downtown Strategy (DTS) identifies goals and priorities for downtown Olympia, including a five-year action plan for achieving those goals. Actions in the Downtown Strategy that address street trees include:

(1) Design
- D.1: Update building and site design guidelines

(2) Transportation
- T1: Redevelopment of five streets downtown
- T.2: Traffic calming on 4th Ave intersections
- T.3: Updating the EDDS
- T.7: Prepare a Street Tree Maintenance Manual

Sea Level Rise Response Plan (Currently In Process). The scheduled completion date for the Sea Level Rise Response Plan is October 2018. The plan will prioritize strategies and investments to protect downtown's economic, social, and environmental values. The planning process includes an inventory and vulnerability assessment of downtown assets, including street trees. The inventory data, inventory analysis, and management strategies in the STMM will contribute to this process.

Urban Forest Management Plan (Start Date to Be Determined). During development of the STMM, staff and stakeholders identified many issues that are outside the scope of the plan. These issues have been captures and are better addressed through a process to develop a Citywide Urban Forest Management Plan. The Strategic Plan also recommends completion of an Urban Forest Management Plan. Currently no resources or funding have been identified for this effort.

Regulatory Documents and Code

Regulatory documents and sections of the Olympia Municipal Code carry out policies "on the ground" by establishing regulations and standards for street trees either impacted by or required to be planted as part of a new development project.

Engineering Design and Development Standards. The Engineering Design and Development Standards (EDDS) establish technical design requirements used by the City and private developers to design and construct drinking water, reclaimed water, sewer, transportation, stormwater, and solid waste collection systems. Included in the development of the City's transportation system are streets, sidewalks, and street trees. The standards in the EDDS for street tree include:

    (a) 4C: Sidewalks and Curbs: Describes standards for sidewalk and curb design, including bulb-outs. 4C.030G states that maintenance of the sidewalk and streetscape features including trees and landscaping are the abutting property owner's responsibility.

    (b) 4H.100: Street Trees: Describes standards for species, planting stock, tree spacing and location, tree grates, planting bed configuration, and structural soils.

    (c) Tree Related Detail Drawings

    (d) 4-49: Street Tree Frame and Grate

    (e) 4-50: Typical Tree Planting and Staking Detail

    (f) 5-8: Post Construction Soil Quality and Depth

    (g) 5-18: Tree Planting within Bioretention Swale

Olympia Municipal Code, Chapter 12.44 Street Trees. This section of the Olympia Municipal Code (OMC), adopted in 1915 and 1920, addresses City responsibility for the management of street trees.

Olympia Municipal Code, Chapter 16.60 Tree, Soil, and Native Vegetation Protection and Replacement. This section of the OMC regulates tree planting and removal as it relates to private property, including new development.

Urban Forest Manual. The Urban Forest Manual (UFM) is adopted per OMC 16.60, and establishes standards for the retention, protection, planting, and maintenance of trees. The UFM also includes a Prohibited Tree List.

Appendix J: 2017 Street Tree Inventory

In 2016, the Washington Department of Natural Resources (WADNR) Urban and Community Forestry (UCF) program and the US Forest Service (USFS) funded an inventory of street trees in Olympia. The scope of the inventory was confined to downtown and the 12 arterials OPARD is responsible for maintaining (See Figure 3.1). An arboricultural consultant, Community Forestry Consultants, Inc. (CFC) performed the inventory.

Inventory methodology
International Society of Arboriculture (ISA) certified arborists performed limited visual assessments of each tree in the inventory, a total of 2,448 trees. Surveyors collected data using TreeWorks, an ArcGIS tree management software, and Trimble field GPS units.

The attributes used by the surveyors were determined by WADNR UCF staff (see Appendix 1). Attributes recorded include:

- species, chosen from a list provided by WADNR UCF,
- growing space type,
- land use type,
- diameter,
- height,
- spread,
- appraisal value,
- condition rating from excellent to dead, and
- structural defect type, for example co-dominant stems, included bark, and stem girdling root.

Trees in "fair" condition are defined by CFC as having well-defined issues such as dead branches or co-dominant stems that require pruning or other maintenance within the next pruning cycle. "Good" trees have minor issues or defects that do not require immediate attention and can wait until later pruning cycles. See Table X.x for more information about assigning condition ratings to trees in the inventory.

The data was analyzed by CFC and City staff to provide a preliminary assessment of Olympia's street trees, including population diversity characteristics, appraisal value, and maintenance requirements. This analysis was made available to WADNR UCF as part of the grant requirements.

Inventory Shortcomings
In spring and summer of 2017, qualified City staff and a consultant from Sound Urban Forestry performed quality assurance (QA) on the inventory data. They conducted visual assessments of a subset of trees and compared their findings with the data recorded in the inventory. Staff found some inaccuracies in the data, such as defects that were not recorded or incorrect species, height or spread information.

Despite these concerns, the tree inventory data is valuable for street tree management. The shortcomings should be kept in mind when using the data for budgeting or management decisions. As they perform work and assess trees in the field, City staff should also update and correct the inventory as needed. See Section 6.1 for details on updating the inventory.

Street Tree Maintenance Manual - LOS Comparison
December 5, 2017

"Current" Level of Service			"Desired" Level of Service		
Annual Cost					
$174,000 current budget			Additional $135,400		
Staff (dedicated 80% to street trees, 20% to park trees)					
a) 1 permanent Maintenance Worker (Arborist). b) 1 permanent Maintenance Worker pulled from other Parks maintenance work for 4 months. c) 1 temporary Maintenance Worker as ground support for 8 months/year.			Additional Maintenance Worker (Arborist) and associated vehicle and equipment.		
Pruning Cycle					
• Younger trees pruned every 15 years • Older trees pruned every 17 years			• Younger trees pruned every 5 years • Older trees pruned every 7 years		
Yearly Maintenance Work					
Cycle Length	Trees	Maintenance	Cycle Length	Trees	Maintenance
15 yrs	70	Pruning 1-6" diameter trees	5 yrs	211	Pruning 1-6" diameter trees
	47	Pruning 7-12" diameter trees		143	Pruning 7-12" diameter trees
17 yrs	29	Pruning 13-24" diameter trees	7 yrs	71	Pruning 13-24" diameter trees
	5	Pruning 25-36" diameter trees		11	Pruning 25-36" diameter trees
5 yrs	17	Removals	5 yrs	17	Removals
N/A	All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)	N/A	All	40 minutes general maintenance (weeding, litter removal, mulching, tree grate maintenance, remove root suckers)
	162	20 minute Post-Pruning Inspection		487	20 minute Post-Pruning Inspection
	10	Planting & watering new trees		15	Newly planted trees & watering

Analysis

Trees are pruned 2-3 times more often in the "Desired" LOS.

"Current" LOS	**"Desired" LOS**
Far below basic industry standards for tree maintenance.	Meets basic industry standards for tree maintenance.
Pulling Maintenance Worker from other maintenance work impacts overall Parks operations.	Dedicated, permanent crew will make tree work safer and more efficient.
Longer pruning cycle • Tree condition will deteriorate in the length of time between prunings. • Trees will grow, making work more difficult and expensive. • Liabilities cannot be proactively managed.	Shorter pruning cycle • Keeps trees pruned back away from street lights, traffic signs, and buildings improving safety and reducing citizen complaints. • Prunes trees when they are younger, making the work easier, cheaper, and better for tree health.