REPORT HIGHLIGHTS

OFFICE OF CITY AUDITOR – SEATTLE

May 15, 2009

Management of City Trees Can Be Improved

Audit Background

A tree canopy covers 18 percent of Seattle. The City of Seattle's April 2007 Urban Forest Management Plan calls for increasing Seattle's canopy cover to 30 percent in 30 years, and recommends steps that the City should take to preserve, maintain, and enhance Seattle's urban forest to meet that goal.

The City's management of its urban forest is decentralized among nine City departments with tree management or regulatory responsibilities.

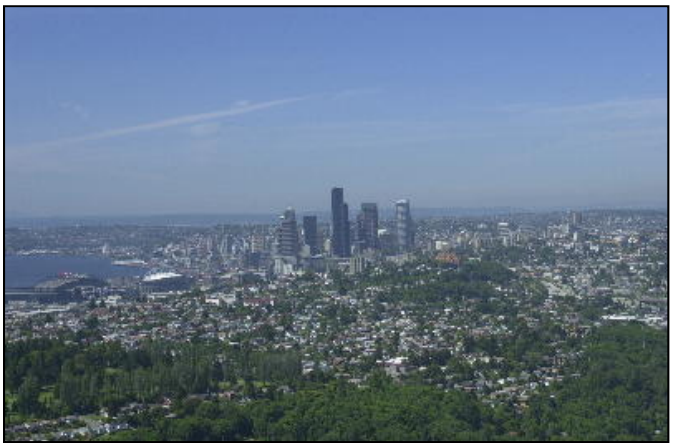
Audit Objectives

The City Council requested that the Office of City Auditor review the City's management of its trees. To help evaluate the effectiveness of the City's urban forestry management program, we:

- Examined the types of actions taken by the City and other stakeholders to implement the Urban Forest Management Plan;
- Identified challenges the City faces in attaining and sustaining the plan's goals; and
- Identified approaches that may be useful to enhance future tree management efforts.

Recommendations

We made a number of recommendations to improve the City's management of trees. These recommendations can be found in Chapter V of the report.



Source: Seattle Municipal Archives

City's Management Framework for Implementing the Urban Forest Management Plan Can Be Strengthened.

While the City has identified tree preservation and increased tree canopy as priorities and individual City department efforts are underway to implement these priorities, the City's current management framework needs to be strengthened in three ways:

1. **Ensure that the organizational entities established in the Urban Forest Management Plan are operational and effective in supporting the City's urban forestry goals.** From February 2008 to February 2009, the Sustainability and Environment Sub-cabinet, which is the executive-level advisory body established by the Urban Forest Management Plan, was not operational. As a result, some operational and policy issues were not resolved. The Sub-cabinet reconvened in February 2009 providing the organizational framework envisioned by the Urban Forest Management Plan.
2. **Unify all City departments behind a single mission through clear and demonstrated leadership by the Office of Sustainability and Environment (OSE).** The City's current approach to tree issues lacks top leadership with the authority and accountability to best ensure implementation of the Urban Forest Management Plan. While the Mayor tasked OSE with the leadership role, there was no agreement within City government or in the public about where program leadership resides. While OSE believes they have the authority and accountability for the Urban Forest Management Plan's implementation, this is not widely known within City government and to the public. Clear lines of authority and effective leadership will help resolve conflicts and better ensure that all City departments are unified behind a single mission.
3. **Develop and agree on a comprehensive strategic plan for implementing the Urban Forest Management Plan.** Although the Urban Forest Management Plan states that it is a "roadmap for a strategic approach", it does not specify: 1) the concrete methods and resources to reach the City's canopy goal; 2) performance measures to evaluate and monitor progress in meeting the canopy goal; 3) external factors that could impact the Urban Forest Management Plan; and 4) ongoing program evaluations to adjust the plan's goals and strategies if necessary.

Seattle Department of Transportation Urban Forestry Workers
Source: Seattle Municipal Archives

Stronger Cooperation and Coordination Needed between Stakeholders

Effective cooperation and coordination on tree management issues is essential, though not ensured, among City departments and between outside stakeholders and the City. This is a challenge when the urban forest competes with utility and transportation infrastructure for limited space in the public right-of-way. Utility and transportation infrastructure includes overhead and underground power lines, trolley lines, roads, sidewalks, trails, drainage and waste water pipes and vaults, and telecommunication equipment. Conflicting goals exist between City departments and outside agencies, and even within departments. Without effective partnerships, the City's ability to meet urban forest and sustainability goals is compromised. For example, Seattle City Light (SCL) recommends that trees planted under power lines should have a mature height of not more than 25 feet for safety and reliability reasons. However, trees are continually being planted that exceed that requirement. The Seattle Department of Transportation's (SDOT) tree planting list which is used for the department's tree planting decisions differs from what SCL and other utility jurisdictions believe are the appropriate size trees to plant under power lines.

Increased Emphasis Needed on Public Outreach and Education

Most of Seattle's trees are on private property and the greatest potential for planting new trees is also on private property. Hence, public outreach and education to promote proper management of privately owned trees and to encourage new tree planting are paramount in the City's effort to sustain and expand the tree canopy. OSE has developed and implemented public outreach and education with limited resources, and will require adequate resources to continue this effort. OSE will have fewer resources in 2009 than in 2008 for these efforts.

Tree Inventory Needed for Making Sound Resource Management Decisions

The City does not currently have a complete inventory of City-managed trees that would enable it to make sound resource management decisions. By accumulating, updating, and using information collected by a tree inventory, urban forest managers can forecast trends, anticipate maintenance needs, facilitate budgeting for tree-related expenditures, and develop long range plans. The Department of Parks and Recreation, SDOT, and the Seattle Center are performing or have recently completed tree inventories. Parks has inventoried trees in approximately 10 to 15 percent of its developed parks. According to information we received from SDOT in May 2009, it has completed an inventory on about 37,000 street trees it is responsible for – this comprises about 26 percent of all street trees in Seattle. Seattle Center has completed a tree inventory of its 74-acre campus.

City Goals Need to Include Realistic Funding Assumptions

While some tree improvements are inexpensive, most require substantial and continuous funding. Demand for funding has far outstripped the amounts made available. For example, SDOT and Parks requested respectively $1.1 million and $500,000 for the 2009-2010 biennium for tree crews to conduct tree maintenance. However, neither request was funded. Budget constraints will require that the City carefully prioritize how to maximize urban forestry goals within available resources.

Implementing New Tree Regulations Is an Important Next Step for Tree Preservation

The Department of Planning and Development has been evaluating the existing tree protection regulations that govern tree retention on private property. The Mayor proposed new interim tree regulations in September 2008 that the City Council passed in 2009. The new regulations will close a loophole used by developers to remove trees before applying for a development permit. The City has slowed down the regulations development process until the new satellite canopy cover analysis is completed. It is anticipated that new tree regulations will be proposed in late 2009. In addition, the Department of Planning and Development will conduct an analysis to determine the resources necessary to fully implement the new regulations.

A copy of the Office of City Auditor's full report can be obtained at the Auditor's website at **http://seattle.gov/audit** or by calling (206) 233-3801. Please direct any questions or comments regarding this report, or suggestions for future audits to Susan Cohen, Seattle City Auditor, at (206) 233-3801 or susan.cohen@seattle.gov

Office of City Auditor

Management of City Trees

May 15, 2009

City of Seattle
Office of City Auditor

Our Mission:

To help the City of Seattle achieve honest, efficient management and full accountability throughout City government. We serve the public interest by providing the Mayor, the City Council, and City department heads with accurate information, unbiased analysis, and objective recommendations on how best to use public resources in support of the well-being of the citizens of Seattle.

Background:

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City of Seattle
Office of City Auditor

Susan Cohen, City Auditor

May 15, 2009

The Honorable Greg Nickels
Seattle City Councilmembers
City of Seattle
Seattle, Washington 98104-1876

Dear Mayor Nickels and City Councilmembers:

Attached is our report, **Management of City Trees**. Our primary purpose for this body of work was to identify recommendations that can help the City address the challenges to the successful implementation of the City's Urban Forest Management Plan.

We received formal responses on a draft of this report from the Office of Sustainability and Environment, Department of Parks and Recreation, and the Seattle Department of Transportation which are included as an appendix. We incorporated their comments, as we deemed appropriate, into the final report.

We would like to acknowledge the assistance and professionalism of all City personnel who participated in this review, including managers and staff from the Office of Sustainability and Environment, Seattle Department of Transportation, Seattle City Light, Department of Parks and Recreation, Department of Planning and Development, Seattle Public Utilities, Seattle Center, Department of Neighborhoods, Fleets and Facilities Department, Department of Finance, Law Department, Risk Management, and City Council Central Staff.

Please contact me if you have any questions regarding our review.

Sincerely,

Susan Cohen

Susan Cohen
City Auditor

Enclosure

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I. Introduction

Seattle's trees are in danger. Today the City's tree canopy covers only 18 percent of Seattle. Moreover, Seattle officials believe 70 percent of Seattle's forested parklands will, without intervention, become ecological dead zones[1] because of ivy and other invasive plants. As part of the Mayor's 2006 Climate Action Plan, the City started an urban forest initiative[2] to protect and increase the City's tree canopy. This plan described high priority climate protection actions and investments, and calls for increasing Seattle's canopy cover to 30 percent in 30 years.

The City Council requested that the Office of City Auditor review the City's management of its trees. Specifically, we reviewed:

> (1) The actions taken by the City of Seattle and other stakeholders to implement the Urban Forest Management Plan;
> (2) The challenges the City faces in attaining and sustaining the Urban Forest Management Plan goals; and
> (3) The approaches that may be useful in future actions to enhance tree management.

II. Scope and Methodology

To conduct our work, we:

- Interviewed City officials responsible for implementing the Urban Forest Management Plan, officials from other jurisdictions, consultants that advised other jurisdictions in developing urban forestry management plans, and stakeholders involved in tree management issues who do not work for City of Seattle government;
- Examined other jurisdictions' urban forest management plans;
- Reviewed City documents tied to the plan and its implementation including City ordinances, City Council resolutions, regulations, budgets, planning documents, and reports (tree plantings, removals, and other related documents);
- Reviewed the City's funding sources for the Urban Forest Management Plan's implementation;
- Visited locations in Seattle where trees have been planted and tree maintenance performed; and
- Visited locations in Seattle to see challenges faced in clearing areas for tree plantings.

To assess the reliability of the data provided by City departments for planting trees and other tree related activities, we analyzed the data for accuracy and completeness and

[1] http://*www*.seattle.gov/climate/docs/SeaCAP_plan.pdf; page 30
[2] http://www.seattle.gov/climate/docs/SeaCAP_plan.pdf, page 30-31

interviewed City officials knowledgeable about these data. We determined that the data were sufficiently reliable for this project. More details about the scope of and methodology for our work are contained in Appendix I.

We conducted our audit fieldwork from April 2008 through January 2009.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

III. Results in Brief

Many City departments and local organizations play a role in preserving, restoring, and enhancing Seattle's urban forest. The April 2007 Urban Forest Management Plan[3] imposed an ambitious schedule of requirements on City departments. City stakeholders involved in tree management issues have taken many actions to address the plan's goal of 30 percent tree canopy coverage by the year 2037. These actions include tree planting and maintenance, identifying regulatory changes needed for the preservation of trees, facilitating interdepartmental cooperation, and enhancing public education and outreach. The effort involved in implementing these actions has been considerable.

These efforts have encountered challenges that could significantly affect their success. The six most complex challenges are:

- **Implementing a new tree ordinance**: Regulations and their enforcement play a very important role in tree preservation. The City has been reviewing the old regulations and developing new ones during the last year. The new regulations are supposed to protect more trees in Seattle than the current regulations. Recently, City Council passed interim regulations that temporarily reduce or limit the removal of certain trees before the adoption of permanent regulations. The City has slowed the permanent regulations development process in order to complete a thorough canopy cover analysis. To protect the existing trees, the new regulations should be adopted as soon as possible, and the Department of Planning and Development will need to analyze what resources are needed to implement them.
- **Funding tree improvements**: While some tree improvements are inexpensive, most require substantial and continuous funding. Although the City has funded tree improvements, the current economy makes it difficult for the City to continue to do this. Further, the demand for improvements exceeds the additional funding provided by the City. For example, the Seattle Department of Transportation and

[3] The 2007 Urban Forest Management Plan is in draft form because it has not been adopted by ordinance. Therefore, the merits of the plan and its recommendations are still at issue and subject to review and potential amendments.

the Parks and Recreation Department requested $1.1 million and $500,000 for the 2009-2010 biennium, respectively, for tree crews to conduct tree maintenance; however, both requests went unfunded.

- **Coordinating tree efforts with stakeholders**: Within the City of Seattle, the urban forest is a vital part of the City's infrastructure with management divided among several departments and outside agencies. This is a challenge when the urban forest competes with utility and transportation infrastructure for limited space in the public right-of-way. Utility and transportation infrastructure includes overhead and underground power lines, trolley lines, roads, sidewalks, trails, drainage and waste water pipes and vaults, and telecommunication equipment. The successful planning and implementation of projects and policy modifications require constant, in-depth coordination across the city. Partnerships can break down even when procedures are in place. For example, Seattle City Light (SCL), for safety and reliability reasons, recommends that trees planted under power lines should have a mature height of not more than 25 feet. However, trees that exceed that requirement continue to be planted. Two reasons are cited for this problem. First, subject matter experts within SCL were not reviewing capital improvement program (CIP) landscape planning documents. Secondly, the Seattle Department of Transportation's tree planting list, which is used for the department's tree planting decisions, differs from what SCL and other utility jurisdictions believe are the appropriate size trees to plant under power lines.
- **Providing public outreach and education**: According to the Urban Forest Management Plan, the majority of Seattle's current trees and the greatest potential for planting new trees are on private property. That's why the City's public outreach and education program has a significant role in encouraging people to take care of their existing trees and plant more trees on private property. According to officials from other jurisdictions that face similar situations, public outreach and education are the only means to seriously increase tree resources. The Office of Sustainability and Environment (OSE) is responsible for the City's public education program. Despite its limited resources, it has been doing a good job in reaching and educating the public. There is no OSE employee who focuses on public outreach and education on a full-time basis. As a result, OSE will likely not be able to sustain the momentum gained in its initial efforts. Additional public outreach and education activities are supported through individual City department programs in Parks and SDOT.
- **Conducting a tree inventory**: A thorough inventory of Seattle's trees has not been conducted. The urban forest in Seattle is a complex system of trees, site conditions, and maintenance requirements. Understanding this system is important for proper decision-making regarding species selection, maintenance, and replacement practices. By accumulating, updating and using this information, urban forest managers can forecast trends, anticipate maintenance needs, facilitate budgeting for tree-related expenditures, and develop a basis for long-range planning.
- **Strengthening the City's management framework for implementing the Urban Forest Management Plan:** While the City has identified tree management as one of its priorities and individual departments are working to

improve tree canopy coverage and sustain tree growth, the City's current management framework is not effective for the current challenges it faces. Without an effective framework for tree management issues, the City cannot be assured that its current efforts will be fully implemented and will significantly improve tree sustainment and expand the tree canopy. The City's current approach to tree management is decentralized, with oversight and management responsibilities diffused among several City departments.

During our audit fieldwork, we found that the organizational structure established in the Urban Forest Management Plan was not functioning as designed. The Sustainability and Environment Sub-cabinet re-convened in February 2009 providing the organizational structure envisioned by the Urban Forest Management Plan. It is also not clear where leadership for the City's urban forestry program's authority and accountability resides. Finally, an effective comprehensive tree management strategic plan has not been developed. While the Urban Forest Management Plan states that it is a strategic approach, it lacks specific critical elements of an effective comprehensive plan.

A discussion of our findings and recommendations can be found in Chapter V, and our conclusion in Chapter VI.

We received formal responses to this audit from the Office of Sustainability and Environment, the Seattle Department of Transportation, and the Department of Parks and Recreation. These responses can be found in Appendix VI.

IV. Background

The non-profit conservation organization, American Forests, believes trees are indicators of a community's ecological health.[4]

Appendix II contains information about the benefits of an urban forest.

American Forests has documented the loss of tree cover in more than 40 U. S. metropolitan areas.[5] It advocates that every city set tree canopy goals to ensure that green infrastructure is maintained at minimum thresholds, even as urban areas continue to grow. They recommend an average 40% tree canopy in the Pacific Northwest.[6] The

[4] American Forests is the nation's oldest nonprofit citizens' conservation organization. Citizens concerned about the waste and abuse of the nation's forests founded the association in 1875. It is a world leader in planting trees for environmental restoration, a pioneer in the science and practice of urban forestry, and a primary communicator of the benefits of trees and forests.

[5] http://www.americanforests.org/resources/urbanforests/analysis.php; "These reports calculate the ecosystem services provided by trees and their associated landscapes. The calculations use scientific and engineering models developed by agency experts in hydrology and air quality. The analysis starts with a detailed map of the land cover classified from high resolution satellite and aerial imagery. The land cover classification of the imagery produces a detailed map of the structure of the land.

[6] http://www.americanforests.org/resources/urbanforests/treedeficit.php

following table shows the tree canopy goals of cities in which American Forests analyzed the urban ecosystem.

Table 1: Canopy Goals for Other Cities (includes Seattle)

City	Baseline/Current average canopy cover (measurement year)	Canopy goal established by jurisdiction
Seattle WA	18 % (year 1996)[7]	30% (2037)
Portland OR	26% (2002)	33% (target year not yet determined)
Sacramento CA	35% (1993)	Not yet established
San Diego, CA	13% (2002)	25% (5/19/2005 San Diego City Manager's Report)
San Jose CA	25% (2007)	Not yet established
Washington DC	22% (1999)	Not yet established
New York City[8]	24% (2006)	Goal of increasing number of trees by 1,000,000; not a canopy goal increase (2016)
Chicago IL	13-16% (2007)	Not yet established

Urban Forest Management Plan mandates steps.

Issued in 2007, the Urban Forest Management Plan is a product of the Seattle Urban Forest Coalition[9], a working group representing various City departments with tree management or regulatory responsibilities. Over five years, this coalition tried to assess current conditions, and set goals to help ensure successful long-term management of Seattle's trees. The plan's primary goal is to increase Seattle's canopy cover by identifying goals, recommendations, and actions that will preserve, restore, and enhance the urban forest over the long term. The Coalition designed the plan's strategy around four principles:

- Sustainability is a broad goal that results in the maintenance of environmental, economic, and social functions and benefits over time.
- Urban forests primarily provide services rather than goods.
- Sustainable urban forests require human intervention.
- Trees growing on private lands compose most of urban forests.

The 2007 Urban Forest Management Plan is still in draft form because it has not been adopted by ordinance. Therefore, the merits of the plan and its recommendations are still at issue and subject to review and potential amendments.

The Urban Forest Management Plan's purpose is to guide a broad range of actions that will achieve a sustainable urban forest in Seattle. The 30-year plan is the first plan for

[7] The City recently completed a satellite canopy assessment and the preliminary result (which used 2007 data) shows an approximate 23% canopy cover.

[8] All five boroughs: Queens, Brooklyn, Staten Island, Bronx, Manhattan

[9] The Urban Forest Coalition was formed in 1994 to provide a venue for coordinating development of tree-related policy, programs, and budget initiatives that need Citywide direction. It is a cooperative effort of nine City departments that have tree management responsibilities.

preserving, managing, and improving the condition of Seattle's urban forest.

The Urban Forest Management Plan sets an ambitious schedule of requirements on City departments. It calls for a comprehensive framework—one that includes understanding the characteristics and complexity of Seattle's urban forest, facilitating communication and cooperation between City departments, and enhancing public awareness. Canopy cover in Seattle has declined to about 18 percent. To achieve the overall goal of 30 percent canopy cover in 30 years, the plan defines goals and sets short-, mid-, and long-term actions to achieve these goals. The plan's short term actions to implement within the first 5 years include:

- Improving maintenance of City-managed trees
- Increasing tree planting
- Improving the City's internal communication and management structure regarding tree issues
- Increasing community engagement in tree policy and planning
- Strengthening incentives and regulations for tree preservation and planting on private property
- Increasing community outreach about the value of trees and proper tree selection, planting, and care.

Increasing tree canopy is particularly difficult because most of it needs to occur at single family homes.[10] Currently, the City's tree protection and replacement regulations for private property are inadequate. The table below is a citywide snapshot of current canopy cover percentages by land-use type or what the plan calls a management unit. It also shows the estimated number of current trees and the estimated number of new trees needed, by management unit, to meet the 30-year canopy cover goal.

Table 2: Canopy Cover Goals for Seattle by Management Unit

Land –use category	% of Current cover	Current trees	30-year goal	Estimated # of new trees to meet goal
Single-family	18%	473,300	31%	350,200
Multi-family	13%	103,400	20%	56,000
Commercial Mixed Use	8%	49,700	15%	44,400
Downtown	9%	9,700	12%	3,800
Manufacturing Industrial	8%	68,100	10%	18,100
Institutional properties	15%	14,600	20%	5,000
Parks: developed sites	19%	90,000	25%	28,400
Parks: natural areas	64%	568,700	80%	143,200
Citywide	**18%**	**1,377,500**	**30%**	**649,100**

[10] Seattle's Urban Forest Management Plan reports that the greatest loss of Seattle's tree canopy has been from private property.

Many stakeholders are involved in managing Seattle's trees.
Many City departments and local organizations play a role in preserving, restoring, and enhancing the urban forest. The list of stakeholders within the City is quite diverse. The two departments most concerned with City trees are the Seattle Department of Transportation, which is responsible for street trees and right of way, and the Parks and Recreation Department which manages thousands of acres of City property, most of which includes trees. Table 3 below shows the different responsibilities that Seattle departments have in managing trees.

Table 3: Selected City Departments with Tree Management Activities

Department and its major tree-related responsibilities	Selected tree-related activities
Seattle Department of Transportation (SDOT) ▪ Responsible for design, installation, and stewardship of trees and landscapes in the public right-of-way. ▪ Responsible for planting and maintaining 35,000 street trees, and regulating the planting and maintenance of another 90,000 street trees.	• Maintains 35,000 street trees with two, 3-person tree crews. • Regulates planting, pruning, and removal of street trees through SDOT's permitting process. • Incorporates trees in new street projects and preserves trees along the City's right of way. • Coordinates with private property owners on tree work permits and with contractors on tree planting and preservation issues, and assists with coordination of neighborhood projects and volunteers who maintain traffic circles and other street side plantings.
Seattle Parks and Recreation (Parks) ▪ Manages trees in 6,000 acres of developed parks, boulevards, natural areas, and other publicly-owned open spaces. It includes 90,000 trees in developed parks and over 500,000 trees in the forested areas of parks.	• Maintains park trees with three, 3-person tree crews. • Manages the Forest Restoration Program which is designed to restore the long-term health of forested parklands. • Maintains forest restoration and trail maintenance with a 3-person Pro Parks Levy-funded crew. • Responds to citizens' and City staff inquiries on tree-related maintenance issues, such as view pruning, hazard trees, and damaged trees.
Seattle Center ▪ Manages trees on a 74-acre campus designed for public use and as a major event and festival space where large crowds impact trees.	• Manages the health and maintenance of 945 trees including tree planting, pruning, and removal of dead and diseased trees.
Seattle City Light (SCL) ▪ Manages trees in the utility corridor to maintain electrical safety and reliability.	• Prunes and trims trees for electric line clearance. • Removes trees when an electrical line is down. • Operates a tree replacement program.
Seattle Public Utilities (SPU) ▪ Manages trees along creeks in the City to maintain riparian (interface between land and a stream) and fish habitat.	• Manages the Urban Creeks Legacy Program which focuses on the relationship between an urban forest and a natural drainage system of streams, lakes, and Puget Sound. • Manages the Natural Landscape Program (aimed at the public) and its construction practices associated with installing water and

	sewer lines under right-of-way planting strips.
Office of Sustainability and Environment (OSE) ▪ Collaborates with City agencies, business groups, nonprofits, and others to develop and implement the Mayor's priority sustainability initiatives: climate protection and urban forest restoration and management.	• As chair of the Urban Forest Coalition, OSE is tasked with promoting interdepartmental coordination, and supporting policy/program consistency with the Mayor's Environmental Action Agenda. • Prepares citywide urban forest budget summary and Budget Issue Papers for new budget requests.
Department of Neighborhoods (DON) ▪ Manages the Tree Fund, a component of the Neighborhood Matching Fund.	• Provides trees to neighborhood groups to enhance the City's urban forest.
Department of Planning and Development (DPD) ▪ Enforces regulations relating to trees on private property.	• Reviewing and revising the City's tree protection and replacement regulations for private property.
Fleets and Facilities Department (FFD) ▪ Manages trees on general municipal purpose properties owned by the City.	• Maintains trees in coordination with SDOT, Parks, or landscape vendors, as appropriate.

Seattle's private and non-profit sectors are responsible for a wide array of tree related activities. For example, Plant Amnesty conducts training sessions on how to properly prune and care for trees, provides private citizens with arborist referrals, and partners with the City through the Seattle Heritage Tree Program.[11] Table 4 below lists key private and non-profit organizations with examples of the tree related activities they perform.

Table 4: Selected Private Sector Stakeholders with Tree Management Activities

Stakeholders	Selected Tree Related Activities
Plant Amnesty ▪ A non-profit organization to stop improper pruning of trees and shrubs. They also have many programs to raise general awareness of the value of trees and how to care for them so that they can live long and healthy lives.	▪ Partners in Seattle Heritage Tree Program. ▪ Conducts trainings on proper tree pruning and tree care. ▪ Delivers presentations to garden clubs and community groups. ▪ Sends brochures on pruning. ▪ Uses media for public announcements on the organization's activities. ▪ Provides a referral service to link people with arborists and gardeners. ▪ Conducts different activities, e.g., Arbor Day, Tree Festival. ▪ Prints 2 or 3 major articles per year on trees. ▪ Engages volunteers in tree related activities.
Seattle Audubon ▪ A non-profit organization that cultivates and leads a community that values and protects birds and the natural environment.	▪ Leads Tree Blog on the City's reLeaf website.
Cascade Land Conservancy	▪ Partners with the City in the Green Seattle

[11] The Heritage Tree program was initiated by Plant Amnesty in partnership with the City. Heritage Trees may be on either City or private property. Each candidate tree is assessed by a certified arborist and evaluated by a committee. Trees can be nominated as an individual or a collection and must meet criteria for health in addition to other selection categories. Currently, there are 59 Seattle Heritage Trees.

▪ Washington's largest independent land conservation and stewardship organization.	Partnership (20-year effort to restore 2,500 acres of Seattle's forested parks, builds community support for long-term park stewardship and passes on a legacy of community service to future generations). ▪ Engages volunteers in tree planting and removing invasive plants.
Emerald City Task Force ▪ Made up of 12 representatives of the architecture, landscape architecture, development and tree care professions.	▪ Critiqued the City's existing tree regulations, and provided recommendations to DPD as it updates tree regulations.
Nature Consortium ▪ A locally-based, grassroots organization whose mission is to teach environmental lessons through the creative arts and hands-on conservation projects.	▪ Accomplishes its mission through an Urban Forest Restoration program in the West Duwamish Greenbelt, a Youth Art Program (environmentally influenced art classes) and the annual Arts-in-Nature Festival. ▪ Engages volunteers in planting trees, mulching, and removing invasive plants.
EarthCorps ▪ A Seattle-based non-profit organization with a mission to build global community through local environmental service.	▪ Plants trees, shrubs and groundcover. ▪ Removes and controls invasive plants. ▪ Engages volunteers in mulching and removing invasive species.
Seattle Parks Foundation ▪ A private, non-profit organization dedicated to improving and expanding Seattle's parks and green spaces.	▪ Publishes brochures on tree related issues ▪ Manages tree donations to City parks through their Tree Donation Program.
Individual Property Owners	▪ Plant new trees in their yards and street right-of-ways. ▪ Properly maintain trees. ▪ Remove dead and diseased trees and invasive plants. ▪ Adopt traffic circles.
Neighborhoods	▪ Coordinate neighborhood tree planting projects, such as DON projects. ▪ Adopt traffic circles.

City of Seattle departments of Transportation, Parks, City Light, and others have varying degrees of influence over and responsibility for the urban forest. The successful planning and implementation of projects and policy modifications require constant, in depth coordination across the City's government. Also, successful implementation of the Urban Forest Management Plan requires broad support and participation from all sectors of the community. In addition to the activities of government departments and non-governmental organizations, property owners, and neighborhoods can help to achieve the plan's goals.

Many actions have been taken or are underway to address tree preservation.
Since the issuance of the Urban Forest Management Plan the City stakeholders involved in tree management issues have undertaken many actions to move toward the ultimate goal of 30 percent tree canopy coverage. City departments have made strides in implementing the plan's goals. The various City stakeholders have begun to strengthen such areas as tree planting and maintenance, interdepartmental cooperation, and public education and outreach. These efforts extend across several City departments, but the

levels of effort vary from department to department. See Appendix III for actions that key City departments have taken and are underway to strengthen the City's management of trees.

V. Findings and Recommendations: Challenges the City Faces in Implementing the Urban Forest Management Plan

Propelled by a strong sense of urgency to increase tree canopy, City departments have accomplished a considerable amount in a short time. However, they face many challenges in implementing the Urban Forest Management Plan. While the City will resolve some of these challenges over time, there are other challenges that may prove to be considerably more difficult to overcome. Six of the greatest challenges involve:

- Developing new tree protection and replacement regulations for private property;
- Determining how to pay for tree management efforts;
- Coordinating between different stakeholder interests, both within and outside the City;
- Expanding the City's public tree outreach and education programs;
- Conducting a tree inventory; and
- Establishing a stable and effective management framework to implement the Urban Forest Management Plan.

Finding 1
Implementing new regulations is an important next step for tree preservation.

The Urban Forest Management Plan establishes the goal of increasing the city's tree canopy. The plan tasked the Department of Planning and Development (DPD) with evaluating the existing tree protection regulations that govern tree retention on private property.[12] As part of this effort, the City convened a group made up of architects, landscape architects, developers, and tree care professionals and established the Emerald City Task Force. They were tasked by DPD to improve the existing private property tree protection and preservation regulations and to inspire more tree planting and care. In December 2007, the Task Force submitted a letter to the City recommending changes to the current tree regulations regarding private property owners.

Following the Task Force's recommendations, DPD began a project to review all current regulations and to develop and propose new ones.[13] This project led DPD to recognize

[12] According to the Urban Forest Management Plan, the greatest loss of Seattle's tree canopy has been from private property.

[13] This includes the review of the street tree ordinance to better preserve and protect street trees. An updated version of the ordinance will be included in the citywide regulatory review process.

that significant short-term loss of trees is endangering long-term goals of tree retention and preservation. Prior regulations focused primarily on sites undergoing development and allowed substantial removal of trees on sites not undergoing development. They also gave developers an incentive to remove trees before submitting a development permit application on sites subject to development.

Since DPD's project began, the Mayor proposed interim tree regulations in September 2008 which the City Council passed in February 2009. The interim regulations will close a loophole used by developers to take down trees before applying for a development permit. They restrict tree removal on single-family zoned lots of more than 5,000 square feet, as well as on low-rise and mid-rise multifamily and commercial zoned properties. The interim regulations:

- Expand the definition of exceptional trees to include more trees with substantial canopy as well as groves of trees,
- Prohibit the removal of exceptional trees outside of a development permit;[14]
- Prohibit the removal of more than three non-exceptional trees, for trees 6 inches or greater in diameter, in one year when not associated with a corresponding development permit,
- Change the standards and process requirements for issuing notices of tree protection violations to make them consistent with the process used for other City Land Use and Stormwater Code violations,
- Change the maximum criminal penalty for an individual who has been convicted of a previous violation from $500 to $5,000, and
- Allow for treble damages where tree removal is willful or malicious.

Most recently, the City has slowed the regulations development process to wait until a new thorough canopy cover analysis is completed. Currently, the City has been using the data on canopy cover from 2001. Therefore, the City cannot say for certain what the current canopy cover is and whether it is better or worse than what existed in 2001 and whether current regulations are working or not. An up-to-date, accurate canopy cover figure will also help the City convince the public of the need for any new regulations.

It is anticipated that the new regulations will be proposed in late 2009 with a final proposal to follow. Before the regulations are finalized and approved they will go through a comprehensive review process by not only the Mayor and City Council but environmental groups, developers, and private citizens. Also, according to the DPD official responsible for developing the regulations, DPD will conduct an analysis to determine the resources necessary to fully implement the new regulations, which will be presented to the Mayor's Office and City Council for consideration.

[14] Trees proposed for removal under a development permit application will be reviewed under separate existing tree regulations.

Recommendations:

1. The City should adopt new tree regulations for tree protection on private property. (The Office of City Auditor recommends follow-up of this item at the end of 2009.)
2. The Department of Planning and Development needs to conduct an analysis to determine resource needs for implementing the new tree regulations. (The Office of City Auditor recommends follow-up of this item at the end of 2009.)

Finding 2
Funding issues are pivotal for implementing the Urban Forest Management Plan.

Funding is a challenge to implementing and sustaining effective tree management, according to City officials and tree management experts. While some tree improvements are inexpensive, most require substantial and continuous funding. For example, the Urban Forest Management Plan estimates that it will cost $114 million to plant the 640,100 trees needed to meet the 30-year goal.

Since 2000, levies passed by Seattle voters have provided funds to City departments for tree projects. The $198.2 million Pro Parks Levy, approved in 2000, provided funding for a tree crew to perform preventive maintenance on selected trees in City parks between 2000 and 2008. SDOT plans to use funds from the $365 million 2006 Bridging the Gap levy for tree projects. Over the 9-year life of the levy, SDOT plans to prune 25,000 street trees to prevent safety and security hazards and plant 8,000 trees.

The City approved $1.5 million in Capital Improvement Program funding for the 2007-2008 biennium for the Green Seattle Partnership to restore 2,500 acres of forested parkland and to ensure it is sustained by proper long-term maintenance and community stewardship. Recently, the City approved an additional $3.5 million for the Green Seattle Partnership for the 2009-2010 biennium.[15]

However, demand has far outstripped the additional amounts made available. For example, the Parks and Recreation Department requested approximately $800,000 and $500,000 from the City's General Fund for an additional tree crew to perform necessary maintenance on trees for the 2007-2008 and 2009-2010 biennium's, respectively.[16] The budget requests were not funded. Also, SDOT requested approximately $1.1 million for a tree crew for the 2009-2010 biennium and it was not funded. According to a Department of Finance official, the current economic environment made it impossible to fund the tree crews though they are important in the City's effort to carry out an effective tree management program. In the 2007-2008 biennium, Seattle Center received capital

[15] The City of Seattle relies on a variety of sources to finance capital projects, such as locally generated revenues (property taxes, fees, voter-approved bonds, and user charges), intergovernmental revenues (including state and federal grants), and debt issuance.

[16] The City of Seattle's General Fund is supported primarily by taxes, such as property taxes, sales taxes, and business and occupation taxes.

funding for a tree replacement program, to replace damaged and diseased trees. However, they did not receive funding to enable them to meet the Mayor's 2 for 1 tree replacement policy.[17]

According to officials from the departments responsible for carrying out the plan, insufficient funding is probably the main obstacle to effective management of City trees. Department officials agreed that the largest inadequately funded activity is tree maintenance, even though it is the activity that can do the most to improve the immediate health of urban trees.[18] According to Parks officials, without a sufficient number of tree crews they spend only about 5 percent of their time on proactive maintenance (preventative trimming, including structural pruning, reducing cycle time, etc.). The remaining time is used for reactive maintenance which includes about 30 percent of Parks' time for removing risk trees/branches or cleaning up after their fall, and 65 percent of its time performing corrective pruning. Corrective pruning includes removing dead and dying branches, removing cross branches, or removing limbs that are overhanging streets, homes, or facilities.

An important benchmark for urban forestry program performance is how often staff prune trees. The industry standard for tree pruning is every 5 to 7 years. The advantage of shorter pruning cycles is longer living, healthier trees that provide maximum environmental, economic, and social benefits. If SDOT had received funding for its requested additional tree crew, this would have enabled it to maintain an average 10-12 year pruning cycle, while with no funding by 2014 the cycle will be 16 years. Parks faces the same dilemma as SDOT. According to Parks, if their request was funded, the pruning cycle would have been reduced from 17-18 years to 13 years. According to SDOT and Parks officials, their pruning cycles will result in inadequate tree maintenance and the removal of many trees much earlier than with a more frequent pruning cycle.

Recommendation:

3. If the City wants to achieve 30 percent tree canopy coverage in 30 years, it will need to provide the necessary funding. However, given limited City resources, decision-makers will need to determine the highest tree management spending priorities.

Finding 3
Shared responsibilities place a premium on effective cooperation and coordination.

Effective cooperation and coordination on tree management issues is essential, though not ensured, among City departments and between the City and outside stakeholders. Urban forestry management impacts utility and transportation infrastructure that compete for limited space in the public right-of-way. This infrastructure includes overhead and underground power lines, trolley lines, roads, sidewalks, trails, drainage and waste water

[17] The Mayor's 2 for 1 tree replacement policy requires that two trees replace each tree removed on City-owned property.

[18] Maintenance includes pruning, fertilizing, damage repair and control of pest problems.

pipes and vaults, and telecommunication equipment. Conflicting and individual goals exist between City departments and outside agencies, and even within departments. Regulatory requirements also pose challenges to urban forestry management. Without effective partnerships and collaboration, the City's ability to meet urban forest and sustainability goals is compromised.

Examples of Partnership Breakdowns

The management of Seattle's urban forest, which is a vital part of the City's infrastructure, is divided among several departments. Transportation, City Light, Parks, Seattle Public Utilities, and the Department of Planning and Development have the most influence over and responsibility for the urban forest. Most of these departments need to work in the limited public right-of-way and face challenges because of actions taken by other City departments that have different goals. For example:

1. SCL cited conflicts with SDOT about selecting trees that grow to a height greater than 25 feet, thus requiring more frequent pruning to prevent safety and reliability problems for power lines;
2. SDOT Street Maintenance cited conflicts with SDOT Urban Forestry about selecting street trees that are too large for their planting space. The conflict is about whether these trees will eventually cause damage to pavement, sidewalks, and curbs, and certainly compromise sidewalk safety and accessibility.
3. SDOT cited conflicts with SPU and SCL about how the placement of underground drainage and electrical infrastructure (such as water mains and waste water pipes under planting strips, and electrical vaults) limits available planting space because a five feet clearance is required between trees and underground utilities; and
4. SDOT cited conflicts with SCL about installing street lights too close to existing trees, thus requiring pruning to maintain street illumination.

City departments' tree management partnerships can break down even when procedures are in place. The first two examples above illustrate the need for effective cooperation and coordination between City entities.

Tree Conflicts with Overhead Power Lines

According to City officials responsible for tree selection, planting and maintenance, conflicts with overhead and underground utilities are common problems when improper species are planted. These officials stated that the City also continues to plant trees that will grow too large for their space. For example, SCL recommends that trees planted under most power lines should have a mature height of not more than 25 feet because much of the electrical distribution system is 35 feet in height and State code requires a 10 foot clearance.[19] Trees, like humans, contain much moisture and are prime conductors

[19] Washington Administrative Code requires a minimum of 10 feet clearance for lines rated 50 kilowatt or below and City Light contractors who are Certified Line Clearance Trimmers prune vegetation to that specification. Only Electrically Qualified workers are allowed to perform that work. According to City

for electricity. Overhead electric wires are not insulated and direct contact as well as indirect contact with a tree branch can cause electrocution. Trees directly touching power lines put constant stress on live wires, disrupt electrical flow, can cause outages and burn branches, sometimes causing fires in trees. We observed several locations (i.e., street trees in the public right-of-way and privately planted trees on private property) where trees were burnt because the power lines are too near the trees. Also, trees taller than power lines that are too close to the line can be blown over in high winds, pulling the line down from supporting towers or poles, even while the line remains energized—thus creating a very dangerous, life threatening situation for an unaware passerby. According to the SCL official that accompanied us on our tour of Seattle neighborhoods, the trees we observed that were causing problems, which were planted in the 1970s and 1980s, are still being planted under power lines.

During our tours, we visited two locations where trees were planted as part of two new transportation projects. For the most part, the types of trees planted were appropriate. However, according to a SCL official, in both projects some improper tree species were planted under the power lines. The official said that while these trees are not currently 25 feet in height, at full maturity they will exceed that height in approximately 20 to 30 years. We discussed this situation with SCL and SDOT officials, who noted that their departments use two mechanisms for identifying inappropriate trees before they are planted. First, during the Capital Improvement Program (CIP) review process, involved City departments can raise concerns about tree selection. The officials stated that SCL could have, but did not, raise concerns during the project's review process. An SCL official noted that internal bureaucracy at SCL did not direct the planning documents to the appropriate unit for review. Although SCL reviewed the landscape portions of CIP plans, SCL's Vegetation Management unit, which has the expertise to raise concerns about inappropriate trees being planted, did not review the plans. According to SCL officials, since this has been brought to their attention, SCL has begun discussing how to improve its procedures so that the appropriate unit will review the CIP landscape planning documents.

The second mechanism to help ensure that appropriate trees are planted is the City's tree list. This list, known as the Recommended Seattle Tree Planting List, was developed by SDOT and shows trees recommended for planting within the planting strip area. The list includes a variety of tree species, shapes, and sizes. However, some of the trees on the list at maturity will exceed 25 feet in height, and as a result, conflict with what SCL and other utility jurisdictions believe are the appropriate size trees to plant under power lines. According to SDOT officials, while they use the list as criteria for tree planting, they realize in some instances SCL will have to prune the trees when they exceed 25 feet in height.

SCL believes that the City should have learned from the mistakes made with trees planted in the 1970s and 1980s; unless more appropriately sized trees are planted under and around power lines, time and money will be spent maintaining non-suitable trees for the

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Light's web site, trees exceeding 25 feet could cause safety and reliability problems in the future and will have to be trimmed.

next 30 to 50 years instead of being used to increase the tree canopy. SCL recommends that SCL and SDOT review the list and agree on the appropriate trees that can be planted under power lines, which would reduce pruning required by state law to maintain a ten foot clear zone around power lines.

According to SDOT officials, they realize some trees they are planting may need future trimming around power lines, but they are trying to find a balance between maximizing tree canopy and the amount of pruning necessary by SCL. These officials believe selecting the most appropriate tree for a particular site is often a professional opinion, which could involve compromise. For example, SDOT has suggested planting trees that grow to a maximum height of 30 feet, which would maintain a distance of 5 feet under the power lines, not require constant trimming, and also maximize tree canopy. According to SCL and SDOT officials, they will review the Recommended Tree List during the first quarter in 2009, and also seek input from the Urban Forest Coalition. The officials said that they will produce the new tree list by the end of the second quarter.[20]

Tree Conflicts with Sidewalks

Another example of the need for effective cooperation and coordination between City entities is the conflict between preserving the safety and accessibility of sidewalks and accommodating tree growth and preservation. Various City tree management officials, as well as those from other jurisdictions, stated that the costs of tree maintenance and damage to trees caused by hardscape (pavement, sidewalks, and curbs) can be reduced through better matching of tree types to where they are planted. Larger street trees are often placed in planting spaces that have no expansion capacity. This leads to premature tree decline and/or hardscape damage, and also causes pedestrian accessibility in some instances to fall below Americans with Disabilities Act (ADA) standards.[21] To put the sidewalk issue into perspective, Seattle has 33,296 block faces with a paved sidewalk and about 130,000 street trees.[22] [23] A 2008 urban village sidewalk survey found that of 9,831 block faces, 23 percent had sidewalks with tree root uplifts. Although private development and abutting property owners are helping to make spot repairs on sidewalks, an SDOT briefing[24] stated that with current Bridging the Gap sidewalk repair funding levels, it would take the City over a thousand years to fix the sidewalks at an estimated cost of over $48 billion.[25] Even with this extensive backlog of sidewalk repair, Bridging

[20] According to the SDOT Urban Forestry manager, SDOT plans to review state laws governing tree clearances from power lines as well as utility industry standards relating to power line clearances and obtain input from SCL, other departments, and other SDOT divisions on the tree list before it is approved. Also, they plan to document the CIP project review process for obtaining input from other departments for new tree plantings.

[21] The Americans for Disabilities Act (ADA) of 1990 mandates the establishment of minimum walkway clearance widths.

[22] SDOT Street Maintenance Sidewalk Survey conducted in 2007.

[23] City of Seattle Urban Forest Management Plan p. 27.

[24] Extrapolated from 2007 Sidewalk System Summary, SDOT Street Maintenance, Charles Bookman, October 22, 2007.

[25] SDOT has recently conducted a condition survey of sidewalks distress in urban villages. Preliminary results from the survey indicate that 22.9 percent of sidewalks have tree root heaves of 3 to 5 percent in longitudinal slope (which is about 2 to 3 inches over a 5 foot distance). Within that set 10 percent have heaves greater than 5 percent. The results were extrapolated from the urban village data to Seattle's larger

the Gap levy funding is only available until 2015.[26]

Data from the City's Risk Management Office shows that the number of sidewalk fall claims has been rising since 2003. Risk Management records indicate that approximately half of the sidewalk fall claims are related to tree roots. The City Director of Risk Management stated that he has discussed the issue of both SDOT divisions (Urban Forestry and Street Maintenance) adopting planting standards to minimize future sidewalk damage from trees. Table 5 below shows sidewalk claims and settlements related to trees between 2003 to 2008.[27]

Table 5: Sidewalk Claims and Settlements Related to Trees

	Fall on Sidewalk Claims		**Fall on Sidewalk Claims related to Trees**		
Year	**# of Filings**	**Amount Paid to Claimants**	**# of Filings**	**Amount Paid to Claimants**	**% of Tree-Related Sidewalk Claims vs. Sidewalk Claims**
2003	54	$ 39,615	25	$ 11,138	46%
2004	58	$ 175,461	19	$ 127,700	33%
2005	67	$ 99,602	32	$ 19,887	48%
2006	82	$ 93,075	32	$ 50,129	39%
2007	75	$ 74,774	24	$ 4,380	32%
2008	81	$ 109,650	34	$ 24,279	42%
Total	**417**	**$ 592,177**	**166**	**$ 237,513**	40%

In addition, according to a City Law Department official, there were 104 pedestrian fall cases filed between 2003 and 2008 with a total cost to the City in judgments, settlements and litigation expenses of $2,534,940.52. The official stated that many of these pedestrian falls were caused by sidewalk offsets caused by the levering action of tree roots.

Damage caused by trees and hardscape add to the sidewalk repair backlog even as new and current projects come on line. Sidewalk damage may occur a few years after construction, as a tree reaches its desired size, or at tree maturity depending on tree selection and site conditions. In order to reach Urban Forest Management Plan canopy goals, street trees are often planted in planting spaces that may meet standard plan requirements at planting, but are not adequately sized to support the long-term growth of

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32,737 block-face sidewalk system which yields around 7,496 city sidewalks with tree root uplift issues. The cost to completely rebuild 7,496 block faces of sidewalk is approximately $495 million. Seattle's current dedicated sidewalk repair budget of funds replacement of 15 to 25-sidewalk block faces per year.

[26] Bridging the Gap is a nine-year, $365 million levy that addresses years of deferred maintenance caused by chronic under-funding of transportation infrastructure.

[27] As of January 1, 2009, there were 22 open claims for the category "fall on sidewalk claims related to trees."

a healthy tree or sustain the useful life of other infrastructure. We visited several locations throughout the city to observe damage caused by trees being planted in too small a planting space. We also visited more recent plantings in which trees, according to an SDOT official, were planted in too small a space. The official stated that as a result, damage to the sidewalk will occur.

SDOT officials agree that everything possible needs to be done to ensure that the proper trees are planted to reduce hardscape damage and to maximize the benefits of the trees.[28] However, SDOT needs to define planting and setback standards for trees that are accepted throughout the department. According to SDOT officials, the City should be making tree selection decisions to maximize the return on investment from both trees and infrastructure. For this to occur there needs to be collaboration between SDOT divisions that repair damage to sidewalks (Street Maintenance) and those that design or manage trees (Urban Forestry).

To address the competing priorities between the Street Maintenance and Urban Forestry Divisions, SDOT developed a Memorandum of Understanding (MOU) between the two divisions in 2007. [29] Although the divisions agree on overall goals for tree planting, canopy cover, and tree preservation, they have professional differences of opinion on the type of trees to plant, planting pit size, and setbacks from built infrastructure, and when trees should be removed. The MOU establishes a process for resolving differences that arise between the two divisions. However, the MOU's effectiveness is unknown because, according to both SDOT divisions, it was not used during its first year. Also, both divisions note that in its current form, the MOU is intended to resolve issues related to pruning or removing existing trees and does not address planting of new trees. According to SDOT Urban Forestry and Street Maintenance managers, there is a need for the MOU to address the planting of new trees. Furthermore, SDOT has initiated an effort to develop and adopt clear guidelines and standards for tree planting to ensure that trees at maturity will not exceed the capacity of the planting space and to limit conflicts resulting from professional differences of opinion. According to an SDOT manager, SDOT has finalized the draft guidelines, and will discuss them during the May 2009 Urban Forest Coalition meeting. In addition, before the meeting, SDOT's Urban Forestry Division will meet with both SDOT'S Street Maintenance Division and Seattle City Light's Vegetation Management unit to receive feedback on the draft guidelines.

New Methods Being Explored to Reduce Conflicts

In addition to the importance of partnerships between City departments, numerous practices are being considered to address conflicts between trees and infrastructure. For example, Parks, SDOT, and SPU are currently installing root barriers and flexible sidewalks. They are also investigating engineered solutions that would enable them to

[28] According to SDOT officials a certain amount of damage to sidewalks from tree root uplifts is acceptable, but the City needs functional sidewalks.

[29] This Memorandum of Understanding between the SDOT Street Use and Urban Forestry Divisions and the SDOT Street Maintenance Division describes support services that the Urban Forestry section will provide to Street Maintenance, December 14, 2007. This MOU addresses the process for resolving issues for existing trees and not issues that may arise regarding future tree plantings.

add soil volumes beneath sidewalks as another potential solution to roots buckling sidewalks and to promote stormwater retention. In exploring these alternatives, it was suggested by City officials that a cost-benefit analysis for the lifecycle of trees may be a valuable tool to use in making decisions to address conflicts that arise.

Recommendations:

4. SCL needs to review its current process for reviewing the landscape portions of CIP plans to ensure that its Vegetation Management unit is included in its review process. (The Office of City Auditor recommends follow-up of this item in 6 months.)
5. SCL and SDOT need to review the current Recommended Tree Planting List and come to agreement on the appropriate trees to plant under power lines. (The Office of City Auditor recommends follow-up of this item in 6 months.)
6. SDOT Urban Forestry and Street Maintenance Divisions need to revise the MOU process between the two divisions to address resolving differences of opinion on new tree plantings. (The Office of City Auditor recommends follow-up of this item in 12 months.)
7. SDOT needs to finalize and adopt new tree planting guidelines that are consistent throughout the department.

Finding 4
The Urban Forest Management Plan's education and outreach program is still in its preliminary stage.

To achieve urban forestry goals, City government needs the support of its citizens. In Seattle, as in most cities, the overwhelming majority of the trees that make up the urban forest are on private property and the greatest potential for planting new trees is also on private property. For all practical purposes, the care of these privately owned trees is up to the residents of the community. A local government cannot completely control tree management on private lands, but it can take steps to promote proper management of privately owned trees. Educational and outreach programs are positive ways to encourage new tree planting in addition to good tree care within the community.

The Office of Sustainability and Environment (OSE) is responsible for leading the City's public outreach and education program for the Urban Forest Management Plan and providing a common message for City departments to convey to the public concerning trees. According to an OSE official, public education and outreach is paramount in the City's effort to sustain and expand the City's tree canopy. Since the Urban Forest Management Plan's inception it has been a priority for OSE. However, there is no full-time position within OSE for public outreach and education. Rather, since the beginning of 2007, the official carrying out those activities was responsible for many other OSE activities, such as policy and budget decisions and developing annual work programs. In mid-2008, a temporary employee from the Parks and Recreation Department (Parks) was added to OSE for six months to assist with the public education and outreach program. During this period, the individual focused primarily on working with the public by participating in community events such as street fairs, festivals, neighborhood clean ups,

and business employee fairs. During those events, OSE distributed brochures informing people about tree issues.

OSE has developed and implemented public outreach and education with limited resources, and will require adequate resources to continue this effort.[30] OSE will have fewer resources in 2009 than in 2008 for these efforts. According to OSE officials, in 2009 OSE will lose the temporary position that had been filled by a Parks employee, and as a result, its outreach efforts will be limited.[31] According to officials from Seattle as well as other jurisdictions, because the maintenance and care of most of a city's trees is the responsibility of private property owners, public outreach and education are the only means to significantly increase and maintain trees. These officials stated that implementation of an effective outreach and education program requires at least a full-time permanent position if the City of Seattle is interested in meeting its canopy goals.

During the past two years, OSE has taken the initial steps, such as developing a communication plan, to carry out the public outreach and education program. Because nine departments are involved in the Urban Forestry Management Plan's implementation, the communication plan contains strategies which help to make messages to the public more coherent and consistent, improve public access to information related to tree preservation and care, and increase public involvement in planting and maintaining trees on both public and private land. Also, in April 2008, OSE initiated the reLeaf campaign which included developing a website to improve public access to tree information, creating brochures addressing tree benefits and tree selection, planting and care information, and supporting the creation by high school students of a documentary film on the West Duwamish Greenbelt restoration project. In 2008, OSE expanded its efforts by surveying environmental stakeholders on the message that the City should be providing to the public about trees. Also, OSE published articles in City and community newsletters, launched radio spots informing the public about the importance of trees, displayed information posters around the City in public gathering places including restaurants, coffee shops, libraries, nurseries, community centers, parks, and busses. In addition, OSE and SDOT have cooperated in giving classes at local nurseries on tree selection and maintenance.

OSE has conducted seasonal outreach efforts. In the spring it conducted demonstrations on how to prevent and care for tree damage. In the summer it emphasized watering and choosing the proper tree, while in the fall it demonstrated tree planting and mulching. During an event in the International District, OSE and the United States Forest Service provided free trees to people but, most importantly, helped each individual select the correct tree for their residence. In addition, City libraries have been used to disseminate information on different tree events or classes. According to the official carrying out these activities, she has been able to reach communities in such places as West Seattle,

[30] In addition to OSE's efforts, Parks, as part of its environmental stewardship mission, continues to educate the public about the urban forest through the Green Seattle Partnership and its Environmental Learning Centers.

[31] To replace the temporary/loaned position, OSE reported in May 2009 that it had hired a graduate student with professional work experience in urban forestry outreach and community tree programs.

Ballard, South, Central, and South East Seattle, and citizens who haven't participated in previous city activities dealing with trees. Also, this official conducted a survey of Department of Neighborhoods' tree plantings for the past three years. The survey covered approximately 550 of the 1,500 trees distributed as part of the Tree Fund Program from 2005-2007. The survey, which documented the condition of each tree, is being used to improve the information distributed for the Tree Fund Program.

Recommendation:

8. To implement education and outreach activities for the UFMP, the City needs to fund a full-time position to implement education and outreach activities for the Urban Forest Management Plan.

Finding 5
A complete tree inventory has not been conducted.

According to the tree experts we interviewed, a sound urban forestry program requires, as a first step, a tree inventory to determine the extent, condition, and needs of the urban forest.[32] The urban forest in Seattle is a complex system of trees, site conditions, and maintenance recommendations. Understanding this system is important for proper decision-making regarding species selection and tree care practices. By accumulating, updating, and using information collected by a tree inventory, urban forest managers can forecast trends, anticipate maintenance needs, facilitate budgeting for tree-related expenditures, and develop long-range plans.

For example, a United States western city conducted an inventory of its street trees before its urban forest management plan was completed and found that the overall health of its trees was below average. The primary reasons for this low rating were many topped trees, high volumes of dead wood in the crowns of many trees, extensive trunk decay in older trees, and damage to younger trees. As a result of the inventory and its findings, the city developed and implemented an urban forestry program and policies to improve its existing tree canopy.

The City of Seattle's current tree inventory is not complete. Acquiring reasonably accurate information for City-managed trees requires adequate staffing and budget. The Urban Forest Management Plan stated that a complete and up-to-date inventory is essential to good resource management and for that reason it placed a high priority on obtaining the inventory information. Parks, SDOT, and the Seattle Center are performing or have recently completed tree inventories. Parks has inventoried trees in approximately

[32] The tree inventory identifies the current health and condition of trees. Based on the inventory city staff prioritize management activities to: a) remove dead trees, b) remove trees identified as immediate or scheduled removal, c) work to improve the health of trees in poor condition, and d) enhance the maintenance program for young trees during the establishment phase to increase survival rates and reduce future maintenance needs (e.g., pruning to train form of young trees or correct structure problems).

10 to 15 percent of its developed parks.[33] According to a Parks official, based on current funding, it will take many years to perform a complete tree inventory. According to information we received from SDOT in May 2009, it has completed an inventory on about 37,000 street trees it is responsible for. This is approximately 26 percent of the street trees in Seattle. Seattle Center has completed a tree inventory of its 74-acre campus.

City of Seattle departments are currently engaged in a satellite tree canopy assessment of Seattle. According to City officials, the canopy assessment coupled with judicious and statistically valid sampling of individual trees should provide a reliable measure of the size and health of the City's urban forest.

The April 2007 Urban Forestry Management Plan states that a comprehensive tree inventory hadn't been done on Seattle's private and public lands. It also stated the need for an inventory and that preserving the City's existing canopy is an important part of Seattle's goal to restore canopy cover to 30 percent. Specifically, the plan noted that a current inventory of tree locations, species, age, health, and size is critical for planning tree replacement, pruning, disease management, and planting.

According to officials from a consulting company (Davey Resource Group) that assists cities in developing urban forest management plans, the completion of a tree inventory is essential to avoiding a fragmented tree program that lacks the information on tree resources that need to be managed. Furthermore, with an inventory, decision makers have access to the same information, so that better decisions can be made on who needs to play what role and what resources are needed. Officials from several City departments agree that an inventory is an essential first step and that without it, you don't know if the correct priorities have been established and funded.

A complete inventory is an important database that will be useful in managing trees and ensuring their health. However, the database can become obsolete quickly if not updated to account for changes in the tree population resulting from planting and removal activities. City officials and outside stakeholders suggested that the City invest resources to maintain the database by updating records as work is performed on trees or as trees are removed or planted. Updated field inventories would help keep the database current, and would also allow the City to maintain better records on which trees are performing the best and have the longest lifespan. These data can be used to improve species selections, reduce maintenance costs, and increase tree longevity. Finally, the primary benefit of an accurate tree inventory is that the City can use it to budget and plan for tree related problems and situations in the most cost-effective manner possible. More details about performing a tree inventory are contained in Appendix V.

Recommendation:

9. The City needs to conduct an inventory of City-managed trees.

[33] According to the Parks Superintendent, performing a tree-by-tree inventory of its forested parklands would be impractical. He added that Parks has a detailed survey of forested parklands which was completed in 2001 and the survey has proven effective in planning for work in forested parklands.

Finding 6
The City's management framework for implementing the Urban Forest Management Plan can be strengthened.

While the City of Seattle has identified tree preservation and increased tree canopy as priorities and individual City department efforts are under way to implement these priorities, the City's current management framework is not effective for guiding and overseeing these efforts. Without an effective management framework for tree issues, the City cannot ensure that its current efforts will be fully implemented and significantly improve tree sustainment and expand Seattle's tree canopy to 30 percent.

Specifically, we found that the City's current approach to tree issues lacks:

1. A stable management structure to ensure that the Urban Forest Management Plan receives the needed attention to be implemented. From February 2008 to February 2009, only two of the three organizational entities delineated in the Plan, the Urban Forest Coalition, and the Office of Sustainability and Environment were operational, while the Sustainability and Environment Sub-cabinet was not.
2. Top leadership with the authority and accountability to best ensure implementation of the Urban Forest Management Plan. We found that there was no agreement within City government or in the public about where program leadership resides. While the Office of Sustainability and Environment believes they have the authority and accountability for the Urban Forest Management Plan's implementation, this is not widely known within City government and to the public.
3. A comprehensive plan for trees that aligns individual department efforts with City-wide goals and priorities, and establishes approaches or strategies in the pursuit of shared goals and performance metrics.

A stable, effective management framework for implementing the plan is needed. During our audit fieldwork, the management framework established in the Urban Forest Management Plan was not functioning as designed. Only two of the three organizational entities delineated in the Plan, the Urban Forest Coalition and the Office of Sustainability and Environment (OSE), were operational; the Sustainability and Environment Sub-cabinet was not operational from February 2008 to February 2009.[34]

The Urban Forestry Management Plan establishes a management framework which includes three entities: the Urban Forest Coalition (UFC), the Office of Sustainability and Environment, and the Sustainability and Environment Sub-cabinet (Sub-cabinet). Together, these entities are designated to work together to implement the Urban Forest

[34] OSE could not provide any Sub-cabinet agendas or meeting minutes to substantiate that meetings were held. However, according to the Acting Director of OSE, Sub-cabinet meetings were operational in 2007 until February 2008.

Management Plan. The table below lists the roles and responsibilities of the three entities according to the plan.

Table 6: Roles and Responsibilities of Urban Forest Management Plan Management Framework Entities

Entity	Roles and Responsibilities
Urban Forest Coalition	▪ Functions as responsible body for Urban Forest Management Plan implementation. ▪ Holds monthly meetings attended by representatives from 9 City departments that have tree responsibilities (Parks, SDOT, Seattle Center, SCL, SPU, OSE, DON, DPD, and FFD). ▪ Reports quarterly to its executive level advisory board (Sub-cabinet) ▪ Develops an annual work plan for City departments. ▪ Coordinates program-based biennial budgets that bring together all the initiatives and proposals from the different departments. ▪ Reports to the Sub-cabinet for annual work plan approval and performance reviews. ▪ Presents specific projects and initiatives pertaining to plan implementation to the Sub-cabinet for review and comment.
Office of Sustainability and Environment	▪ Provides interdepartmental coordination. ▪ Chairs the UFC and Sub-cabinet. ▪ Develops and implements overall message and strategy for communication and outreach efforts to outside community.
Sustainability and Environment Sub-cabinet	▪ Serves as executive level advisory body for UFC. ▪ Holds monthly meetings attended by City department heads. ▪ Provides input to UFC on key program development and policy issues. ▪ Meets with the UFC quarterly. ▪ Approves UFC's annual work plan. ▪ Reviews UFC's performance. ▪ Reviews and comments on UFC's special projects and initiatives pertaining to Urban Forest Management Plan implementation.

UFC meetings were held approximately monthly in 2008 according to OSE officials. However, UFC members reported that not all department representatives regularly attend. Attendees also reported that UFC meetings are informative because representatives report their individual department's tree activities. We could not obtain UFC agendas and meeting minutes for the period since the Urban Forest Management Plan's inception in 2007. As a result, we couldn't determine the issues that were discussed and those that needed to be addressed or resolved at higher levels.

UFC members reported that policy issues are rarely discussed at their meetings, and that there is no mechanism for elevating issues that need resolution to a higher level because the Sustainability and Environment Sub-cabinet was not functioning between February 2008 and February 2009. Therefore, when differences of opinion arise between departments, such as the issue discussed earlier in this report between SDOT and SCL on the type of the trees planted under power lines, there was no established process for elevating them for resolution. During that time, the departments were left to resolve their differences on their own.

The OSE Acting Director said that although the Sub-cabinet did not meet between February 2008 and February 2009, OSE assumed executive leadership for the UFC on

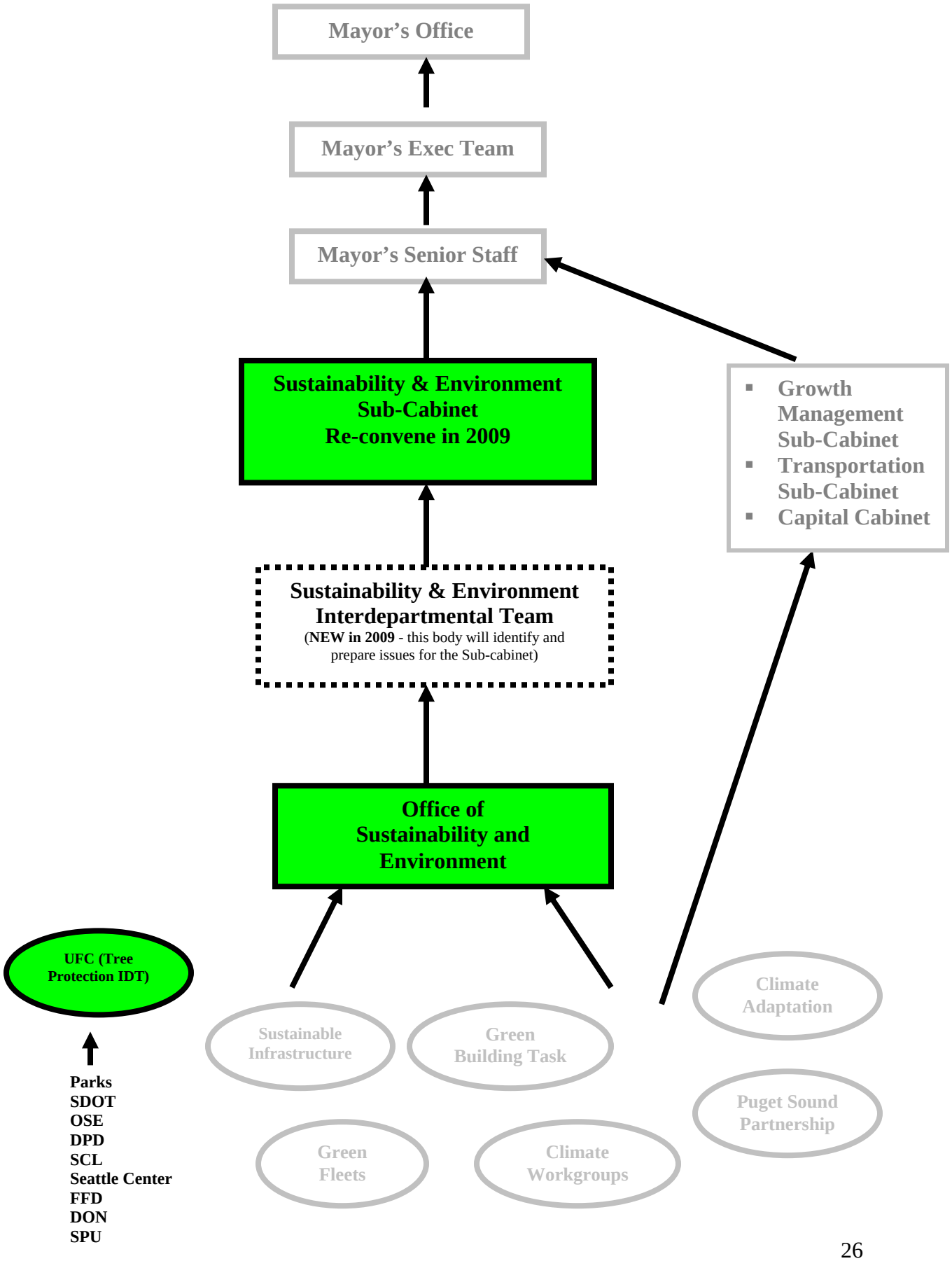
policy issues and, when necessary, raised issues to Senior Staff and the Mayor's Executive Team. [35] In reviewing OSE's documentation regarding its meetings with executive leadership since the inception of the 2007 Urban Forest Management Plan, we identified two such meetings in October 2008. OSE stated that the Sustainability and Environment Sub-cabinet resumed regular meetings in February 2009.[36]

OSE stated that the Sub-cabinet was not operational in 2008 because OSE had a heavy workload with climate change issues and did not have the resources to manage Sub-cabinet meetings. OSE also noted that in 2009, the Office of Policy and Management is assuming some of the staffing activities, and the Department of Finance will be managing both the new Sustainability and Environment Interdepartmental Team[37], which will identify and prepare issues for Sub-cabinet discussion, and the Sub-cabinet.

The OSE Acting Director and the Parks Superintendent agreed that the Sub-cabinet is needed because it provides a forum for resolving tree-related issues raised by the UFC and City department heads. The Parks Superintendent said that although there are UFC meetings on tree issues, policy issues are not discussed, and without a higher-level forum for these discussions that includes department heads, a clear citywide consensus on policy and operational conflicts regarding trees will not occur. For example, he cited a need for City departments to coordinate more closely with each other on what types of trees to plant and to develop a citywide policy on this issue. He noted that while his department still treats elm trees for Dutch Elm disease in developed parklands, his department is also removing elms from natural areas because they are non-native and invasive. He stated that while he questions his department's internal policy regarding elm trees, he is also not aware of what other City departments' policies are regarding elm trees. Another policy issue cited by the Parks Superintendent is the need to develop common definitions of terms across City departments, such as when a tree is a hazard or risk. Having a citywide policy on this is important because the City's response to these situations is dependent on a common definition. The Parks Superintendent stated that coordination of tree priorities across City departments is also needed so that the highest priority projects are funded. For example, he noted that his department requested an additional tree crew for the 2009-2010 budget cycle without knowing what the needs of other departments were.

The following chart shows the Urban Forest Management Plan organizational framework. The green shaded boxes are the three entities established in the plan and the dashed box represents a new entity established in 2009, the Environment and Sustainability Interdepartmental Team.

[35] http://www.seattle.gov/mayor/newsdetail.asp?ID=2333&dept=40
[36] Since the completion of this audit, meetings have been held in February, March, and April 2009.
[37] OSE has broadened the focus of its Climate Interdepartmental Team (Climate IDT) to include all sustainability and environmental issues, which includes urban forestry issues, and renamed as the Sustainability and Environment IDT. The IDT will identify issues that the Sustainability and Environment Sub-cabinet will need to address and in some cases, resolve.


Mayor's Office
Mayor's Exec Team
Mayor's Senior Staff
Sustainability & Environment Sub-Cabinet
Re-convene in 2009
Growth Management Sub-Cabinet
Transportation Sub-Cabinet
Capital Cabinet
Sustainability & Environment Interdepartmental Team
(NEW in 2009 - this body will identify and prepare issues for the Sub-cabinet)
Office of Sustainability and Environment
UFC (Tree Protection IDT)
Parks
SDOT
OSE
DPD
SCL
Seattle Center
FFD
DON
SPU
Sustainable Infrastructure
Green Building Task
Climate Adaptation
Puget Sound Partnership
Green Fleets
Climate Workgroups

Top City leadership should drive the Urban Forest Management Plan's implementation.

The City's current approach to tree management is decentralized, with oversight and management responsibilities diffused among several City departments.[38] This lack of a single point of management for citywide tree efforts has caused frustration for the public and City officials who are faced with questions and problems concerning trees. The Urban Forest Management Plan also does not clearly identify a single citywide focal point with program authority and accountability. Although the Mayor made OSE's Director responsible for implementing the Urban Forest Management Plan[39], Urban Forest Coalition (UFC) members and a high-level City official we interviewed were not aware that OSE is directly accountable for the plan's implementation. Several UFC members stated that because OSE is the City's lead agency for environmental issues, it would be the logical entity to lead and be held accountable for the implementation of the Urban Forest Management Plan.

According to the OSE Acting Director, OSE is responsible for the development and implementation of the Mayor's Environmental Action Agenda[40] in which enhancing the urban forest is a top priority. The Acting Director believes that OSE is responsible for developing citywide program policy and budget priorities regarding trees, and has the authority to help resolve conflicts between City departments on tree issues. According to City Council Central Staff, OSE should be taking an active role in overseeing solutions for the types of conflicts raised in this report. The Acting Director plans to take steps in 2009 to strengthen OSE's role in managing the program. They include the re-establishment of the Sustainability and Environment Sub-cabinet which will bring together City department heads responsible for implementing the Urban Forest Management Plan on a regular basis. By doing so, he believes that the City will be able to address any issues or conflicts in an effective and timely manner. In addition, OSE has broadened the focus of its Climate Interdepartmental Team (Climate IDT) to include all sustainability and environmental issues, which includes urban forestry issues, and has renamed it the Sustainability and Environment IDT. In 2009, this IDT met February, March, and twice in April. The IDT will identify issues that the Sustainability and Environment Sub-cabinet will need to address and in some cases, resolve.

The City needs to have a single, executive-level official or entity that has clear authority and accountability for 1) implementing the Urban Forest Management Plan's goal to reach a 30 percent canopy in 30 years, 2) setting the program priorities, and 3) resolving conflicts. Although OSE believes that they have the authority and accountability for the Urban Forest Management Plan's implementation, within the City and among the public there is confusion about where program leadership resides. Effective leadership will help establish the direction, pace, and tone for implementing the plan and provide a clear focal point to unite all the City departments behind a single mission. The effectiveness of

[38] See Table 3 in Chapter IV Background, which outlines various departmental roles and responsibilities for tree management oversight.
[39] Accountability Agreements (2007, 2008, 2009) for OSE Directors.
[40] http://seattle.gov/html/citizen/departments.htm#environment

OSE's leadership will be a key factor in determining whether the plan is successfully implemented.

The City needs to strengthen implementation plans to guide future Urban Forest Management Plan efforts.

The City has not developed a comprehensive plan for implementing the Urban Forest Management Plan. According to a U.S. Government Accountability Office report, there is no more important element in results-oriented management than an entity's planning effort.[41] Effective municipal programs require well articulated, comprehensive, and integrated implementation plans. Six of the most important components of such plans are:

- A comprehensive mission statement,
- Goals and objectives,
- Strategies (or approaches) to achieve the goals and objectives,
- Performance metrics/assessments to measure/assess progress,
- Key external factors, and
- Program evaluations used to establish or revise strategic goals.

See Appendix V that further describes the key questions that need to be considered in developing each of these components.

The Urban Forest Management Plan states that it is "a roadmap for a strategic approach to manage Seattle's urban forest… (and) the plan contains goals and supporting actions that are critical to the long-term vitality of the forest".[42] However, the Urban Forest Management Plan is not a comprehensive implementation plan because although it clearly addresses its mission and goals, it does not address:

- Strategies to achieve its goals and objectives,
- Performance measures to measure progress,
- External factors that could impact the plan, and
- Ongoing program evaluations to establish or revise the plan.

We assessed the Urban Forest Management Plan according to how well the six key components of a good implementation plan were addressed:

Table 7: Assessment of the Components of the Urban Forest Management Plan

Plan Component	Description	Office of City Auditor Comments	Assessment Rating
Comprehensive Mission Statement	The mission statement explains why the plan/program exists and tells what it does.	The Urban Forest Management Plan (plan) clearly states that its purpose is to "guide a broad range of actions that will achieve a	**Clearly addressed**

[41] U.S. Government Accountability Office, Agencies' Strategic Plans Under GPRA: Key Questions to Facilitate Congressional Review, GAO/GGD-10.1.16 (Washington, D.C.: May 1997).
[42] UFMP, p. 95

		sustainable urban forest in Seattle. This is a 30-year plan that recommends the steps the City of Seattle must take to preserve Seattle's trees and the cherished environment…"	
Goals and Objectives	Goals and objectives explain what results are expected from the plan/program and when to expect the plan/program's results.	The plan clearly states that its primary goal is to increase the city's tree canopy cover to 30% in 30 years, by identifying goals, recommendations, and actions that will preserve, restore, enhance, and sustain the urban forest over the long term. The plan clearly lists the goals and recommended actions (short-, mid-, and long-term) and by management units.	**Clearly addressed**
Strategies to achieve goals and objectives	Strategies describe the human resources, processes, expertise, technologies, and capital needed to achieve the goals and objectives. Strategies also describe how the plan/program translates the goals and objectives into specific activities so that managers and staff can be held accountable.	The plan clearly lists the goals and recommended actions (short-, mid-, and long-term) and by management units but it does not describe the methods, means, and resources to reach the overall 30 percent tree canopy goal in 30 years.	**Partially addressed**
Performance Metrics/Assessments to measure/assess progress	This component describes measures to assess progress towards achieving goals and objectives. Annual performance goals will be used to gauge progress and its impact on long-term goals.	While OSE collects and synthesizes metrics for the annual work plan it establishes for individual City departments, these metrics do not address performance measures for evaluating and monitoring <u>overall</u> progress in meeting the 30 percent tree canopy in 30 years.	**Not addressed**
Key External Factors	This component identifies and discusses external factors that could	The plan does not identify external factors not identified or discuss potential impacts.	**Not Addressed**

	impact the plan and could significantly affect achieving goals and objectives.		
Program evaluations used to establish or revise strategic goals	This component describes evaluating the program's progress to provide decision-makers, 1) information that assesses if the program's goals and strategies are still valid and reasonable and 2) if and what adjustments need to be made to meet the overall goals.	The plan states it will be updated every 5 years, but contains no description of program evaluation(s) to be performed, if any, and how the findings will be used.	**Not addressed**

Both the OSE Acting Director and the City's Finance Director confirmed that the City lacks a comprehensive implementation plan for reaching its 30 percent canopy goal in 30 years. Although the OSE develops an annual work plan, department officials said that because there's no comprehensive implementation plan they are not aware how the annual plan's efforts fit with the 30 percent canopy goal. By not having a comprehensive implementation plan, the City cannot know whether it is on track for meeting its goal, and what adjustments are needed.

The City needs to develop a comprehensive implementation plan for reaching its canopy goal. An effective implementation plan will specify the processes, expertise, technologies, and capital needed to reach the goal. An effective implementation plan will also define a program performance review and evaluation system to track the plan's progress. Without a performance monitoring and evaluation system, the City cannot effectively make program and budget decisions, adapt to changing conditions over time, or effectively communicate with decision-makers and the public about the Urban Forest Management Plan's progress.

Recommendations:

10. The City needs to re-establish the Sustainability and Environment Sub-cabinet and to set a regular meeting schedule.
11. Agendas and minutes should be kept for all meetings, including Urban Forest Coalition and Sub-cabinet meetings.
12. The Mayor or the City Council needs to clarify the Office of Sustainability and Environment's roles regarding its authority and accountability for implementing the Urban Forest Management Plan.
13. The City needs to develop a comprehensive implementation plan for trees that aligns and integrates individual department efforts with Citywide goals and priorities, establishes approaches or strategies to achieve the goals, and evaluates progress through performance metrics for implementing the Urban Forest Management Plan.

Summary of Findings and Recommendations

Finding 1: Implementing new regulations is an important next step for tree preservation.

Recommendations:

1. The City should adopt new tree regulations for tree protection on private property. (The Office of City Auditor recommends follow-up of this item at the end of 2009.)
2. DPD needs to conduct an analysis to determine resource needs for implementing the new tree regulations. (The Office of City Auditor recommends follow-up of this item at the end of 2009.)

Finding 2: Funding issues are pivotal for implementing the Urban Forest Management Plan.

Recommendation:

3. If the City wants to achieve 30 percent tree canopy coverage in 30 years, it will need to provide the necessary funding. However, given limited City resources, decision-makers will need to determine the highest tree management spending priorities.

Finding 3: Shared responsibilities place a premium on effective cooperation and coordination.

Recommendations:

4. SCL needs to review its current process for reviewing the landscape portions of CIP plans to ensure that its Vegetation Management unit is included in its review process. (The Office of City Auditor recommends follow-up of this item in 6 months.)
5. SCL and SDOT need to review the current Recommended Tree Planting List and come to agreement on the appropriate trees to plant under power lines. (The Office of City Auditor recommends follow-up of this item in 6 months.)
6. SDOT Urban Forestry and Street Maintenance Divisions need to revise the MOU process between the two divisions to address resolving differences of opinion on new tree plantings. (The Office of City Auditor recommends follow-up of this item in 12 months.)
7. SDOT needs to finalize and adopt new tree planting guidelines that are consistent throughout the department.

Finding 4: The Urban Forest Management Plan's education and outreach program is still in its preliminary stage.

Recommendations:

8. To implement education and outreach activities for the UFMP, the City needs to fund a full-time position to implement education and outreach activities for the Urban Forest Management Plan.

Finding 5: A complete tree inventory has not been conducted.

Recommendations:

9. The City needs to conduct an inventory of City-managed trees.

Finding 6: The City's management framework for implementing the Urban Forest Management Plan can be strengthened.

Recommendations:

10. The City needs to re-establish the Sustainability and Environment Sub-cabinet and to set a regular meeting schedule.
11. Agendas and minutes should be kept for all meetings, including Urban Forest Coalition and Sub-cabinet meetings.
12. The Mayor or the City Council needs to clarify the Office of Sustainability and Environment's roles regarding its authority and accountability for implementing the Urban Forest Management Plan.
13. The City needs to develop a comprehensive implementation plan for trees that aligns and integrates individual department efforts with Citywide goals and priorities, establishes approaches or strategies to achieve the goals, and evaluates progress through performance metrics for implementing the Urban Forest Management Plan.

VI. Conclusion

Seattle's urban forest is an important and valuable resource that has unfortunately suffered many decades of decline. However, proper planning and management can reverse this decline and ensure that the City's trees will provide sufficient benefits for Seattle's residents. Increasing the tree canopy in Seattle is not a short-term or easy project. There are many challenges that must be overcome. The City has a good start, but has a long way to go. While there is widespread support in City government for preserving and expanding its urban forest, it is likely that there will be tension between preserving trees and expanding the tree canopy versus removing trees for development. In light of these and other challenges associated with tree preservation, the City has begun increasing its efforts to finding a balance between expanding the urban forest and allowing urban development. Even with these efforts, the City will have difficulty addressing tree management challenges without a stable and effective management framework that is accountable for tree management issues on a citywide basis.

Without such a management framework, the City is not well positioned to effectively guide and oversee citywide tree management efforts to prioritize its efforts appropriately, identify critical gaps or duplication of efforts, and address long-term, large-scale tree issues. In particular, the management framework established in the Urban Forest Management Plan was not functioning as designed. Only two of the three organizational entities delineated in the Plan, the Urban Forest Coalition, and the Office of Sustainability and Environment were operational, while the Sustainability and

Environment Sub-cabinet was not. When the Sub-cabinet was not operating, the program did not receive executive-level oversight, coordination and policy direction. The City needs to have top leadership that is effective in implementing the plan. The City and public stakeholders also need to know who has the authority for implementing the plan and is accountable for its success. While the Office of Sustainability and Environment believes it has the authority and is being held accountable for the plan's implementation, this is not apparent to tree stakeholders. A clear, single point of leadership in the City that has the authority and accountability for tree issues and drives the program forward is key to the success of any initiative. Top leadership must set the direction, pace, and tone for the Urban Forest Management Plan's implementation and provide a clear focal point that brings together all City departments behind a single mission.

Another element missing from the management framework is a comprehensive plan that can help clarify City priorities and unify the City's departments in the pursuit of shared goals. In the coming years, it is likely that public resources for managing the City's urban forest and for achieving tree canopy goals will be extremely limited as these efforts compete against public safety, human services, and transportation needs. This makes it all the more important that the City has a comprehensive plan in place as part of an effective management framework. It is an essential tool that will assist the City in coordinating City department efforts effectively and efficiently. The plan will help City decision-makers make intelligent decisions with the limited resources available. With an effective, well-understood management framework in place, the City would be better positioned to address the current challenges it faces and to preserve, restore, and enhance the urban forest over the long term.

Appendix I: Objectives, Scope, and Methodology

The objectives of this report were to (1) provide an overview of the types of actions taken by the City of Seattle and other stakeholders to implement the Urban Forest Management Plan; (2) identify the challenges the City faces in attaining and sustaining Urban Forest Management Plan goals; and (3) describe approaches that may be useful for future tree management efforts.

To determine the progress made in implementing the Urban Forest Management Plan, we conducted interviews with City officials involved with implementing the plan. They included officials from Seattle Department of Transportation, Parks and Recreation, Seattle Center, Seattle City Light, Seattle Public Utilities, Office of Sustainability and Environment, Department of Neighborhoods, Department of Planning and Development, Fleets and Facilities Department, Department of Finance, and City Council Central Staff. Also, we reviewed numerous City documents tied to the plan and its implementation, including City ordinances, resolutions, regulations, budgets, planning documents, and reports. We also reviewed the City funding sources directed to the plan's implementation, including funding not in the City's base budget, such as funding from the Pro Parks and Bridging the Gap levies. We visited locations where trees were being planted and tree maintenance being performed. We were accompanied on our visits by officials from Seattle City Light, Seattle Public Utilities, Seattle Department of Transportation, Seattle Center, and Seattle Parks and Recreation. We determined that the selection of these sites was appropriate for our design and objectives and that the selection would provide valid and reliable evidence. We interviewed City officials in each location we visited about what actions were being taken to meet Urban Forest Management Plan goals. We interviewed other stakeholders outside of city government that were familiar with the actions being taken by the City to implement the Plan. They included a private consultant on tree matters for several jurisdictions, and officials from Plant Amnesty, the Seattle Audubon Society, and Seattle Tree Preservation.

To determine the challenges faced in implementing the Urban Forest Management Plan, we interviewed City officials responsible for implementing the plan, including individuals from the Seattle Department of Transportation, Seattle City Light, Seattle Parks and Recreation, Seattle Center, Seattle Public Utilities, Department of Planning and Development, Office of Sustainability and the Environment, Department of Neighborhoods, Fleets and Facilities Department, Seattle Center, Office of Risk Management, Department of Finance, and City Council Central Staff. We interviewed other stakeholders outside of city government that are familiar with the challenges being faced by the City to implement the Plan. They included Sound Tree Solutions, Inc., Plant Amnesty, Seattle Audubon, and Seattle Tree Preservation.[43] [44] In addition, we

[43] Sound Tree Solutions, Inc. offers arboricultural and urban forestry consulting services for the greater Puget Sound region. A broad range of services are offered ranging from individual tree risk assessment, appraisal, and tree selection to tree retention development and greenbelt or remnant forest management

conducted a literature search for other jurisdictions' urban forestry plans. We found plans for Baltimore, Maryland; Lacey, Washington; Leesburg, Virginia; Portland, Oregon; Syracuse, New York; Valley Center, Kansas; Vancouver, Washington; Walla Walla, Washington; and West Lafayette, Indiana. We reviewed each plan to determine the challenges (e.g., conducting a comprehensive tree inventory, funding, tree maintenance, education and outreach) they face in carrying out their plans. We interviewed officials from Milwaukee, Wisconsin; Cincinnati, Ohio; and Kirkland, Olympia, and Vancouver, Washington to discuss the challenges they face in implementing their urban forestry plans. We contacted officials from Portland, Oregon; Chicago, Illinois; New York, New York; Washington D. C.; and Sacramento, San Diego, and San Jose, California about the current or baseline canopy measurement for their urban forest program, and the canopy goals and timeframe for reaching their goal. We visited various City of Seattle locations where actions are being taken to plant trees and perform tree maintenance. We were accompanied on our visits by officials from Seattle City Light, Seattle Public Utilities, Seattle Department of Transportation, Seattle Center, and Seattle Parks and Recreation. We determined that the selection of these sites was appropriate for our design and objectives and that the selection would provide valid and reliable evidence. We interviewed the city officials in each location we visited to get their perspective on the challenges they face in meeting Urban Forest Management Plans goals.

To determine future actions the City could take to enhance its tree management efforts we conducted a literature search to find actions being taken by other jurisdictions. We found urban forestry plans for Baltimore, Maryland; Leesburg, Virginia; Portland, Oregon; Syracuse, New York; Valley Center, Kansas; West Lafayette, Indiana; and Lacey, Vancouver, and Walla Walla, Washington. We analyzed these plans to identify the best practices being used to carry out their urban forestry programs. Also, we interviewed officials from other jurisdictions to determine actions that contributed to the successful implementation of their plans. Officials from Milwaukee, Wisconsin; Cincinnati, Ohio; and Olympia, Kirkland, and Vancouver, Washington provided reasons for the success of their programs. We interviewed officials from two consulting firms, Davey Resource Group and Sound Tree Solutions, Inc., which advise jurisdictions on developing urban forestry management plans and carrying out successful urban forestry programs.[45] Finally, we interviewed City of Seattle officials responsible for implementing the forestry program to determine what they believe was needed for a successful program.

We conducted our audit fieldwork from April 2008 through January 2009.

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programs. Also the company offers tree ordinance and program development, mediation/facilitation, and consumer outreach and education.

[44] Seattle Tree Preservation is a company dedicated to the proper care of trees in the Seattle area urban forest.

[45] Davey Resource Group (DRG) was launched in 1992 to offer technical consulting to the utility, commercial, and municipal markets. DRG provides urban and utility forestry solutions, natural resources and environmental planning, research and development, and consulting services to utility companies and commercial properties. DRG also offers forestry and vegetation management consulting services and tree inventories.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Urban Forest Benefits

In an increasingly urbanized nation, urban forests provide an essential balance to the built environment and directly influence the daily lives of nearly 80 percent of the country's population.[46] Unlike timber forests, which are managed primarily to produce wood products, urban forests are managed for the services, such as air and water quality improvement, that they provide to city residents. The pressures on the urban forest are a direct result of their location in growing urban areas; without planning and management, much of the urban forest would be eliminated. Therefore, management intervention is necessary to keep city trees and urban forest lands sustainable and healthy. Increasing urbanization in the United States make it prudent for policymakers, planners, and managers at national, regional, and local levels to focus their attention on urban forest resources.

Effective management of the urban forest requires recognition of the diversity of land uses and landowners within the urban area and the interactions of policies, programs, and physical development. Whether connected by the logistics of managing urban infrastructure (for example, coordinating maintenance of urban trees and power lines, sewers, sidewalks, and roads), or by contributing to the overall character of the area, the urban forest links landscape with architecture and becomes an important component of urban planning.

Cities are realizing that the urban forest is an essential part of a livable and economically sound community. Urban forests are a complex resource, with multiple owners, a variety of landscape types, and site-specific management objectives. For example, trees in Seattle's urban forest affect the city's residents and their environment both directly and indirectly. Managed properly, this valuable resource can provide some or all of the following benefits:

Stormwater runoff reductions

Pollutants carried in stormwater runoff are the primary cause of degradation of our streams and rivers. Tree canopy reduces runoff and pollutants by intercepting and storing rainfall, increasing stormwater infiltration into the soil, transpiring back into atmosphere, and reducing the rate at which water reaches streams.

Air quality improvements

Trees absorb gaseous pollutants such as ozone, nitrogen oxides, and sulfur dioxide; and they filter particulate matter such as dust, ash, pollen, and smoke. Reductions in these pollutants results in improved public health and reduces the severity of ozone-induced asthmatic, responses and other respiratory illnesses.

Energy Savings

[46] Urban forest is comprised of the trees, shrubs and other vegetation in parks, along streets, in yards, on unbuilt properties and in urban natural areas.

Trees shade buildings and pavement, reducing the urban heat island effect and thereby decreasing the demand for electricity.[47] They also cool the air by releasing water vapor through transpiration. In Western Washington, trees strategically planted to shade buildings lower summertime air temperature between 5 and 9 degrees and reduce cooling costs by approximately 4 percent.

Economic benefits

Improving the aesthetics of our community has tangible economic benefits. Systems of open space and bike trails give a community a reputation for being a good place to live and visit. Increased recreational and community activity attracts new businesses and stimulates tourism.

Not all benefits are realized at all locations within a city. Improper design, lack of management, or lack of tree maintenance can increase costs and reduce urban forest benefits. Urban foresters often have direct control over street and park trees, which typically account for only 10 to 20 percent of the urban forest resource. However, urban foresters can help guide and direct the remaining portion of the urban forest, which is controlled by private landowners, through education outreach, financial incentives, ordinances, and assistance with planting, maintenance, and management.

[47] The Environmental Protection Agency describes the following as a heat island: "As urban areas develop, changes occur in their landscape. Buildings, roads, and other infrastructure replace open land and vegetation. Surfaces that were once permeable and moist become impermeable and dry. These changes cause urban regions to become warmer than their rural surroundings, forming an "island" of higher temperatures in the landscape."

Appendix III: Many Actions Have Been Taken or Are Underway in Seattle to Address Tree Preservation

The table describes the accomplishments in tree preservation by City departments for 2007 and 2008. Current and planned activities by the City to implement the Urban Forest Management Plan are also discussed.

Key City departments have taken steps to implement the Urban Forest Management Plan.

City departments have made strides in implementing the Urban Forest Management Plan's many objectives and actions. We received information from the departments on their progress in meeting established annual goals. Departments have made progress in areas such as tree planting and maintenance, identifying regulatory changes needed for the preservation of trees, convening teams for interdepartmental cooperation and coordination, and public outreach and education. Table 8 below shows some of the actions that have been taken and activities that are in process of being implemented to meet the Plan's annual goals.

Table 8: Goals and Accomplishments by City Departments

Entity	2007 Goals	2007 Accomplishments	2008 Goals	2008 Accomplishments
Parks, SPU, and OSE	Continue restoration on 162 acres of forested parklands and enroll 100 new acres into the Green Seattle Partnership restoration program.	Completed and 100 acres enrolled.	Continue restoration on 262 acres of forested parklands and begin restoration on an additional 125 acres.	Restoration continued on 264 acres and 120 new acres entered restoration.
Parks, SPU, and OSE	Begin restoration on 10 new acres of forested parklands.	Complete.		
Parks	Prune 3,600 trees.	Pruned 2,600 trees.	Prune 3,000 trees.	Pruned 2,043 trees.
SDOT	Prune 2,100 trees.	Pruned 2,530 trees.	Prune 3,000 trees.	Pruned 3,222 trees.[48]
SCL	Prune trees away from power lines along 157 miles of arterial streets.	Pruned 162 line miles.	Prune trees away from power lines along 210 miles of arterial streets.	Pruned trees along 301 miles of power lines.
Parks	Plant trees to meet Mayor's 2 for 1 Tree Replacement Policy.	723 trees planted, 450 trees removed (Mayor's policy not met)	Continue to plant trees and meet Mayor's 2 for 1 policy.	1,212 trees planted and 397 trees removed.[49] (Mayor's policy met.)

[48] SDOT restored 92 downtown tree pits to accommodate growing trees, or re-mulched to make them pedestrian-safe.

[49] Seattle Parks and Recreation Department also removed 300 trees from forested edge areas and planted more than 13,000 seedlings.

SDOT	Plant 500 trees and meet Mayor's 2 for 1 Tree Replacement Policy.	1,461 trees planted, 135 trees removed. (Mayor's policy met)	Plant 900 trees and meet Mayor's 2 for 1 policy.	927 trees planted and 16 removed. (Mayor's policy met.)
SCL	Plant 800 trees through the Urban Replacement Program and meet the Mayor's 2 for 1 Tree Replacement Policy.	546 trees planted and 20 trees removed. (Mayor's policy met)	Plant 600 trees and meet Mayor's 2 for 1 policy.	423 trees planted and 190 trees removed. (Mayor's policy met.)
DON	Plant 500 trees through DON's Matching Fund Program.	Planted 427 trees.	Plant 800 trees through DON's Matching Fund Program.	378 trees planted and 397 water bags distributed.
Seattle Center	Plant trees and meet the Mayor's 2 for 1 Replacement Policy.	28 trees planted and 30 trees removed. (Mayor's policy not met)	Plant trees to meet the Mayor's 2 for 1 Replacement Policy from prior year. Develop Landscape Management Plan including options to address and exceed tree canopy goals. Complete a tree inventory for the 74-acre campus.	41 trees planted and 32 trees removed. (Mayor's policy not met.) Worked with other City departments to meet the 2 for 1 tree replacement off-site. Landscape Management Plan draft completed (final to be issued in 2009). Tree inventory completed for the campus' 945 trees.
DPD	Convene Emerald City Task Force to recommend incentives and regulations to improve canopy cover on private property.	Complete.		
DPD	Identify and analyze potential regulatory changes (to enhance tree preservation and planting on private property) based on Emerald City Task Force input.	Underway.	Continue and release regulatory strategy for public comment, incorporate comments, draft legislation and forward to City Council.	Analysis was initiated and will be updated in 2009 based on new tree canopy cover data. A strategy will be released in 2009 after the new canopy cover data is incorporated.
OSE	Develop and implement performance monitoring system.	Complete.	Monitor performance annually.	Annual report for 2007 was released Arbor Day 2008.
SDOT	Update and maintain the street tree inventory of 35,000 City owned trees (4-year process).	26,000 trees inventoried on site and data entry will follow.	Continue inventory process.	Inventory process continues.
OSE	Convene Urban Forest interdepartmental team bi-monthly and brief	Ongoing.	Continue 2007 goal.	Urban Forest Coalition meets monthly (except

	Sustainability & Environment sub-cabinet as needed.			August), the Sustainability & Environment sub-cabinet was eliminated, but the Growth Management Sub-cabinet was briefed.
OSE	Develop key messages and speaking points.	Complete.		
OSE	Develop Communication Plan.	Complete.		
OSE	Modify city tree websites to strengthen connections between sites and improve access to information.	Complete.		
OSE	Create brochure addressing tree benefits and tree selection, planting and care information.	Complete.		
SCL	Provide City Light customers who will be impacted by tree trimming with information about line clearance pruning.	Complete.		
DPD	Provide tree benefit/tree replacement information to anyone who receives a permit to remove a street tree or as part of a DPD permit.	Materials complete, distribution beginning in 2008.	Begin distribution of materials.	Distribution will not begin until new tree protection regulations are adopted in 2009.
OSE	Partner with a nursery or a non-profit to present two tree information sessions.	Deferred to 2008.	Same goal as 2007.	Classes presented at two nurseries.
OSE	Partner with non-profit on a wide-reaching or replicable kid-oriented tree/art project.	Nature Consortium student documentary film complete.		
OSE	Mayor appoints tree professionals/advocates to Sustainability and Environmental Advisory Panel.	Not complete.	Continue 2007 goal.	Since the Sustainability and Environment Advisory Panel did not meet appointments were not made.
OSE	Identify opportunities for ongoing stakeholder involvement.	Stakeholder survey completed.	Engage stakeholders in urban forest issues.	Environmental stakeholders met to discuss regulatory approaches to improving tree canopy cover and working with Plant Amnesty and other stakeholders to produce community event in spring of

				2009. Seattle reLeaf participated in twelve community events. A tree blog and Ask-the-Expert features were incorporated into the website to engage the community.
OSE	Recruit and mange 51,000 hours of volunteer support through the Green Seattle Partnership.	60,000 volunteer hours.	Recruit and manage 95,000 hours of volunteer support through the Green Seattle Partnership.	78,000 volunteer hours.
OSE			Launch Seattle reLeaf campaign, with new website, brochure, poster campaign, realtor outreach, and articles in City and community newsletters.	All tasks completed.

The amount of effort involved in implementing these goals and actions has been considerable. For example, in 2005 the Mayor directed City departments to replace every tree removed from City property with two new trees.[50] In some cases, departments have been able to meet the Mayor's policy; however, in other cases they have not. According to several department officials, it takes considerable effort to find suitable city property to plant new trees to meet the 2 for 1 replacement policy.

The City has taken many actions and is considering others.

DPD is reviewing and revising the City's tree protection and replacement regulations for private property. According to the Urban Forest Management Plan, the greatest loss of Seattle's tree canopy has been from private property and many trees need to be planted on private property to meet the plan's overall goal of 30 percent tree canopy. DPD's efforts began by taking comments received during the development of the Urban Forest Management Plan. Next, the Emerald City Task Force was established by DPD to provide early input and guidance as the City began to critique existing regulations to explore options for improving the regulations.[51] The Task Force submitted a letter to the City in December, 2007, recommending changes to the current regulations regarding private property owners. As a result, DPD is now drafting a new regulation for City Council approval. DPD officials anticipate a new regulation will be proposed in late 2009.

[50] The Mayor's 2 for 1 replacement policy only applies to City-owned property.

[51] The Emerald City Task Force is made up of 12 representatives of the architecture, landscape architecture, development, and tree care professions.

Even before the adoption of the Urban Forest Management Plan in 2007, the City had passed levies and initiated programs and projects to enhance tree preservation:

- In 1994 the City allocated funds from the Cumulative Reserve Fund for the purpose of restoring forested parklands. This action was important for several reasons. For the first time trees were identified as City infrastructure assets. This made forest restoration eligible for funding. This action resulted in today's expanded Park's Forest Restoration Program.
- In 1994 Seattle's first Heritage Tree, a Japanese Umbrella Pine was recognized by the City Council.[52]
- In 1999-2000, Seattle implemented the Millennium Woods Legacy Project, which resulted in the planting of nearly 26,000 new trees throughout the city on both public and private property.
- In 2000 the Pro Parks Levy was passed by Seattle voters. The levy contained funding for a third crew in the Department of Parks and Recreation, creation of an Urban Forest Crew Chief position to supervise all Parks Department tree crews, and a 3-person Natural Area Crew dedicated to maintenance work within forested parklands.
- In 2001 the Seattle City Council passed, and the Mayor signed into law, a tree protection ordinance which applies to trees on undeveloped land and allows for the added protection of trees during development.
- In 2004 the Green Seattle Partnership was formed. The partnership is between the City and the Cascade Land Conservancy with a single goal of restoring 2,500 acres of forested parklands by the year 2025.[53]
- In 2005 Mayor Nickels issued an Executive Order directing City departments to replace every tree removed from City property with two new trees.
- In 2006, the voters passed a $365 million levy for transportation maintenance and improvements. Over the nine-year life of the levy SDOT will prune 25,000 street trees to prevent safety and security hazards, and will plant 8,000 new street trees.

[52] The Heritage Tree program was initiated by Plant Amnesty in partnership with the City. Heritage trees may be on either City or private property. Each candidate tree is assessed by a certified arborist and evaluated by a committee. Trees can be nominated as an individual or a collection and must meet criteria for health in addition to being selected according to several categories. Currently, there are 59 Seattle Heritage Trees.

[53] The Cascade Land Conservancy is Washington State's largest independent land conservation and stewardship organization.

Appendix IV: Conducting a Tree Inventory

A tree inventory is the gathering of accurate information on the health and diversity of the community forest. It answers questions such as how many trees are there? What kind? In what condition are they? A community forest cannot be effectively managed unless you know its condition. Tree inventories are an essential tool of good management. There are many good reasons for doing a tree inventory:

- To determine the need for a community forestry program. For example, if the inventory reveals many dead and diseased trees or areas that are bare of trees, this suggests that a program incorporating tree planting is badly needed.
- To prioritize maintenance schedules to reduce the potential liability that results from hazardous trees. It also streamlines the efficiency of street crews and facilitates long-term budgeting.
- To educate residents about the benefits of a healthy, well-managed community forest, and to inform them about the species best suited to the community.
- To facilitate the planning that is essential to the community's quality of life.
- To provide the basis for the development of a comprehensive community forestry management plan.

Only data that will be used should be collected. A community must determine what objectives it wishes to achieve before conducting an inventory. It must be recognized that information translates into expense: the more data gathered on each tree, the greater the cost of the inventory. Generally, however, information on the following is collected:

- Species: To avoid costly mistakes, record the scientific names of trees. Don't use common names or codes.
- Size: DBH (diameter at breast height—4.5 feet above ground), height and crown spread.
- Condition: Indicate what maintenance procedure is needed. Does the tree need corrective pruning? Does it require removal? It is important to note whether the tree is deemed to be a hazard to the public and removal is mandatory, rather than simply recording the tree as hazardous, it should be recorded as needing removal.
- Damage: Record insect infestations, injuries and diseases by indicating the precise procedure necessary.
- Maintenance: Record whether there is a need to fertilize, apply fungicide/insecticide, prune, repair curb and or sidewalk damage inflicted by roots, remove stump/tree, or plant in an empty planting site. Do so in order to schedule maintenance work, allocate equipment and prepare budgets.
- Site characteristics: How much space is available for root system? What is the condition and health of the soil in the planting space? The proximity of overhead/underground utilities and tall buildings? The potential for road salt/traffic damage? Is it zoned commercial?

- Planting spaces: Research suggests that a community should give highest priority to planting trees on streets where yard trees are few. Identify planting spaces to encourage the planting of bare areas.

Appendix V: Comprehensive Plan Components and Questions That Need to Be Considered in Developing Them

The following table provides key questions that City staff may find useful in developing a strategic approach to determine how the Urban Forest Management Plan can be improved to better support City decision-making regarding trees.

Table 9: Comprehensive Plan Components and Questions That Need to Be Considered in Developing Them

Plan Component	Key Questions
Comprehensive Mission Statement	▪ Is the mission results-oriented, and does it fulfill a public need? ▪ Is the mission based on statute? ▪ Are parts of City's functions or activities not covered in the mission statement? Why? ▪ Are there developments (e.g., in technology or competition) that suggest the mission needs to be revised or updated?
Goals and Objectives	▪ Are goals expressed in a quantitative or measurable form or in a manner that will allow assessment of whether the goals are achieved? ▪ Are all of the overall plan's goals and priorities consistent with the City's overall goals and priorities? When differences exist, why do they exist, and can they be resolved? ▪ What is/are the timeline(s) for reaching the goals and objectives?
Strategies to Achieve Goals and Objectives	▪ How are the goals to be achieved? Are the strategies logically linked to the goals and the day-to-day activities of the managers and staff? ▪ What steps will the City take to align its activities, core processes, workforce, and other resources to support its mission-related outcomes? ▪ What are the required resources, such as human, capital, and information? ▪ What steps is the City taking to ensure that managers have the authority they need to achieve results? Are there strategies to hold managers accountable for the results? Are there any strategies that focus on providing incentives for managers and other staff to achieve the goals? ▪ Are technological advances necessary to successfully execute the strategies? If so, how likely are those advances? ▪ What, if any, alternative strategies were considered? ▪ Are there programs or activities that need to be eliminated, created, or restructured to achieve the goals?
Performance Metrics/Assessments to Measure/Assess Progress	▪ Will annual performance goals be tangible or measurable? If not, is there an alternative form of performance

	assessment for the annual performance plan? Will the alternative provide some basis for assessing whether the goals were met? ▪ Does the plan describe how annual performance goals will be related to long-term goals, e.g., how annual goals will be used to gauge progress? If not, why not? ▪ Are long-term strategic goals clearly linked to annual performance plans and the day-to-day activities of managers and staff? For example, are key terms and performance measures defined? ▪ Are there revisions needed in current programs and activities? ▪ Are there revisions needed in how the program will be funded?
Key External Factors	▪ Does the City monitor external factors that may affect the plan? If not, why not? If it does, is the monitoring process likely to identify all the major factors? What have been the findings of this monitoring? ▪ Have any actions been identified that could reduce or mitigate the potential impact of external factors? ▪ Are the City's strategies for achieving its long-term goals properly reflective of external factors? For example, if changes in information technology make it possible to increase productivity, does the plan discuss how this change will be translated either into more progress in achieving results or into savings through downsizing the workforce? ▪ Does the City monitor internal factors? What internal factors within the control of the agency could affect achievement of the strategic goals?
Program Evaluations Used to Establish or Revise Strategic Goals	▪ Were program evaluation findings used in developing the strategic goals or other components of the plan? ▪ Are systems in place or planned to produce the reliable performance and cost data needed to set goals, evaluate results, and improve performance? For example, does the City have trend or baseline data that it can use to confidently set goals? ▪ Is there a schedule for future program evaluations? If not, why not? If yes, does it outline the general scope and methodology for the evaluations, key issues to be addressed, and when such evaluations are to occur? ▪ How will future program evaluation findings be used to improve performance? How will the City's program evaluations inform executive decision-making?

Appendix VI: Department Responses

We received formal responses on a draft of this report from the Office of Sustainability and Environment, Department of Parks and Recreation, and the Seattle Department of Transportation. We incorporated their comments, as we deemed appropriate, into the final report.

May 13, 2009 Response from Michael Mann, Acting Director, Office of Sustainability and Environment

May 13, 2009

Susan Cohen, Office of City Auditor
700 5th Ave., Suite 2410
PO Box 94729
Seattle, WA 98124-4729

Dear Ms. Cohen,

Thank you for the opportunity to comment on the draft audit report on the Management of City Trees. As we previously noted, we appreciate the value of a comprehensive review of how the City is positioned to meet the goal of improving Seattle's urban forest.

> The Auditor's report identifies three ways to strengthen the city's management framework for implementing the Urban Forest Management Plan. As of this date, each of the Auditor's recommendations is currently being implemented. Since the end of the discovery period of this audit in January, 2009, the following actions have been accomplished by the Executive:

- Re-convened the Environment and Sustainability Sub-cabinet. This sub-cabinet, defined as the policy setting body on tree issues for the Executive, reconvened in February, 2009. OSE, in conjunction with the Mayor's Chief of Department Operations, chairs the sub-cabinet and has included tree policy issues on each monthly agenda since February.
- Completed a satellite assessment of canopy coverage that will provide the basis for a 5-year strategic plan to refine the implementation of the Urban Forest Management Plan.
- Defined a public outreach process to share the results of the canopy coverage data with a professional peer group, stakeholders and the community at-large.
- Defined a process to develop a 5-year strategic plan for UFMP implementation.

These actions address each of the three areas identified by the Auditor's Office as needing improvement. OSE is working in partnership with other pertinent departments—

SDOT, DPD, Parks, SPU, SCL, Seattle Center, FFD—to manage the City's path towards achieving our goals for canopy cover by 2037. We are confident that the management systems that are currently in place will provide an appropriate framework for tree canopy improvement throughout the city.

A survey of City Departments on the final draft report elicited several comments which are attached. Some of these comments are based upon the fact that more current information exists today than when the data-gathering phase of the audit was completed in January.

Our goal is to continually improve the city's overall implementation of the Urban Forest Management Plan, and to continue our city's increase in tree canopy coverage. Trees provide a myriad of benefits to our urban environment, and we appreciate hearing your recommendations. On behalf of other city departments which have contributed to the comments attached, I thank you for the opportunity to share the steps that the Executive has already taken to implement your recommendations.

Sincerely,

Michael Mann
Acting Director
Office of Sustainability and Environment
City of Seattle

DRAFT AUDIT REPORT COMMENTS

III. Results in Brief

Implementing a new tree ordinance

SDOT has drafted a street tree ordinance which has been reviewed by the mayor and the transportation subcabinet. The legislation will be proposed at the same time as updated tree protection regulations are proposed.

Coordinating efforts

This section does not adequately represent that trees under power lines and in sidewalks require maintenance and the City is not limiting itself to only trees that will never reach a mature height of 25'. The question is which tree species are appropriate and what is an agreed, appropriate level of maintenance both for sidewalk and power line safety. SCL and SDOT are revising the tree planting list to reflect an appropriate balance between tree planting/canopy cover goals as well as appropriate ongoing tree and sidewalk/curb maintenance needs. The Urban Forest Coalition will provide input on the draft list.

This section emphasizes the conflict between infrastructure and trees, but identifies no solutions other than removing trees, planting trees with a mature height not exceeding 25 feet, and planting trees sufficiently far away from infrastructure. Parks, SDOT, SPU, and

SCL are currently applying new as well as existing technologies to address these conflicts.

Providing public outreach and education

Parks and SDOT have also provided significant additional resources and staff time to support public outreach efforts. Parks, for instance has funded the Festival of Trees, provided booths and staff support for the Green Festival to highlight tree planting on private property, and conducted a tree giveaway in 2007.

Conducting a tree inventory

SDOT has inventoried all 37,000 trees that they maintain and is currently moving this data into their workload processing system to aid in workload planning and allow the inventory to be kept current. Seattle Center has completed an inventory of the trees at the Center.

Parks completes tree inventories as they develop Vegetation Management Plans for individual parks. This allows them to plan for future tree planting, replacement and maintenance.

IV. Background

Table 3: OSE's role should include chairing the UFC and preparing citywide urban forest budget summary and Budget Issue Papers for new budget requests.

Seattle Audubon hosted the tree blog for one month. They are an active stakeholder in urban forest issues.

The Emerald City Task Force was an ad hoc committee convened by the City through the Department of Planning and Development from July 2007 to December 2007.

EarthCorps also provides job training.

V. Challenges

Finding 1, page 11 – The report states "Current regulations focus primarily on sites undergoing development and allow substantial removal of trees on sites not undergoing development. Current regulations also give developers an incentive to remove trees before submitting a development permit application on sites that are subject to development." These comments appear to reference the old code, not the current code and should be updated.

Finding 1, page 12 – The prohibition on the removal of more than three non-exceptional trees, applies to trees 6 inches or greater in diameter measured at four and one-half feet above the ground. The current wording is confusing.

Finding 1, page 12 – The summary of interim regulations is accurate; however, you might want to clarify that tree removal associated with a development permit is subject to separate tree protection requirements. The current summary makes it sound like any tree can be removed if a development application is requested.

Finding 2, page 13 – Parks increased General Fund staff in 2009 to support urban forestry efforts. The Tree Crew funded by the 2000 Pro Parks Levy was transferred into the Parks General Fund budget in 2009. The Natural Area Crew that supports the Green Seattle Partnership was increased from three persons to seven, and rolled into the General Fund budget in 2009.

Additional Green Seattle Partnership funding was approved during the budget process conducted in 2008 for 2009/2010. Revenue shortfalls have significantly decreased the CIP budget available for the Green Seattle Partnership, although this funding will be augmented by funding from the 2008 Parks Levy.

Finding 3, page 15, example #2 - This comment should be stated as an opinion rather than a fact. While the claims about planting trees may be correct decades ago, it is not true today as our planting choices and methods have changed, nor is there any proof that trees currently being planted will have these impacts. There are many reasons besides size of trees and pits that may contribute to sidewalk damage, including soil conditions.

Finding 3, page 15 – Methods exist to address conflicts between infrastructure and trees. Planting trees with the intention of maintaining them should include discussions of what impact regular tree trimming will have on budgets, and what impacts, including lost ecosystem service benefits, would result from removing the trees.

To address conflicts between trees and infrastructure, Parks, SDOT and SPU are currently installing root barriers, flexible sidewalks, and site-appropriate tree species. The City is also investigating engineered solutions such as adding soil volumes beneath sidewalks as another potential solution to roots buckling sidewalks and which also increase storm water retention.

Finding 4, page 20 – To replace the temporary/loaned position, OSE has hired a graduate student with professional work experience in urban forestry outreach and community tree programs.

Additional public education about the benefits, selection, and care of trees occurs through the Parks Environmental Learning Centers and the Green Seattle Partnership.

Finding 5, page 22- SDOT has completed their inventory of the approximately 37,000 street trees that they maintain. Additionally, Seattle Center has completed an inventory of the trees they manage.

A survey of species composition and condition was conducted for forested parklands in 2001 through a private donation. This data has proven effective in planning restoration and maintenance for the Green Seattle Partnership restoration program.

Finding 5, page 23- We suggest you clarify that the City officials, who agreed that an inventory is important for planning, were talking about an inventory of City-maintained trees. Also, we suggest clarifying that, "A complete inventory of *City-maintained trees* is an important database…"

Finding 6, page 24 –The City has made substantial progress in several measureable ways: added maintenance resources including a new crew at SDOT in 2007, increased funding and the pace of restoration of forested parklands, inventoried SDOT- and Seattle Center- maintained trees, began inventorying Parks trees, increased tree planting, launched an outreach campaign, created a Landscape Management Plan for Seattle Center, and conducted a new, more detailed assessment of Seattle's tree canopy.

Table 6, page 25 – OSE also prepares citywide urban forest budget documents comparing current and goal levels of service and citywide Budget Issue Papers for all urban forest budget requests during biennial budget processes.

Page 30 – The UFMP provides detailed strategies to achieve the plan's goals and objectives. Please see Table 6, pages 55-58 of the Urban Forest Management Plan.

Table 7, Page 31 – While the UFMP does not address performance metrics, metrics have been established. In addition to measuring performance against annual workplans, a new canopy cover assessment was conducted which will form the baseline for ongoing canopy studies.

Conclusions, page 33 – There are other tensions that might be useful to mention; for example, the trees that provide the best storm water mitigation benefits are coniferous trees over impervious surfaces yet large conifers are not recommended in much of the street ROW due to available planting space, road safety issues and utility placement. Trees in urban environments with extensive built infrastructure such as sidewalks, roads, utilities and stressful growing conditions such as compact soils require maintenance throughout their lifespan.

Conclusions, page 34 – The UFMP identifies the long-, mid-, and short-term actions needed to achieve the plan goals. Annual work plans and performance evaluation is conducted to monitor progress.

Appendix, page 44 – The report states "DPD officials anticipate a new regulation will go into effect in mid to late 2009". Instead DPD officials anticipate draft updated regulations will be proposed in late 2009.

May 11, 2009 Response from Timothy Gallagher, Superintendent, Department of Parks and Recreation

May 11, 2009

Susan Cohen
City Auditor, Legislative Department
CH-02-10

Dear Ms. Cohen:

We appreciate the effort the Auditor's Office has put into the Audit of the Management of City Trees and the opportunity to comment on the Audit. Seattle Parks and Recreation's commitment to building a better urban forest is at the heart of our mission to be good stewards of our environment, and to provide safe and welcoming opportunities to play, learn, contemplate, and build a livable and sustainable community.

We find only one significant omission in the audit: an examination of each stakeholder's core values and how those values can be reconciled. While individual issues such as trees under power lines are important to resolve, City agencies can move forward in partnership only if our core values are clearly stated and appreciated by each other.

Reconciliation of stakeholders' different values should include a comprehensive life cycle analysis that includes all costs, benefits, and lost opportunities. That will give decision-makers common ground on the value of trees as they make decisions that will impact these important urban assets.

We look forward to helping to build this team effort with our counterparts and the community of Seattle.

Sincerely

Timothy Gallagher
Superintendant, Seattle Parks and Recreation

cc: Robb Courtney, Parks Division Director, Seattle Parks and Recreation
Mark Mead, Senior Urban Forester, Seattle Parks and Recreation
Melinda Nichols, Natural Resources Manager, Seattle Parks and Recreation

DRAFT AUDIT REPORT COMMENTS

May 7, 2009

To: Susan Cohen, City Auditor, Legislative Department
Steve Calvo, Master Auditor, Legislative Department

From: Timothy Gallagher, Superintendent, Seattle Parks and Recreation

cc: Robb Courtney, Parks Division Director, Seattle Parks and Recreation
Mark Mead, Senior Urban Forester, Seattle Parks and Recreation
Melinda Nichols, Natural Resources Manager, Seattle Parks and Recreation

Re: Tree audit review

Thank you for the opportunity to review the audit of citywide tree management and to express my appreciation for the considerable work that the Auditor's Office has put into it.

Trees are essential to make a city livable. Trees fight air pollution, water pollution, and noise pollution. They provide shade and habitat. Trees measurably improve mental health and community health. Businesses do better where there are trees. Seattle Parks and Recreation's commitment to building a better urban forest is at the heart of our mission to be good stewards of our environment and to provide safe and welcoming opportunities to play, learn, contemplate, and build a livable and sustainable community.

We find only one significant omission in the audit: an examination of each stakeholder's core values and how those values can be reconciled. While individual issues such as trees under power lines are important to resolve, City agencies can move forward in partnership only if our core values are clearly stated and appreciated by each other. We look forward to helping build this team effort with the other agencies and with the community.

Following are our comments on specific components of the audit.

III. Results in Brief

Coordinating efforts

This section emphasizes the conflict between infrastructure and trees, but identifies no solutions other then removing trees, planting trees with a mature height not exceeding 25 feet, and planting trees sufficiently far away from infrastructure. Parks, SDOT, SPU, and SCL are currently applying new as well as existing technology to address these conflicts.

Providing public outreach and education

Parks and SDOT have provided significant additional resources and staff time to support public outreach efforts. Parks, for instance, has funded the Festival of Trees, provided

booths and staff support for the Green Festival to highlight tree planting on private property, and conducted a free tree giveaway to private citizens in 2007.

IV. Background

All charts in this section could be updated to reflect the most recent findings from the satellite data for 2002-03 to 2007. Estimated numbers of trees needed to be planted should also reflect the most current data.

V. Challenges

Finding 2, p. 13

Parks increased General Fund staff in 2009 to support urban forestry efforts. The Tree Crew funded by the 2000 Pro Parks Levy was rolled into the Parks General Fund budget in 2009. The Natural Area Crew that supports the Green Seattle Partnership was increased from three persons to seven, and rolled into the General Funded budget in 2009.

The additional Green Seattle Partnership funding was approved during the budget process conducted in 2008 for 2009-10. Revenue shortfalls have significantly decreased the CIP budget available for the Green Seattle Partnership, although this funding will be augmented by funding from the 2008 Parks Levy.

Finding 3, p. 15

Numerous methods exist to address conflicts between infrastructure and trees. Planting trees with the intention of long-term maintenance should include discussions of what impact regular tree trimming will have on SCL budget, and what broad impacts will result from removing or losing the trees. To address conflicts between trees and infrastructure, Parks, SDOT, and SPU are currently installing root barriers, flexible sidewalks, and site-appropriate tree species. We are also investigating engineered solutions that would enable us to add soil volumes beneath sidewalks as another potential solution to roots buckling sidewalks and stormwater retention.

Finding 3, p. 19 Recommendations

Please add a fifth recommendation for a full lifecycle or a cost-benefit analysis to be completed for such conflicts.

Finding 4, p. 21

As part of our environmental stewardship mission, Parks will continue to educate the public about the urban forest. Through the Green Seattle Partnership and our Environmental Learning Centers, we provide education about the benefits of trees, the benefits of native gardening, and the selection and care of plants. Where possible we will provide staff support for events such as the Festival of Trees and the Green Festival.

Finding 5, p. 22

Performing a tree-by-tree inventory of the forested parklands would be impractical. Parks does have a detailed survey of forested parklands which was completed in 2001 through a

private donation. That survey has proven effective in planning for work in forested parkland.

Finding 6, p. 24
To say that "the City has made, at best, limited measurable progress towards its goal of increasing tree canopy" is inaccurate. The City's substantial progress can be seen in several measurable ways: we added maintenance resources (such as a new crew at SDOT in 2007), increased funding for and increased the pace of forested parkland restoration, inventoried SDOT-maintained trees, began inventorying Parks trees, increased tree planting, launched an outreach campaign, created a Landscape Management Plan for Seattle Center, and conducted a new, more-detailed assessment of Seattle's tree canopy.

Conclusions, p. 34
A comprehensive plan and prioritization scheme should include a comprehensive life cycle analysis that considers all costs, benefits, and lost opportunities. It should also include a comprehensive value statement for Seattle. Decision-makers whose actions affect trees must concur on the value of trees as critically important urban assets.

May 12, 2009 Response from Grace Crunican, Director, Seattle Department of Transportation

SDOT's Street Use and Urban Forestry Division has reviewed the draft Management of City Trees Audit and found it to be an accurate representation of the existing condition. SDOT staff will work with OSE and other members of the Urban Forest Coalition to address the issues affecting the successful implementation of the Urban Forest Management Plan.

Though only Finding 3 was specific to SDOT, comments were provided for each finding from the perspective of a member of the coalition. As acknowledged in the audit, SDOT has initiated a thorough effort to ensure that there is mutual coordination both internally and externally relative to the selection and planting of trees in the ROW.

Responses to Management of City Trees audit

Finding 1
Implementing new regulations is an important next step for tree preservation.

Recommendations:
The report identifies interim regulations adopted by the City Council to protect trees on private property while permanent regulations are developed. It also calls on DPD to analyze their resource needs for implementing the new regulations.

Comment:
The report fails to acknowledge the draft regulations proposed by SDOT to protect ROW trees. DPD and SDOT are working together to ensure that both regulations will be consistent with each other.

Finding 2
Funding issues are pivotal for implementing the UFMP.

Recommendation:
City decision-makers need to determine the highest funding priorities to reach the 30 percent tree canopy goal in 30 years

Comment:
Each department with responsibilities for tree management requested funding in the 2007/08 budget for short term priorities identified in the UFMP. SDOT received BTG funding for a 3 person tree crew and associated equipment. SDOT also received budget to plant 800 trees each year for the nine year length of the BTG funding. The Parks department received additional Green Seattle Partnership for 2009/10. However, current revenue shortfalls may impact funding for this program.

Finding 3
Shared responsibilities place a premium on effective cooperation and coordination.

Recommendations:

The report calls on Seattle City Light and SDOT to review the current tree planting list and come to agreement on the appropriate trees to plant under power lines. It also calls on the Street Use and Urban Forestry and Street Maintenance Divisions to revise the MOU to address differences of opinion on new tree plantings. It also calls on Urban Forestry to finalize and adopt new tree planting guidelines that are consistent throughout the department.

Comment:
The report cites conflicts between SDOT and SCL "officials" over the appropriateness of trees that have been planted under power lines. It cites complaints from SCL that SDOT continues to plant trees under power lines that exceed 35 feet in height, instead of SCL's recommendation that trees should not exceed 25 feet at maturity.

Urban Forestry has already met with the new SCL utility arborist and the Parks forester to discuss the tree list. Parks and SDOT have obtained informal agreement from SCL that trees could exceed 25' feet if it was unlikely that they would come into contact with wires. We also identified 4 trees from the list of 58 which would have to be approved on a case by case basis by SCL - they are currently listed as having "limited use under higher power lines" in our current list.

A formal agreement is being drafted for signature by appropriate management at the three departments. SCL's new manager believes that a reasonable balance can be achieved between the two objectives of protecting power lines from overgrown vegetation and maximizing canopy cover. SDOT expects that these agreements will minimize future conflicts between the departments.

The report also cites conflicts between Urban Forestry and the Street Maintenance sidewalk repair program. Street Maintenance staff believes that Urban Forestry is planting trees that are too large for their planting space, which will eventually cause damage to pavement, sidewalks and curbs and compromise sidewalk safety and accessibility. It also states that the effectiveness of the MOU between the two divisions is unknown because it was not used in the first year.

Urban Forestry manager Roy Francis and Paving manager Jim Hathaway have begun regular monthly meetings (more often if needed) to discuss and resolve potential conflicts that cannot be resolved among the respective staff. Urban Forestry has also drafted tree selection and planting guidelines to address these issues and have submitted the draft for review by the Paving manager.

<u>Finding 4</u>
The Urban Forest Management Plan's education and outreach program is still in its preliminary stage

Recommendations:
The report calls for the city to fund a full-time position to implement education and outreach activities for the UFMP, or modify the canopy goal.

Comment:
The Office of Sustainability and Environment has hired a graduate student with professional work experience in urban forestry outreach and community tree programs.

Finding 5
A citywide tree inventory has not been conducted.

Recommendation:
The city needs to conduct a citywide tree inventory.

Comment:
Urban Forestry received funding in the 2007/08 budget to conduct an inventory of all SDOT owned trees. The inventory was completed in 2008. Minor adjustments are being made to the data before uploading it to the Hansen system. It would be desirable to conduct an inventory of all privately owned trees in the ROW in the future as funding permits.

The Urban Forest Coalition members believe that it would be difficult, if not impossible to conduct a tree by tree inventory of trees on private property. The members also believe that other, less costly technology exists to measure canopy cover.

Finding 6
The City lacks a stable and effective management framework to implement the UFMP

Recommendations:
1. Re-establish the Sustainability and Environment Sub-cabinet and set a regular meeting schedule
2. Record and maintain agendas and minutes for all meetings, including the Urban Forest Coalition and sub-cabinet meetings
3. The Mayor and City Council needs to clarify the OSE's roles regarding its authority and accountability for implementing the UFMP
4. The City needs to develop a comprehensive implementation plan for trees that aligns and integrates individual department efforts with citywide goals and priorities, establishes approaches or strategies to achieve goals, and evaluates progress through performance metrics for implementing the UFMP.

Comments:
The Sustainability and Environment Sub-cabinet is operational, having been reconvened in February 2009, and it has a regular meeting schedule.

The OSE has taken a leadership role with the concurrence of the members of the UFC. OSE calls regular meetings and prepares agendas. SDOT maintains a regular presence at the meetings.

As mentioned above, the OSE has taken lead responsibility for implementing the UFMP.

The UFMP identifies long, mid and short term actions needed to achieve the plans goals. Annual work plans and performance evaluations are conducted to monitor progress. Each department establishes their own metrics based on their respective goals. OSE also prepares citywide urban forest budget documents comparing current and goal levels of service and citywide Budget Issue Papers for all urban forest budget requests during the biennial processes.