



City
of
Tigard

Urban Forestry Master Plan



November 2009



City of Tigard

Urban Forestry Master Plan

A C K N O W L E D G E M E N T S

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Executive Summary



Tigard's urban forest is valued and protected by City residents as a thriving interconnected ecosystem managed to improve quality of life, increase community identity, and maximize aesthetic, economic, and ecological benefits.



This Urban Forestry Master Plan (UFMP) sets a course of action for the City of Tigard's urban forestry program from the time of its acceptance by Council until the year 2016. The Plan has been developed through a public process involving community outreach and surveys, urban forestry stakeholder interviews, departmental coordination meetings, and review of current City policies and programs. Based on the information received throughout this process, the UFMP Citizen Advisory Committee (CAC) recommends the following implementation goals:

1. Revise Tigard's tree code (Chapter 18.790, includes development regulations and mitigation).
2. Revise Tigard's landscaping code (includes street trees, parking lot trees, and other required landscape trees).
3. Develop a tree grove protection program.
4. Develop a hazard tree identification and abatement program.
5. Improve the management of the City's urban forestry program.
6. Develop an urban forest stewardship program.

It is further recommended that the achievement of the above implementation goals occur through a series of sub-goals and action measures which are outlined in the implementation matrix. Implementation goals, sub-goals, and action measures are intended to frame future urban forestry code and program development and set a timeline for both. Tigard's Tree Board will be charged with overseeing the implementation of the UFMP as part of their annual work plan.

Implementation Matrix

The following implementation matrix contains all six UFMP implementation goals (highlighted in orange), their associated sub-goals (e.g. 1.1, 1.2, 1.3...), and a series of action measures with the necessary level of detail needed to implement the goals and sub-goals. For each action measure the lead City division, applicable Comprehensive Plan policies, staff and financial resources required, and implementation schedule are included.

Through implementation of the goals, sub-goals, and action measures in this Plan, progress will be made towards the adopted vision of the UFMP CAC:

Urban Forestry
Master Plan

Vision

|| Tigard's urban forest is valued and protected by City residents as a thriving interconnected ecosystem managed to improve quality of life, increase community identity, and maximize aesthetic, economic, and ecological benefits. ||

Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
1. Revise Tigard's tree code (Chapter 18.790, includes development regulations and mitigation).							
1.1 Revise tree code to allow for more flexibility and ensure a qualitative approach to tree preservation.							
a.	Determine the most appropriate placement for future tree code provisions within the Tigard Development and Municipal Code chapters.	Long Range Planning	2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.3.3, 2.3.6, 2.3.7, 2.3.9, 2.3.10, 2.3.11	Low	\$	2010	2011
b.	Modify code to focus less on mitigation and more on preservation of long-lived evergreen and broad-leaf deciduous tree species, native and indigenous trees, and other trees identified as of high importance.	Long Range Planning	2.2.1, 2.2.2, 2.2.9, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.3.7, 2.3.9, 2.3.11	High	\$\$	2010	2011
c.	Require private arborists to be involved in the development process from site planning through landscape installation.	Long Range Planning	2.2.1, 2.3.1, 2.3.3, 2.3.6, 2.3.7, 2.3.8, 2.3.9	Low	\$	2010	2011
d.	Develop and implement regulations, standards, and incentives for transferring density and seeking variances and adjustments to preserve trees identified as being of high importance.	Long Range Planning	2.2.1, 2.2.2, 2.3.1, 2.3.3, 2.3.6, 2.3.8, 2.3.9, 2.3.11	High	\$\$	2010	2011
e.	Provide incentives for preserving smaller diameter trees that have a higher ability to withstand development impacts.	Long Range Planning	2.2.1, 2.2.2, 2.2.9, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.3.7, 2.3.9, 2.3.11	Low	\$	2010	2011
f.	Ensure invasive trees are exempt from preservation requirements through the adoption of an inclusive invasive species list.	Long Range Planning	2.2.1, 2.2.2, 2.2.7, 2.2.8, 2.2.9, 2.3.1, 2.3.7, 2.3.8, 2.3.11	Low	\$	2010	2011
g.	Develop standards and procedures for tree code enforcement.	Long Range Planning	2.2.1, 2.2.2, 2.2.3, 2.2.6, 2.3.1, 2.3.8, 2.3.9, 2.3.11	Med.	\$\$	2010	2011
h.	Develop procedures detailing when and how protected trees will be inventoried and permit activities tracked.	Current Planning	2.2.1	Med.	\$\$	2011	2012
i.	Develop and maintain, as part of the City's GIS and permit systems, a publicly accessible inventory of protected trees.	Current Planning	2.2.1	Med.	\$\$	2011	Ongoing
j.	Create a tree manual with drawings and specifications for development related tree inventory and protection standards, and preferred species/tree types for preservation.	Current Planning	2.2.1, 2.2.2, 2.2.8, 2.2.9, 2.3.1, 2.3.2, 2.3.3, 2.3.6, 2.3.7, 2.3.8, 2.3.9	High	\$\$\$	2010	2011

* Low = 0–8 hours of staff time

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Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
1.2 Revise tree code so that standards do not solely impact those property owners with trees.							
a.	Develop canopy cover or tree density standards for all lots to be met by either preserving existing trees, or planting new trees.	Long Range Planning	2.2.1, 2.2.2, 2.2.4, 2.2.9, 2.3.1, 2.3.2, 2.3.6, 2.3.7, 2.3.9, 2.3.11	High	\$\$	2010	2011
b.	Investigate possible funding mechanisms to help support an ongoing tree and urban forest enhancement program.	Current Planning	2.2.1, 2.2.2, 2.2.7, 2.3.8	High	\$\$	2011	2012
2. Revise Tigard's landscaping code (includes street trees, parking lot trees, and other required landscape trees).							
2.1 Revise street tree planting, maintenance, and removal requirements.							
a.	Revise parking lot design requirements to incorporate stormwater management techniques and methods that support increased tree canopy.	Current Planning	2.2.1, 2.2.2, 2.2.4, 2.2.7, 2.2.8, 2.2.10, 2.3.5, 2.3.7, 2.3.8, 2.3.11	Med.	\$\$	2010	2011
b.	Revise Tigard Municipal Code to establish a permit system for planting, removal, and replacement of required trees.	Long Range Planning	2.2.1, 2.2.2, 2.2.4, 2.2.5, 2.2.6, 2.2.8, 2.2.9, 2.2.10, 2.3.5, 2.3.7, 2.3.10, 2.3.11	Med.	\$\$	2010	2011
c.	Incentivize the use, retention, and replacement of long lived evergreen and broad-leaf deciduous tree species, native and indigenous trees, and other trees identified as of high importance.	Current Planning	2.2.1, 2.2.2, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.2.8, 2.2.9, 2.2.10, 2.3.1, 2.3.5, 2.3.7, 2.3.8, 2.3.11	Med.	\$\$	2010	2011
d.	Allow required landscape trees to count towards mitigation, canopy cover, and/or tree density standards.	Long Range Planning	2.2.1, 2.2.2, 2.2.4, 2.2.6, 2.2.7, 2.2.8, 2.2.9, 2.2.10, 2.3.5	Low	\$	2010	2011
e.	Require landscape architects to develop landscape plans for projects of a certain type and/or size.	Long Range Planning	2.2.1, 2.2.2, 2.2.7, 2.2.10, 2.3.5, 2.3.7, 2.3.11	Low	\$	2010	2011
f.	Create a design and maintenance manual with drawings and specifications for species selection, planting, and maintenance.	Current Planning	2.2.1, 2.2.2, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.2.8, 2.2.9, 2.2.10, 2.3.5, 2.3.7, 2.3.8, 2.3.11	High	\$\$\$	2010	2011
g.	Clarify jurisdictional requirements along ODOT right-of-ways (Highway 99W, Highway 217, and Interstate 5).	Current Planning	2.2.1, 2.2.2, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.2.8, 2.3.5, 2.3.8	Low	\$	2010	2011

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Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
h.	Do not require new technologies that are cost prohibitive.	Current Planning	2.2.1, 2.2.4, 2.2.7	Low	\$	2010	Ongoing
2.2 Develop an inventory of tree plantings, removals, and replacements.							
a.	Develop procedures for when and how trees will be inventoried and permit activities tracked.	Current Planning	2.2.1	Med.	\$\$	2011	2012
b.	Develop and maintain, as part of the City's GIS and permit systems, a publicly accessible inventory of tree plantings and permitted removals.	Current Planning	2.2.1	Med.	\$\$	2011	Ongoing
3. Develop a tree grove protection program.							
3.1 Focus on preserving large groves of native trees.							
a.	Establish standards and procedures for identifying and inventorying large groves of native trees.	Long Range Planning	2.2.1, 2.2.2, 2.2.3, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.8, 2.3.9, 2.3.11	High	\$\$\$\$	2010	2011
b.	Develop preservation and maintenance standards and procedures for tree groves identified for protection while allowing for the full development of property under current zoning.	Long Range Planning	2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.6, 2.2.7, 2.2.8, 2.2.9, 2.3.1, 2.3.2, 2.3.3, 2.3.5, 2.3.6, 2.3.7, 2.3.8, 2.3.9, 2.3.11	High	\$\$\$	2011	2012
3.2 Develop a flexible and incentive based grove preservation program that meets the needs of affected property owners.							
a.	Reach out to property owners with identified tree groves early in the process to allow them ample opportunity to participate in the development of regulations.	Long Range Range	2.3.8, 2.3.11	Med.	\$\$	2010	2012
b.	Ensure any future tree grove regulations have flexibility and incentives built in.	Long Range Planning	2.2.1, 2.2.2, 2.2.4, 2.3.6, 2.3.8, 2.3.11	Med.	\$\$	2011	2012
4. Develop a hazard tree identification and abatement program.							
4.1 Establish City storm and hazard tree response protocols.							
a.	Prior to land acquisition conduct a tree hazard assessment.	Parks	2.2.1, 2.2.2, 2.3.4, 2.3.8	Med.	\$\$	2010	Ongoing
b.	Develop and implement a formal emergency response system for tree hazards on City streets.	Streets	2.2.1, 2.2.2, 2.3.4, 2.3.8	Low	\$	2010	Ongoing
c.	Develop and implement a formal emergency response system for tree hazards in City parks/greenspaces.	Parks	2.2.1, 2.2.2, 2.3.4, 2.3.8	Low	\$	2010	Ongoing

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Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
4.2 Establish a City program to facilitate tree hazard identification and abatement on private property.							
a.	Revise Tigard Municipal Code to grant authority to the City to become involved in private property tree hazards.	Long Range Planning	2.2.1, 2.3.4, 2.3.8, 2.3.11	High	\$\$	2010	2011
b.	Develop and maintain criteria for what constitutes a tree hazard using the Tree Risk Assessment methodology developed by the PNWISA.	Current Planning	2.2.1, 2.2.2	Med.	\$\$	2010	2011
c.	Develop and maintain criteria for hazard abatement and risk mitigation.	Current Planning	2.2.1, 2.2.2, 2.3.4, 2.3.11	Med.	\$\$	2010	2011
d.	Develop procedures for mediating disputes including assigning responsibility.	Long Range Planning	2.3.4, 2.3.11	High	\$\$\$	2010	2011
e.	Make information about hazard tree identification and abatement program available to the public.	Current Planning	2.3.4, 2.3.8	Med.	\$\$	2010	2011
5. Improve management of the City's urban forestry program.							
5.1 Begin developing a tree and urban forest inventory.							
a.	Develop procedures for when and how protected trees, tree groves, street trees, heritage trees, and required landscape trees will be inventoried and permit activities tracked.	Current Planning	2.2.1	Med.	\$\$	2011	2012
b.	Develop and maintain, as part of the City's GIS and permit systems, a publicly accessible inventory of protected trees, tree groves, street trees, heritage trees, and required landscape trees.	Current Planning	2.2.1	Med.	\$\$	2011	Ongoing
c.	Develop and maintain, as part of the City's GIS system, a publicly accessible inventory of sites where urban forestry fees are being utilized. Link sites with the City's accounting system so detailed analyses of urban forestry expenditures can be obtained.	Current Planning	2.2.1, 2.2.2, 2.2.7	Med.	\$\$	2011	Ongoing
5.2 Improve management of City owned trees and forests.							
a.	Create and route a budget sheet to appropriate divisions prior to park and greenspace acquisitions so anticipated costs and benefits can be identified and evaluated.	Parks	2.2.1, 2.2.2, 2.2.7, 2.3.4	Low	\$	2010	2011

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Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
b.	Create a greenspace coordinator position to manage City owned natural areas and develop a proactive hazard tree identification and abatement program for those areas.	Parks	2.2.1, 2.3.4, 2.3.8	High	\$\$\$\$	2011	2011
c.	Develop a written set of urban forestry standards and specifications for City projects.	Current Planning	2.2.1, 2.2.2, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.3, 2.3.7, 2.3.9	High	\$\$	2011	2012
d.	Identify and secure long term funding sources for urban forestry projects as mitigation funds decline.	Current Planning	2.2.1, 2.2.2, 2.2.7	Low	\$	2014	2016
e.	Designate City Arborist as lead coordinator for implementation of the Urban Forestry Master Plan.	Current Planning	2.2.2, 2.2.6, 2.2.11, 2.3.4, 2.3.7	Low	\$	2010	Ongoing
6. Develop an urban forestry stewardship program.							
6.1 Develop and provide urban forestry outreach materials.							
a.	Provide Tigard citizens with pertinent urban forestry outreach information such as workshops, flyers, online tools, "ask the arborist" service, etc.	Current Planning	2.2.7, 2.3.8	Med.	\$\$	2012	2013
b.	Maintain a list of invasive trees and other plants, discourage their sale and propagation, and promote their removal.	Current Planning	2.2.1, 2.2.7, 2.2.8, 2.2.9, 2.3.8, 2.3.11	Low	\$	2012	2013
6.2 Fund urban forestry projects for private property owners.							
a.	Utilize mitigation and other funding sources for tree planting and urban forest management on public and private property and public right-of-way.	Current Planning	2.2.7, 2.3.8	High	\$\$\$	2013	2014
b.	Present a cost/benefit study for a leaf pickup program for Council's consideration.	Current Planning	2.2.7, 2.3.8	Low	\$	2013	2013
6.3 Prevent pre-development clearing of lots.							
a.	Develop standards that require tree removal permits prior to the removal of a specified number of trees per year.	Long Range Planning	2.2.1, 2.2.2, 2.2.7, 2.3.1, 2.3.8	Med.	\$\$	2010	2011

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Implementation Goals		Lead Division	Comp Plan Policies	City Staff Resources*	City's Cost**	Begin Implementation	Complete Implementation
6.4 Regularly update the Urban Forestry Master Plan, set achievable goals, and continually monitor progress.							
a.	Strive to achieve no net loss in citywide tree canopy from 2007–2015.	Current Planning	2.2.7, 2.2.11, 2.3.8	Low	\$	2015	2015
b.	Strive to achieve 32% citywide tree canopy by 2027	Current Planning	2.2.7, 2.2.11, 2.3.8	Low	\$	2027	2027
c.	Strive to achieve 40% citywide tree canopy by 2047	Current Planning	2.2.7, 2.2.11, 2.3.8	Low	\$	2047	2047
d.	Update Urban Forestry Master Plan every 5–7 years.	Current Planning	2.2.1, 2.2.2, 2.2.11, 2.3.1, 2.3.8	High	\$\$\$	2015	2016
e.	To help inform future Plan updates, collect baseline tree inventory data in addition to canopy cover data.	Current Planning	2.2.1, 2.2.7, 2.2.11	High	\$\$	2014	2015

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Basis for Decision Making

The following information was used as the basis for decision making when formulating goals, sub-goals, and action measures for the UFMP.

Urban Forestry Survey

An independent, scientific telephone survey of 400 randomly selected citizens about their attitudes towards existing and potential urban forestry policies and programs was completed by Steve Johnson and Associates in December of 2008. The survey was funded in part by a grant from the Oregon Department of Forestry and the USDA Forest Service. The purpose of the survey was to gain a more detailed understanding of community attitudes towards urban forestry issues in Tigard. Exact questions and complete results from the survey are included in Appendix A.



Canopy Analysis

In cooperation with Metro, Tigard's tree canopy from 1996 and 2007 was identified and mapped using aerial photography. This has allowed for easy identification of where the urban forest is increasing, decreasing, and remaining the same. It will also allow for continual tracking of canopy change in the future as Metro runs the software that can detect the presence of tree canopy cover every two years. Using the results, management decisions were made such as where preservation and planting efforts should be targeted. Full results of the canopy analysis are in Appendix B.

Stakeholder Interviews

City staff interviewed major community stakeholder groups and jurisdictions that regularly contribute to and/or are affected by the management of Tigard's urban forest. The full stakeholder interview notes are included in Appendix C.

City of Tigard, Internal Coordination Meetings

The City of Tigard has multiple departments, divisions, boards, and committees that administer and implement the City's urban forestry

program. Key City staff members with roles in coordinating and implementing Tigard's urban forestry programs, policies, and codes met to discuss urban forestry coordination needs and to identify solutions. The purpose of this coordination is to provide for more effective administration of the urban forestry program and to inform recommendations made in the UFMP. Full results of the internal coordination meetings can be found in Appendix D.

Review of Current and Historical Urban Forestry Codes, Policies, and Programs

A thorough review and analysis of urban forestry related laws, codes, policies, and programs was undertaken to inform recommendations in the UFMP. Particular attention was paid to the Urban Forest Section of the Comprehensive Plan (Appendix E) which contains the goals, policies, and action measures that guide Tigard's urban forestry program. Appendix E also provides examples of the social, ecological, and economic benefits of urban trees and forests.

Appendix F contains a historical timeline relative to urban forestry in Tigard. Appendix G contains a review and analysis of the major Federal, State, and Regional policies that provide a framework for Tigard's urban forestry program. Appendix H is a review and analysis of current urban forestry related City codes.

UFMP CAC

The UFMP CAC was comprised of the Tree Board plus four additional residents/business interests at large including two certified arborists, one homebuilder, and one resident with expertise in public administration. They met every other month to receive information as it was being collected and advised staff on Plan development.



City staff interviewed major community stakeholder groups and jurisdictions that regularly contribute to and/or are affected by the management of Tigard's urban forest. The full stakeholder interview notes are included in Appendix C.



CHAPTER 1:

Development Regulations and Mitigation Requirements



Implementation Goal 1:

Revise Tigard's tree code (Chapter 18.790, includes development regulations and mitigation).

Revising Tigard's tree code is purposely listed as Goal 1 due to strong dissatisfaction with the existing code by those both inside and outside of the development community.

Tigard's existing tree code is located in Chapter 18.790 of the Tigard Development Code. This Code requires certain types of development projects to prepare a tree plan and identify trees to be preserved and removed during construction. Tree replacement, or mitigation, is required on an "inch for inch" basis. This means that if a tree with a trunk that is 12 inches in diameter is removed, it needs to be replaced with 6, 2-inch diameter replacement trees. If a developer chooses not to replant trees, then the City requires a "fee-in-lieu payment" to the Tigard Tree Fund at the current rate of \$125 per diameter inch (2009).

Some of the criticism of the tree code from stakeholders is that the mitigation structure promotes overplanting, it does not require preservation of quality trees, and it encourages the retention of large diameter trees that are less likely to survive development impacts. The Home Builder's Association of Metropolitan Portland (HBAMP) position is that the fee-in-lieu of mitigation is excessive and that the tree code does not adequately reward the preservation of high quality trees. The HBAMP and other stakeholders agree that the tree code unfairly penalizes those property owners with existing trees more than those owners without trees. For the City, the tree code is also administratively difficult to implement because it is challenging to track protected and replacement trees in the years and decades following development.

The previous tree code that went into effect in 1983 was more preservationist than today's code because it required a permit prior to the removal of any tree on all undeveloped land, developed commercial and industrial land, and public land. In 1997 Tigard's tree code was revised to

its current form. The code currently allows any or all trees to be removed as long as they are replaced. Due in part to dissatisfaction with the existing tree code, the Tigard Tree Board was charged with developing a “City Tree Stewardship and Urban Forest Enhancement Program” in 2007. Following over a year of work by the Tree Board, a comprehensive plan for the urban forest was developed in 2008. The Urban Forest section of the Comprehensive Plan (Appendix E) contains two goals to be implemented by 22 policies. The goals and policies in the Comprehensive Plan guide the recommendations made in this Plan.

While many are unhappy with the current tree code, the UFMP community survey confirmed Tigard residents want the City to require some trees are preserved and new trees planted during development (~88% support). A majority (~57%) of respondents say they support new development regulations even if they limit the size and extent of potential buildings or profits. Approximately 32% of respondents oppose tree regulations limiting development. (See Figure 1 at right).

Protecting Tigard’s urban forest on developable land must be balanced with State, Metro, and City planning goals and regulations which favor density in urban areas. Specifically, development regulations must be clear and objective, and not discourage needed housing through unreasonable cost or delay according to State law. Only 7% of Tigard’s land area and 12% of its citywide tree canopy are on developable property so a comprehensive urban forestry code and program must address areas outside of development.

Direction received from the community and stakeholders regarding tree code revisions have been folded into several sub-goals and implementation measures. Major recommendations include:

- Determining the most appropriate placement for future tree code provisions to improve administration and address situations outside development;
- Less focus on mitigation and more on preserving high quality trees;
- Revising tree preservation incentives so that they are more attractive to developers; and
- Not unfairly penalizing those property owners with trees.

Also included in the recommendations are steps the City should take to better track protected and replacement trees after development is complete.

Would you strongly support, support, oppose, or strongly oppose tree removal regulations during property development, even when they limit the size and extent of potential buildings or profits?

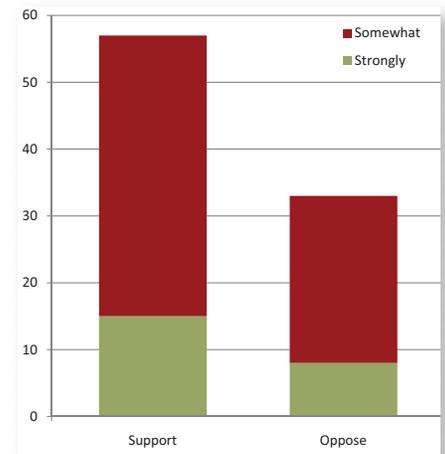


FIGURE 1

CHAPTER 2:

Landscaping Requirements



Stakeholder interviews highlighted the need for requirements addressing the planting of high quality trees and ensuring that design and maintenance of areas such as parking lots and street side plantings are sustainable and aesthetically pleasing.



Implementation Goal 2:

Revise Tigard's landscaping code (includes street trees, parking lot trees, and other required landscape trees).

Revising Tigard's landscaping code is the second goal of the UFMP. The intention of the revisions is to improve the quality and protection of the City's streetscapes and commercial and industrial landscapes.

Tigard's existing landscaping codes are scattered throughout the Development and Municipal Codes. Many of the provisions in the landscaping codes lack specificity, are conflicting, and present administrative challenges for the City. Also, the City's standards and design guidelines do not specify industry accepted installation and maintenance requirements for trees.

Stakeholder interviews highlighted the need for requirements addressing the planting of high quality trees and ensuring that design and maintenance of areas such as parking lots and street side plantings are sustainable and aesthetically pleasing. The Oregon Chapter of the American Society of Landscape Architects (OASLA) suggested Tigard create a tree and landscape design manual with drawings and specifications so that landscape architects have a clear idea of the City's overall tree and landscape vision. Such a tree and landscape design manual could also address the Tree Board's request to translate Code revisions into something the public can understand.

Internally, the lack of a comprehensive tree inventory has led to difficulty tracking street trees and required landscape trees.

Although the UFMP community survey revealed that Tigard citizens are highly satisfied with the current overall state of Tigard's urban forest, 74% of respondents believe more street trees will be good for the City. Tigard's canopy analysis supports this, as street trees currently provide only 9% canopy in City street right-of-ways. The canopy analysis also found that the City's parking lot tree standards are not effective due to the relatively low tree canopy in parking lots. (See Figure 2 on next page.)

Direction for revising Tigard's landscaping code is included in the sub-goals and implementation of section two of the matrix. Specific

recommendations include developing a landscape design manual with drawings and specifications, improving parking lot design, establishing a permit system for the planting, replacement, and removal of required trees, and improving the tracking and inventorying of street trees and other required landscape trees.



Based on a random sample, Tigard parking lots (outlined in yellow) are covered by approximately 6% tree canopy (areas highlighted in green).

FIGURE 2

CHAPTER 3:

Tree Grove Protection



Implementation Goal 3: Develop a tree grove protection program.

The third goal of the UFMP is to develop a tree grove protection program which creates mechanism for protecting Tigard's remaining groves of native trees while allowing for the full development of property under current zoning.

Many tree groves in Tigard are currently afforded some level of protection due to their location in sensitive lands (stream corridors, steep slopes, significant habitat areas, wetlands, and floodplains) as defined by the Tigard Development Code. Tigard's Development Code limits the type and intensity of development within sensitive lands, and requires permits for tree removal in these areas. However, the Development Code does not explicitly protect tree groves in sensitive lands, and tree removal permits are automatically issued if an erosion control plan is provided. Also, currently there are no protections for tree groves located outside of sensitive lands. Prior to enacting any regulations protecting tree groves, the City must comply with Federal, State, and Regional regulations (see Appendix G). Particular attention shall be paid to State laws including the requirements for an economic, social, environmental, and energy (ESEE) analysis prior to protecting "Goal 5" (natural) resources.

Some of the stakeholders interviewed for the UFMP such as the Pacific Northwest Chapter of the International Society of Arboriculture (PNWISA), the OASLA, the Tualatin Riverkeepers and Clean Water Services, support the City's efforts to preserve and maintain native trees and groves in Tigard. Multiple stakeholders also suggest the City take a leadership role in tree grove protection by hiring a greenspace coordinator to provide long term maintenance of City-owned natural areas. The HBAMP suggested affected property owners be directly notified about regulations and incentives proposed for incorporation into any City code calling for the preservation of tree groves.

The UFMP community survey shows that Tigard residents support future regulations to protect native tree groves. Most residents (~55%) would like to see regulations focused on larger groves of native trees as opposed to individual trees of significant size (~28% support). In addition, 37%

of respondents said they prefer to see new tree regulations focused on natural areas as opposed to ornamental trees (~3% support). However, approximately 48% said they would like to see regulations applied to natural areas and ornamental trees equally. (See Figure 3 at right.) 73% of respondents said the decision of whether to preserve trees should not be left solely to the developer, and a majority (57%) said they support tree regulations even if they limit the size and extent of potential buildings or profits.

While residents prioritize grove protection, the canopy analysis revealed that Tigard's tree groves are disappearing. In 1996, there were 63 canopy clusters greater than 5 acres in size within the City limits. In 2007, there were 48 canopy clusters greater than 5 acres in size. This represents a 24% decline in large sized canopy clusters in eleven years. (See Figure 4 on next page.)

As a result of trends shown in the canopy analysis, community preference, and stakeholder input, the UFMP developed a number of sub-goals and action measures to guide the development of a tree grove protection program that is compliant with Federal, State, Regional, and Local requirements. Included are recommendations to contact all property owners that would be impacted by a tree grove protection program and providing grove preservation incentives.

If the City were to enact new tree protection measures, would you like to see them focused on natural areas, ornamental landscape trees, both types equally, or on something else.

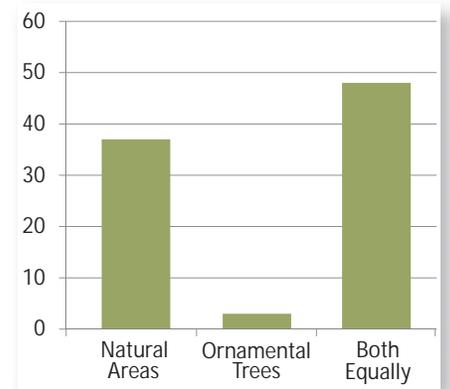
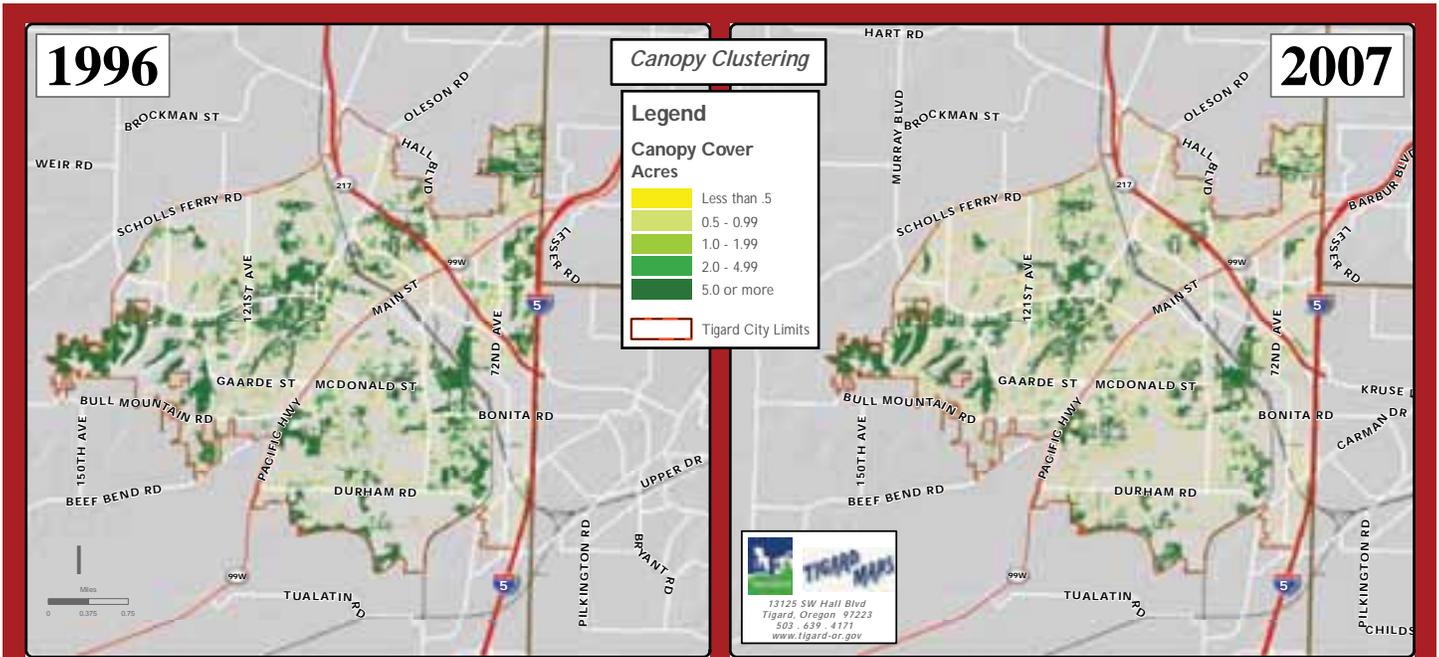


FIGURE 3



Map created: August 13, 2009

Canopy Clustering Summary

Canopy Cluster Size Class	1996				2007			
	Total Acres of Canopy Cover	Acres as a % of Total Canopy Cover	No. of Clusters	No. of Clusters as a % of Total	Total Acres of Canopy Cover	Acres as a % of Total Canopy Cover	No. of Clusters	No. of Clusters as a % of Total
Less than .5 acres	366.55	18.77%	4356	90.94%	584.3	31.54%	7231	93.86%
0.5 to .99 acres	135.76	6.95%	197	4.11%	167.25	9.03%	242	3.14%
1.0 to 1.99 acres	159.25	8.16%	113	2.36%	177.88	9.60%	131	1.70%
2.0 to 4.99 acres	190.86	9.77%	61	1.27%	157	8.47%	52	0.67%
5.0 or more acres	1100.33	56.35%	63	1.32%	766.26	41.36%	48	0.62%
Total	1952.75	100%	4790	100%	1852.69	100%	7704	100%

FIGURE 4

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CHAPTER 4:

Hazard Trees

Implementation Goal 4: Develop a hazard tree identification and abatement program.

The fourth goal in the UFMP is to develop a hazard tree identification and abatement program that adequately addresses tree hazards on both public and private property.

Currently Tigard's Municipal Code prohibits hazard trees, but there is a lack of specificity on what constitutes a hazard and what the mechanism is for abating hazards in a timely manner. There is also no formal process for identifying and abating tree hazards on City property.

During the stakeholder interviews the Tree Board suggested that the City increase communications between departments. Interdepartmental communication is integral to effectively addressing tree hazards in a timely manner. Other stakeholders suggested that the City hire a greenspace coordinator who could provide proactive management of tree hazards in City parks and greenspaces. The HBAMP said the City should allow private property owners to manage their land as they see fit, which implies the City should have no involvement in private property tree hazard issues.

As a result of the City's internal coordination meetings, specific methods for responding to public tree hazards were developed and are detailed in Appendix D. The Parks Division echoed the stakeholders by highlighting the need to hire a greenspace coordinator to proactively manage tree hazards on City property.

The community survey results indicate public support for a hazard tree identification and abatement program. Approximately 76% of residents think more resources should be directed to better maintain and protect existing trees. A majority of residents said they would support additional funding from increased city fees, charges, or property taxes to fund a more comprehensive tree program in Tigard parks and open spaces (~56% support, ~39% oppose). A portion of that funding could be used by the City for a hazard tree program. Finally, a majority of residents said they would support the creation of a program where the City would become involved in disputes between neighbors regarding hazardous trees on private property (60% support, 38% oppose). (See Figure 5 at left.)

Currently, if there is a dispute between neighboring property owners regarding a potentially hazardous tree, the City does not get involved, and instead directs the neighbors to work out a solution through civil means. Would you strongly support, support, oppose, or strongly oppose the creation of a program where the City would become involved in disputes between neighbors regarding hazardous trees?

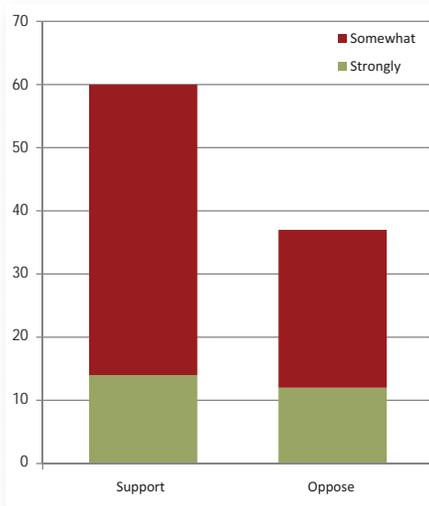


FIGURE 5

The sub-goals and implementation measures recommended in the UFMP support the creation of a hazard tree identification and abatement program for public and private property. The recommendations include formalizing the City's hazard response protocols, hiring a greenspace coordinator to help manage tree hazards on City property, and developing a process whereby the City would have authority to become involved in tree hazards on private property. In order to provide consistency in tree hazard identification and abatement, it is recommended that the City adopt the PNWISA Tree Risk Assessment methodology as its standard.



CHAPTER 5:

Urban Forestry Program Management



The public showed a preference for urban forestry efforts to focus on streamside trees and other natural forested areas.



Implementation Goal 5: Improve the management of the City's urban forestry program.

Implementation Goal 5 was developed to improve the coordination and management of the City's urban forestry program.

Tigard's urban forestry program is currently implemented by multiple City departments and divisions. In addition, code provisions relating to urban forestry are scattered throughout the Municipal and Development Codes. Management of City-owned tree and forest resources has been declining as more land is acquired without additional funding for maintenance and proactive management. Improved communication between City departments and divisions, unifying urban forestry related Code provisions, and providing adequate staffing is needed for more effective management of the City's urban forestry program. Also, securing a sustainable funding source will be necessary to provide long term support of the urban forestry program as the Tree Fund declines due to less future development.

Stakeholders such as the PNWISA and Clean Water Services suggested that the City hire a greenspace coordinator to proactively manage City tree and forest resources. The Tualatin Riverkeepers said the City needs to establish a sustainable source of funding for its urban forestry program to assist in the long term management of invasive species. The Tree Board suggested that there needs to be more coordination between City departments and divisions when administering the urban forestry program. Although a minority view, the HBAMP's position is that there should be no urban forestry program because the costs outweigh the benefits of such a program.

The City's internal coordination meetings highlighted the need for more communication between departments and divisions. More communication would improve the management of tree hazards, ensure City development projects are adhering to applicable Code requirements, improve the tracking of trees after development, and provide more transparency as to how and where the Tree Fund is being utilized. The internal coordination meetings also highlighted the need for a written set of tree protection

and replacement standards for City projects so that the City can take a leadership role in urban forestry.

The community survey results demonstrate public support for increased funding through fees and taxes for the City's urban forestry program (~56% support, ~39% oppose). (See Figure 6 at right.) The public showed a preference for urban forestry efforts to focus on streamside trees and other natural forested areas. These results indicate that residents would support the hiring of a greenspace coordinator to directly manage the nearly 180 acres of City-owned tree canopy in Tigard.

The sub-goals and implementation measures recommended in the UFMP to support the goal of improved City management include developing methods for inventorying and tracking trees and urban forestry related expenditures, developing a written set of urban forestry standards for City projects, securing a sustainable funding source for urban forestry, and hiring a greenspace coordinator to manage the City's natural areas.

Would you strongly support, support, oppose, or strongly oppose additional funding from increased City fees, charges or property taxes to fund a more comprehensive tree planting and maintenance program in Tigard parks and open spaces?

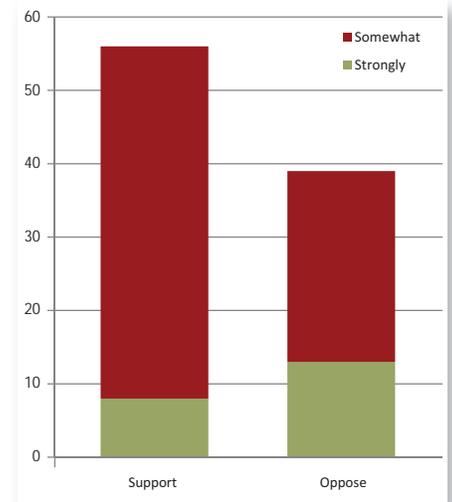


FIGURE 6

CHAPTER 6: Stewardship



In 2007, Tigard had 24% citywide tree canopy which is well below American Forests' target recommendation of 40% for Pacific Northwest cities.



Implementation Goal 6: Develop an urban forestry stewardship program.

Urban Forest stewardship has been a vital component of life in the area now known as Tigard for thousands of years. 3,500 years before present, Kalapuya (Native Americans) began managing the forests of the Willamette Valley using fire (pyroculture). At about the time of European settlement in 1851, canopy coverage within the current City limits of Tigard was estimated to be 52.4% (3,966.9 acres). The predominant tree species were Oregon ash, red alder, bigleaf maple, willow, black cottonwood, Oregon white oak, western red cedar, and Pacific dogwood in the riparian and wetland areas. The upland areas were dominated by Douglas-fir, bigleaf maple, grand fir, Pacific dogwood, western hemlock, Oregon white oak, red alder, western red cedar, and ponderosa pine. (See Figure 7 below.)



Forest types/
vegetation
present circa
1851.¹
Estimated 1851
canopy cover
within 2008
Tigard city limits
(outlined in red)
based on forest
types is 52.4%.²

FIGURE 7

¹Hulse, D., S. Gregory, and J. Baker, eds. 2002. **Willamette River Basin Planning Atlas: Trajectories of Environmental and Ecological Change.** The Pacific Northwest Ecosystem Research Consortium. Corvallis, OR: Oregon State University Press.

²Johnson, B.R., 2008. **Personal communication on November 12.** Associate Professor of Landscape Architecture, University of Oregon. Eugene, OR.

Abbreviation	Forest Type	Vegetation Type
FF	Closed forest; Upland	Douglas fir forest, often with bigleaf maple, grand fir, dogwood, hazel, yew. No other conifers present. No Oak.
OFZ	Woodland	Douglas fir woodland or “timber” often with bigleaf maple, alder or dogwood. No oak, hemlock or cedar. Brushy undergrowth of hazel, vine maple, young Douglas fir, bracken etc.
OFOPZ	Woodland	“Scattering” or “thinly timbered” Douglas fir-white oak-ponderosa pine woodland, with brushy undergrowth of hazel, bracken, etc. May include small openings.
FFP	Closed forest; Upland	Douglas fir-ponderosa pine forest; no oak, includes ash, red alder, hazel, Oregon grape, vine maple.
FALW	Closed forest; Riparian & Wetland	Ash-alder-willow swamp, sometimes with bigleaf maple. Often with vine maple, ninebark, hardhack, cattails. Ground very soft, mirey or muddy, usually with extensive beaver dams.
OFOZ	Woodland	Scattering or thinly timbered Douglas fir-white oak woodland. May contain bigleaf maple; brushy understory of hazel, young oaks, oak brush, young fir, bracken. No pine.
FFHPP	Closed forest; Upland	Mixed conifer forest, with ponderosa pine. May include Douglas fir, red cedar, western hemlock, bigleaf maple, white oak, red alder, dogwood, vine maple.
OFHC	Woodland	Conifer-dominated woodland; various combinations of Douglas fir, red cedar, hemlock, bigleaf maple, white oak, red alder, dogwood. No ash present.
FFHCbu	Closed forest; Upland	FFHC, but burned, often with scattered trees surviving fire.
FFHC	Closed forest; Upland	Mesic mixed conifer forest with mostly deciduous understory. May include Douglas fir, western hemlock, red cedar, grand fir, bigleaf maple, yew, dogwood, white oak, red alder.
FFO	Closed forest; Upland	Douglas fir-white oak (bigleaf maple) forest, with brushy understory of hazel, young oak, oak brush, oak sprout, bracken, briars, sometimes willow.
FFA	Closed forest; Riparian & Wetland	Ash-mixed deciduous riparian forest with combinations of red alder, bigleaf maple, black cottonwood, white oak, dogwood. Conifers may be present in small quantities.

As Tigard became settled, native forests were cleared for agricultural uses and timber to help support development. After Tigard was incorporated in 1961, the City began passing codes to manage the urban forest beginning in 1967 with street tree planting requirements, and continuing in 1983 and 1997 with the passage of codes that regulated tree removal. The City hired its first urban forester in 1998 and created the Tree Board in 2001. The City of Tigard has been named a Tree City USA every year since 2001 and was awarded the Tree City USA Growth Award in 2009 for its expanded urban forestry efforts.

In 2007, Tigard had 24% citywide tree canopy which is well below American Forests’ target recommendation of 40% for Pacific Northwest



Logging in Tigard area — 1904



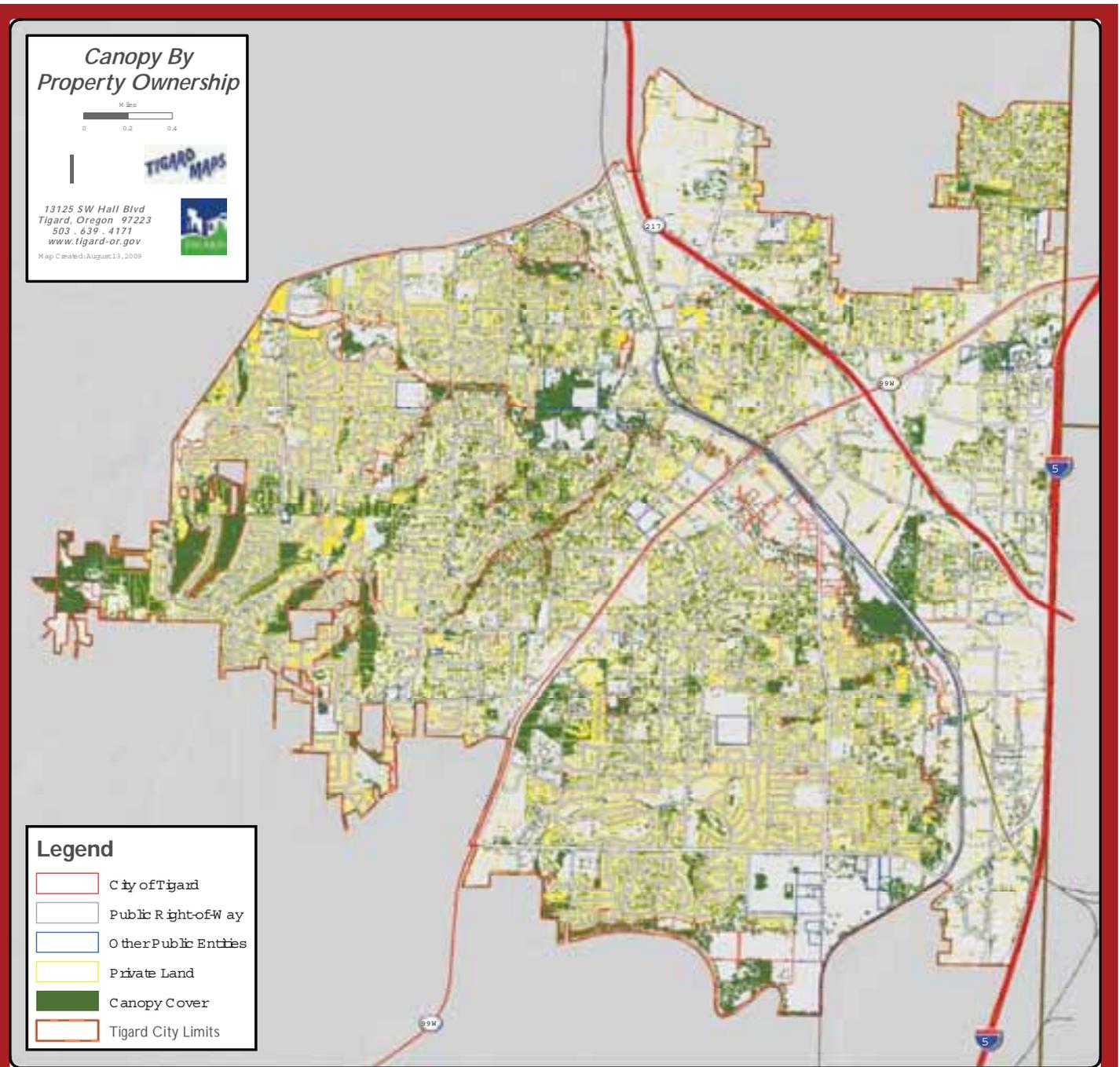
The Hunziker Dairy Farm near Garden Home. Mr. Hunziker is in center of picture wearing hat and coat.



The City of Tigard has been named a Tree City USA every year since 2001 and was awarded the Tree City USA Growth Award in 2009 for its expanded urban forestry efforts.

cities. An analysis of existing tree canopy combined with plantable locations confirmed that 40% citywide tree canopy cover is achievable in Tigard. While citywide tree canopy is currently stabilized (1% decrease from 1996–2007), it is becoming increasingly fragmented (larger groves are being replaced by individual trees). (See Figure 8, next page.) Because 78% of Tigard's tree canopy is on private property and only 7% of Tigard's land area is on buildable lands, it is critical to develop an urban forest stewardship program that includes all residents and property owners in the City.





Canopy/Property Ownership Summary

Taxlot Ownership	May 13, 2008 Taxlots		2007 Canopy Cover	
	Number of Taxlots	Total Acres	Acres of Canopy Cover in 2007	Percent Canopy Cover in 2007
City of Tigard	235	388.41	179.18	46.13%
Public Right-of-Way	n/a	1,288.30	117.45	9.12%
Other Public Entity	79	431.65	105.1	24.35%
Private	15,880	5,447.64	1,450.96	26.63%
Total	16,194	7,556.00	1,852.69	24.52%

FIGURE 8

Most stakeholder groups support the goal of developing and participating in an urban forest stewardship program. The Tree Board wants future urban forestry codes to address areas outside development and provisions translated into something the public can understand. They also want more community education on urban forestry issues, and for the City to continually measure progress on canopy changes and community attitudes so that policy effectiveness can be easily evaluated in the future.

Portland General Electric and the Tigard-Tualatin School District have offered to partner with the City on tree planting and maintenance projects. The Tualatin Riverkeepers and Clean Water Services would like more focus on managing invasives in natural areas and have offered to assist the public on long term resource management.

Although there is a high level of satisfaction with the current state of Tigard's urban forest, survey results show the public would support an urban forest stewardship program with 76% of residents wanting more resources directed towards maintaining and protecting existing trees. (See Figure 9.) Many would be willing to become directly involved with 52% of residents saying they would prefer volunteering to plant and maintain trees rather paying a fee to the City to do it. Residents also want to protect the trees in their existing neighborhoods with 75% saying they would support regulations for developed private property that would protect large, healthy trees. (See Figure 10.)

The sub-goals and implementation measures in the UFMP that support the goal of developing an urban forest stewardship program include increasing urban forestry outreach materials, utilizing funding for tree planting and maintenance on public and private property, and developing regulations to prevent clear cutting. Also, long term objectives include periodically updating the Urban Forestry Master Plan in order to track progress and set new goals, achieving not net loss of tree canopy between 2007 and 2015, and achieving 32% and 40% citywide tree canopy by 2027 and 2047 respectively.

It would benefit the City if more resources could be directed to better maintain and protect existing trees.

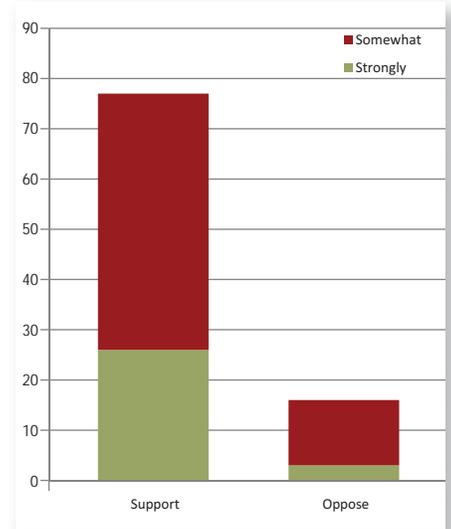


FIGURE 9

Would you strongly support, support, oppose, or strongly oppose city regulations that would provide some level of protection for large, healthy trees on developed private property? This would apply to all current private property.

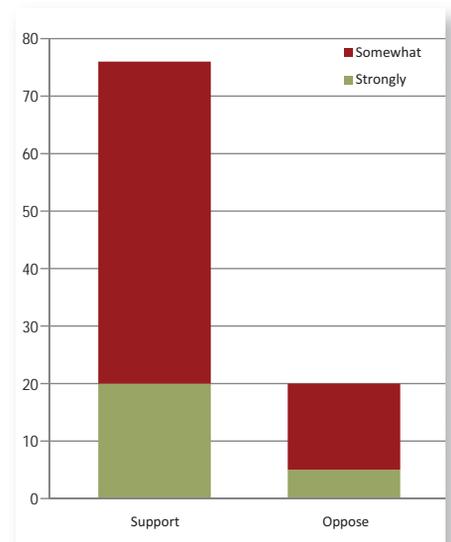


FIGURE 10

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Glossary



Buildable Lands Inventory (BLI) — The Tigard BLI defines buildable land as: 1) privately owned taxlots that are vacant; or 2) larger privately owned taxlots that are developed but with $\frac{1}{4}$ acre or greater of the taxlot vacant. Additionally, publicly owned land, sensitive lands, water quality tracts, and homeowner association owned lots within subdivisions are not included. Platted, vacant lots within subdivisions are considered buildable until development has occurred.



Canopy Cluster — A contiguous area of canopy cover created by a group of trees. Using Feature Analyst software on aerial photos of Tigard, a canopy layer was created in Tigard's GIS database. This layer was used to analyze the size and location of canopy clusters in Tigard.

Canopy Cover — The area above ground which is covered by the trunk, branches, and foliage of a tree or group of trees' crowns.

GIS (Geographic Information System) — An integrated collection of computer software, and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.



Invasive — Species that spread at such a rate that they cause harm to human health, the environment, and/or the economy.

Ornamental Trees — Trees cultivated primarily for aesthetics and other direct human benefits.

Sensitive Lands — As defined by the Tigard Development Code, lands potentially unsuitable for development because of their location within:

1. The 100-year floodplain or 1996 flood inundation line, whichever is greater;
2. Natural drainageways;
3. Wetland areas which are regulated by the other agencies including the U.S. Army Corps of Engineers and the Division of State Lands, or are designated as significant wetland on the City of Tigard "Wetland and Stream Corridors Map";
4. Steep slopes of 25% or greater and unstable ground; and
5. Significant fish and wildlife habitat areas designated on the City of Tigard "Significant Habitat Areas Map."

Tree Density — The number of trees per unit area.

Tree Fund — A fund created by the City of Tigard for the purpose of replacing trees that are removed during development activities. It is funded by development projects that do not plant replacement trees, and is used by the City to cover its costs of planting an equivalent amount of trees elsewhere.

Tree Grove — A group of trees, often with contiguous crowns, which form a visual and/or biological unit.

Tree Hazard Assessment — A systematic process of identifying tree hazards.

Tree Risk Assessment — A systematic process to determine the level of risk posed by a tree, tree part, or group of trees.