City *of* Tigard

Urban Forestry Code Revisions Project

VOLUME I | PROJECT OVERVIEW | JULY 2012

City *of* Tigard
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"Community attitude surveys reveal that Tigard Citizens place high value on the protection of trees and are concerned about the impact of development upon existing tree resources."

Tigard Comprehensive Plan

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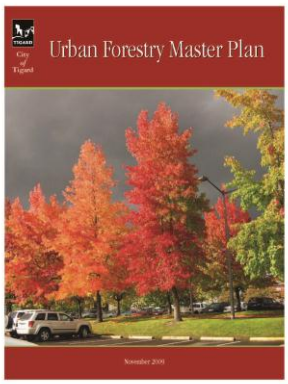
Project Introduction

The City of Tigard has a proud history of commitment to preserving, enhancing and maintaining its urban forest. The city's trees provide an important backdrop for life in Tigard. Unlike natural forests or managed timberland, Tigard's urban forest is a mosaic of native forest remnants and planted landscapes interspersed with buildings, roads and other elements of the built environment. To implement Tigard's Comprehensive Plan as recommended by the Urban Forestry Master Plan, City Council set forth a vision that "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."

In pursuit of this vision, council directed staff to undertake the major update of Tigard's urban forestry related code provisions described in the Master Plan. Council intends the new and updated code language to more adequately reflect the needs of our changing and growing community.



The Urban Forestry Master Plan is included in its entirety in Volume V.

Problem Statement

During the Urban Forestry Master Plan process, a wide range of stakeholders, including community groups, developers and staff, identified concerns about the city's current tree regulations. Key concerns included:

- The code does not promote the preservation of high quality trees.
- The mitigation structure encourages overplanting and the preservation of large diameter trees that are often less likely to survive development impacts.
- The fees for tree removal are excessive.
- The code unfairly burdens those property owners with existing trees more than those owners without trees.
- The code is administratively difficult to implement because it is challenging to track protected and replacement trees in the years and decades following development.
- The code lacks specificity and has conflicts between various provisions, which creates administrative challenges and confusion.
- The code does not require sustainable installation and maintenance methods for trees.
- The code does not provide flexible standards and incentives for preserving native tree groves.

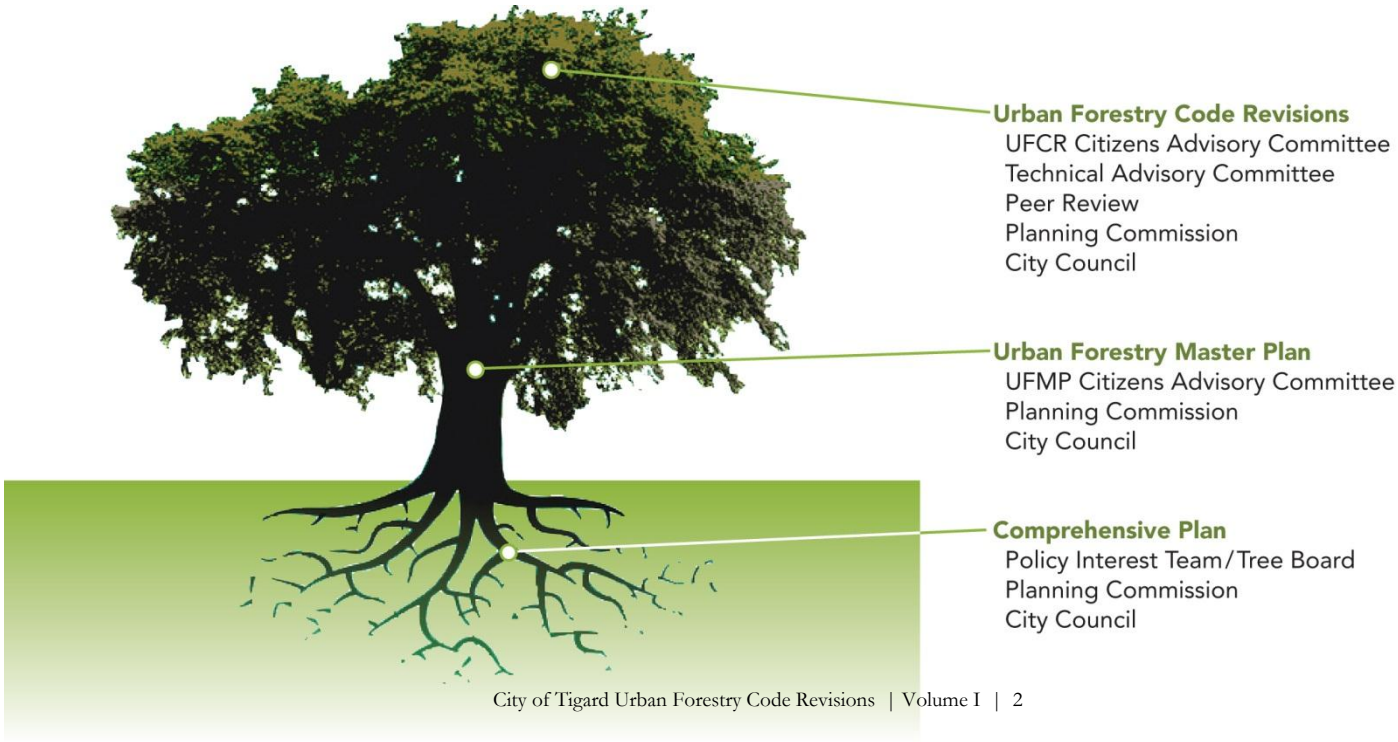
Goals Statement

Following adoption of the Urban Forestry Master Plan, council directed staff to undertake the Urban Forestry Code Revisions project including:

1. Update Tigard's urban forestry standards for development.
2. Ensure urban forestry standards promote sustainable design and maintenance of the urban forest.
3. Establish an incentive-based program to preserve Tigard's remaining groves of native trees.
4. Develop an equitable and efficient hazard tree identification and abatement program.
5. Improve management of the urban forest by ensuring information is readily available for both the city and the public when making decisions.
6. Promote community-wide participation in urban forest stewardship.

Collaborative Process

As described above, the Urban Forestry Code Revisions project represents the convergence of community collaboration on several urban forestry related projects. Community input was integral to the completion of both the Urban Forest section of the Comprehensive Plan and the Urban Forestry Master Plan. Public involvement for the Urban Forestry Code Revisions has built on these previous efforts. Led by the Community Development Department, the Urban Forestry Code Revisions Project has involved ongoing, extensive collaboration with city residents and stakeholders, internal city departments such as Public Works and Risk Management, and outside agencies like Clean Water Services.



Overview of Key Elements

To implement the project goals, the Urban Forestry Code Revisions project outcomes are presented in five major categories, the key elements of which are described below.

Urban Forestry Standards for Development (Title 18)

- Requires all major developments to plant or preserve a certain amount of tree canopy to support goals for citywide tree canopy cover. The required tree canopy has been extensively tested and peer reviewed to ensure it is achievable and results in a reasonable balance between trees, open space and development.
- Tree canopy standards are tiered based on zoning. For example, development in low density residential areas will be required to have more tree canopy than in areas of dense zoning, such as downtown Tigard.

"

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

"

Definition, Tigard Urban Forestry Code Revisions

Tree Grove Preservation Incentives (Title 18)

- Provides flexible standards and incentives to preserve large groves of primarily native trees during development. This includes options to have fewer housing units than the code would otherwise require or increase housing units on one part of a property to preserve trees on another part.
- The city identified 70 large groves of primarily native trees covering 527 acres that are eligible for the tree grove preservation incentives. All of the groves have been mapped and property owners have been contacted to raise awareness of the incentives consistent with statewide planning requirements.

Tree Permit Requirements (Title 8)

- Consolidates existing tree permit requirements scattered throughout the code into the newly created Tigard Municipal Code Title 8 for ease of use. The tree categories that will continue to be protected through a permit process include street trees, trees in sensitive lands, trees required with development, trees planted using the city's Urban Forestry Fund, and Heritage Trees.
- Streamlines the decision-making process without regulating additional tree situations. When the reasons for tree removal are simple (e.g. poor/hazardous condition, damaging structures/infrastructure, etc.) the permitting process will be simple.

When healthy trees are proposed for removal, the public will have an opportunity to comment without requiring an expensive and time consuming land use review.

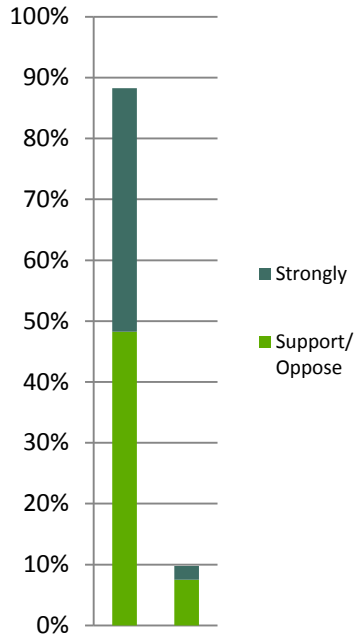
Hazard Trees (Title 8)

- Creates a process for resolving hazard tree issues in a more equitable, objective and efficient way. While neighbors are encouraged to work out their issues amicably, a third party arborist could be hired to provide an objective voice and a path towards resolution.
- The existing hazard tree process is unclear about the city's role in hazard tree issues. The recommended process clarifies the city's roles which not only makes the process more efficient, but also has the result of limiting the city's legal exposure.

Urban Forestry Manual

- The Urban Forestry Manual is an essential element of the project because it provides regulatory text in the form of administrative rules that implement the code details in Title 18 and Title 8 described above.
- The Urban Forestry Manual documents most of the city's current administrative practices regarding tree planting, preservation and maintenance which provides certainty to users of the code without making the code itself excessively long.

Would you strongly support, support, oppose, or strongly oppose city regulations that would require that some trees be preserved and new ones planted on sites that are being developed?



* Excerpted from a statistically valid survey of Tigard residents conducted as part of the 2009 Urban Forestry Master Plan. Full results are available in Appendix A of the Master Plan located in Volume V.

Organization of the Urban Forestry Code Revisions Documents

The Urban Forestry Code Revisions project is presented in five volumes. Volume I provides the project overview and describes the process used to develop all of the elements. Volume II is the land use elements of the code, and Volume III the non land use elements. Volume IV contains the Urban Forestry Manual. Volume V contains technical reports and research that contributed to the code revisions along with details of the public input and deliberations to date.

Volume I | Project Overview

Project Overview includes the following sections:

- Project Introduction
- Overview of Key Elements
- Key Element Summaries
    - Urban Forestry Standards for Development
    - Tree Grove Preservation Incentives
    - Tree Permit Requirements
    - Hazard Trees
    - Urban Forestry Manual

Appendix A includes additional detail about the information used to shape the Urban Forestry Code Revisions Project, and includes the following sections:

- Process summary
- Summary of Community Ideas and Concerns
- Summary of Planning Commission Deliberations
- Existing Conditions

Volume II | Land Use Elements

Community Development Code (Title 18) is the Planning Commission's recommended draft of the Development Code. This section includes commentary on the amendments.

Peer Review demonstrates how the Planning Commission's recommended draft of the Development Code and Urban Forestry Manual will work in application.

ESEE Analysis is a report that addresses Statewide Planning Goal 5 - Natural Resources requirements for the preservation of Significant Tree Groves.

Staff Report and findings includes the staff recommendation for approval of the land use elements (Title 18 and the Comprehensive Plan Amendment) and the findings that demonstrate the land use elements meet the necessary approval criteria.

Volume III | Non Land Use Elements

Tigard Municipal Code is the staff proposed draft of the Municipal Code (Title 8 and other Municipal Code titles). This section includes commentary on the amendments.

Volume IV | Urban Forestry Manual (Administrative Rules)

Urban Forestry Manual consists of administrative rules that implement the technical details of the urban forestry related code provisions in Title 8, Title 18 and other applicable titles in the Tigard Municipal Code.

Volume V | Additional Background Materials

Planning Commission Deliberations details Planning Commission discussion and decisions during the public hearing process.

Amendment Requests Document for the Planning Commission lists code amendment requests received in response to the first Planning Commission public hearing and staff responses.

Outstanding Issues for the Urban Forestry Code Revisions includes additional information on the outstanding issues that were further deliberated by the Planning Commission before making their final recommendation to City Council on May 7, 2012.

Log of Input lists the input received and any code changes from the last meeting of the CAC to the staff proposed draft of the Urban Forestry Code Revisions to Planning Commission.

CAC Guiding Principles includes the consensus view of the Citizens Advisory Committee (CAC) developed to help guide the legislative adoption process.

Tree Values includes information and current research on the environmental, economic, social and aesthetic benefits of trees.

Canopy Standards explains the reasons for adopting tree canopy cover requirements as well as the methods used to arrive at the requirements.

Soil volume details research about the soil volume required to support a mature tree canopy.

Tree Canopy Fee discusses research used to develop a square foot value for tree canopy.

Regulatory Comparison is an excerpted report prepared by Metro and the Audubon Society that summarizes and compares regional urban forestry programs and regulations.

Urban Forestry Master Plan is the City of Tigard's recommended plan for achieving the urban forestry goals in the Comprehensive Plan.

Key Element Summaries

The following pages summarize the aspects of the proposal that received the most attention throughout the Urban Forestry Code Revisions process. Below is a guide to the proposal summary:

Category	Land Use or Non Land Use Element	Aspects Covered in Proposal Summary
Urban Forestry Standards for Development	Land Use (Title 18)	• Tree Canopy Approach (page 9) • Tree Canopy Requirements (page 12) • Implementation: Urban Forestry Manual (page 14)
Tree Grove Preservation Incentives	Land Use (Title 18)	• Tree Grove Preservation Incentives (page 17)
Hazard Trees	Non Land Use (Title 8)	• Resolution of Hazard Tree Situations (page 20)
Tree Permit Requirements	Non Land Use (Title 8)	• Tree Removal Permits (page 23) • Heritage Tree and Significant Tree Program (page 22)
Urban Forestry Manual	Non Land Use (Title 8 and Title 18)	• The Urban Forestry Manual consists of administrative rules that implement the details of the urban forestry related code provisions. (Page 25)

At the conclusion of each section the location of additional information within the five volumes is provided.

Tree Canopy Approach

Background

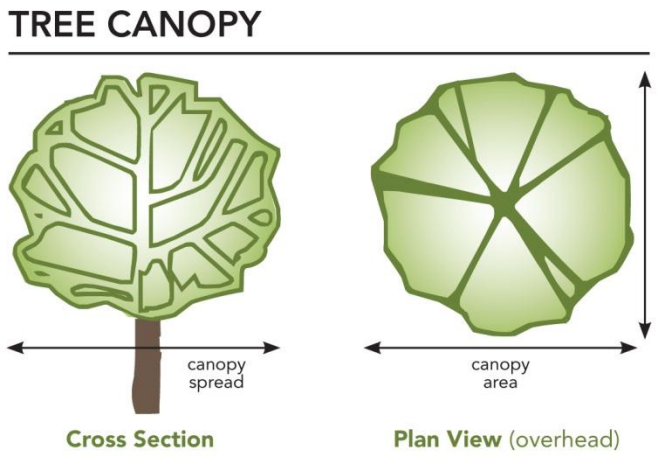
The decision to shift Tigard's urban forestry standards for development to a tree canopy approach has been the subject of several community conversations, first at the Citizens Advisory Committee (CAC) and then at the Planning Commission. A more detailed summary of the tree canopy approach discussions can be found in the appendix to Volume I.

The CAC's consensus recommendation was that the tree canopy approach, which requires development to achieve a certain percentage of tree canopy through planting or preservation, is the best way to address previously raised community concerns.

During past planning processes, there was general agreement that the existing development code unfairly burdens property owners with existing trees and encourages the overplanting of replacement trees. The reasoning was that mitigation requirements apply only to property owners with existing trees over 12-inch trunk diameter, and replacement trees or fees are required based on the diameter of trees removed.

For example, if a 12-inch diameter tree is removed, replacement with 6, 2-inch diameter trees or a $1,500 fee in lieu of replacement ($125/inch fee) is required. While property owners without any trees get off "scot-free", property owners that have been stewards of their trees over the years could pay into the hundreds of thousands of dollars to make way for development.

During the Urban Forestry Master Plan process, the community recommended addressing this equity issue as part of the development code revisions by creating "… canopy cover…requirements for all lots to be met by either preserving existing trees or planting new trees". Council concurred during acceptance of the Master Plan.



Definition

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

This means that regardless of what a property looks like before development, a certain standard of tree canopy should be met after development is complete.

While the Planning Commission supported the CAC consensus recommendation for a tree canopy approach, key changes were made to the proposal by the Planning Commission, in response to public input, which include:

- Reducing the amount of tree canopy required for higher density residential development;
- Allowing required tree canopy to be measured for the overall development site rather than individual lots for higher density residential development and non-residential development; and
- Granting bonus credits for planting native trees.

Additional details on the tree canopy approach can be found in the Canopy Standards memo in Volume V.

Tree Canopy Approach

Innovative Approach

While the tree canopy approach is innovative, the CAC and Planning Commission were comfortable with being on the leading edge and felt it was right for Tigard for three main reasons:

- The canopy approach allows maximum flexibility for the project designer to meet code requirements.
- The canopy approach is more consistent with urban forest science and the city's long-term urban forestry goals. It encourages large stature, appropriately spaced trees, which have the highest benefit/cost ratios.
- The canopy approach requires the project designer to consider future canopy growth, which helps ensure that trees are properly placed within a site to become long-term amenities. It encourages appropriate tree spacing and setbacks from buildings by highlighting mature canopy growth.

The tree canopy approach has the added benefit of supporting the community's long term urban forestry goals to increase tree canopy citywide from the current amount of 24% to 32% by 2027, and 40% by 2047.

Tree Mitigation vs. Canopy Approach

The following two examples on page 12 demonstrate some of the differences between the tree mitigation approach in the current code and the tree canopy approach in the proposed code. In the current code, mitigation requirements often result in the planting of many, closely spaced trees. This is not only incompatible with most people's landscape design preferences, but overcrowding of trees can be a detriment to long term tree health and stability. In the proposed code, tree canopy requirements ensure adequate spacing which accounts for the long term growth of trees while allowing for aesthetically pleasing landscape design.

Planning Commission ◂ Commissioners took a significant amount of time to receive public testimony and deliberate on the proposal.

Peer Review

Staff and consultants extensively tested the tiered tree canopy requirements on a wide range of development projects to ensure they are achievable, result in a reasonable balance between trees and development, and do not force typical development projects to pay a fee in lieu of canopy or utilize the discretionary review option.

The peer review results demonstrate that these goals have been met. The Planning Commission concurred after studying the peer review and discussing the results at length with staff and consultants during their public hearing process. The peer review can be found in Volume II.

For More Information

Canopy Standards Memo: Volume V

Peer Review: Volume II

Summary of Community Ideas and Concerns, Urban Forestry Standards for Development: Volume I

Planning Commission Deliberations: Volume I

Urban Forestry Master Plan: Volume V

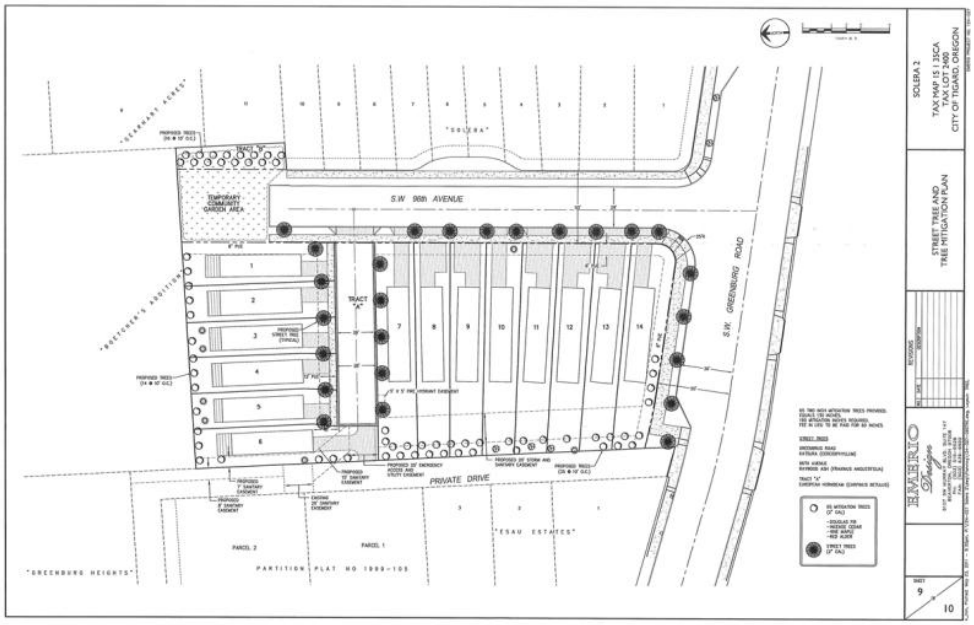
Tree Canopy Fee Memo: Volume V

Tree Values Memo: Volume V

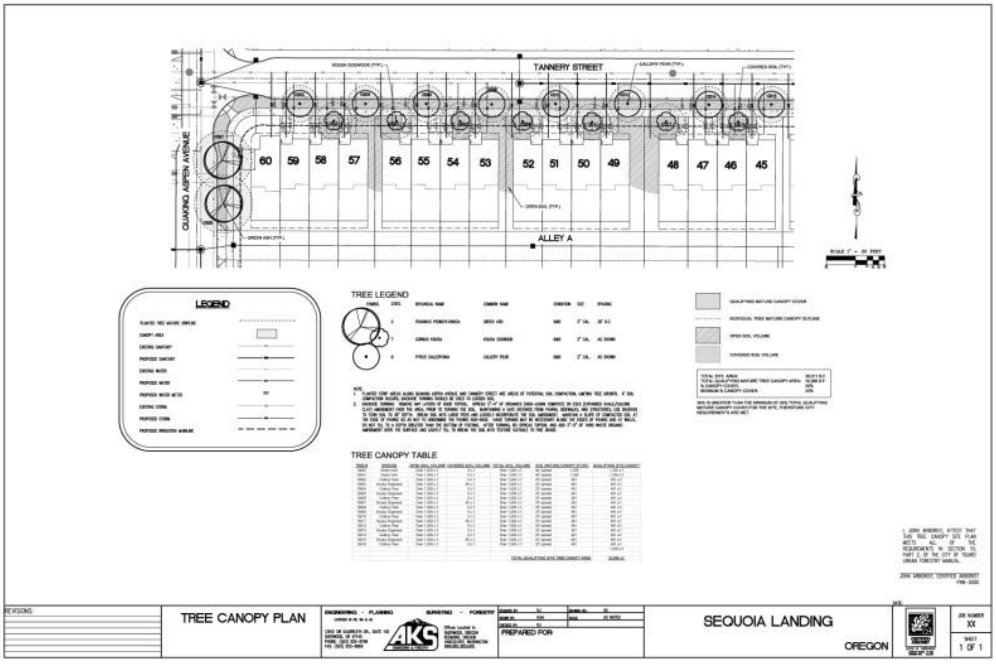
Portland Metro Area Regulatory Comparison Report: Volume V

Tree Canopy Approach

Tree Planting Plan - Current Code



Tree Planting Plan - Proposed Code



Benefits of the Proposed Code

◀ The first site plan shows how tree mitigation requirements in the existing code are met. Note that this plan includes Douglas-firs planted 10 feet on center with up to 8 trees in the backyards of lots. This is incompatible with most people's landscape design preferences.

◀ The second site plan shows how proposed tree canopy requirements, which do account for the future growth of trees, with appropriate spacing and setbacks from buildings, could be met. The second site plan is also desirable because the design enhances street tree canopy, prove to have high environmental benefits and increase the value of surrounding real estate.

Tree Canopy Requirements

Summary

The Urban Forestry Standards for Development represent the biggest change from existing to proposed code. A shift in focus from development mitigation requirements to a tree canopy approach is a cornerstone of the proposed code.

Currently, tree planting and preservation requirements are determined by the number and trunk diameter of existing trees on the site during land use review. So, if you have few trees to begin with, few trees will be required with development.

In the Planning Commission's recommendation for Title 18, each development within the same zone starts with the same requirements, and these requirements are calculated using tree canopy. Hence, the name "tree canopy approach."

How it works

- Chapter 18.790: Urban Forestry Plan sets out effective tree canopy targets for the following types of land use review: Conditional Use, Downtown Design Review, Minor Land Partition, Planned Development, Sensitive Lands Review, Site Development Review, and Subdivisions. See Volume II for Chapter 18.790.
- The Urban Forestry Manual sets specific tree canopy requirements based on zoning: 40%, 33% or 25% effective canopy across the development. See Volume IV for the details on calculating percent tree canopy.
- Developers have four options they can combine to meet the effective tree canopy requirements:
    - Preservation
    - Planting
    - Fee in lieu
    - Discretionary Review
- In the proposal, preservation of existing trees receives 200% canopy credit to incentivize preservation. Planting of native trees also receives bonus credits to encourage species which contribute to Tigard's sense of place.
- Bonding is required to ensure the establishment of all newly planted trees which is consistent with the city's current practice.

Meeting Canopy Targets

In their guiding principles, the CAC set a preference for flexibility in meeting the tiered tree canopy requirements.

Preservation

Trees in good condition, suitable for preservation and of appropriate species receive 200% credit based on their existing canopy area.

Planting

The calculated mature canopy area of all trees planted receive canopy credit, native trees receive credit for 125% of their mature canopy area.

Fee-in-Lieu

A fee can be paid for planting or preserving trees elsewhere.

Discretionary Review

Innovative, alternate development proposals that provide equivalent environmental benefits (hydrological, climate or wildlife) can be used instead of planting or preserving trees.

Tree Canopy Requirements

Tiered Tree Canopy Requirements

Tier 1

Effective tree canopy: 40%
Actual onsite tree canopy: 16-40%
Zones: Low and Medium Density Residential

Tier 2

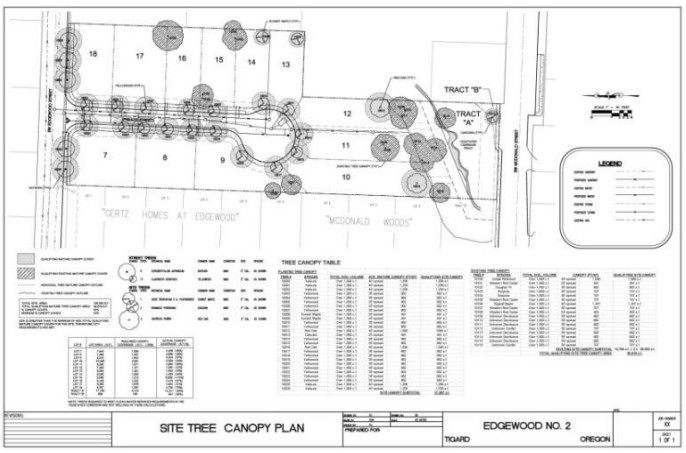
Effective tree canopy: 33%
Actual onsite tree canopy: 13-33%
Zones: Medium-High and High Density Residential; Neighborhood, Community, General, and Professional/Administrative Commercial; Mixed-Use Employment, Commercial, and Residential; and Industrial Park

Tier 3

Effective tree canopy: 25%
Actual onsite tree canopy: 10-25%
Zones: Mixed Use Central Business District, Mixed Use Comercial-1; Light and Heavy Industrial; and schools in all zones

Tree Plan Requirements

▾ In the proposed code urban forestry plans will be required for development projects requiring higher levels of review (Type II or III). Tree plan requirements are included in the Urban Forestry Manual.



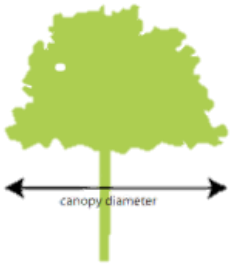
Effective vs. Actual Onsite Canopy

The term effective tree canopy is used to distinguish the actual tree canopy that may be present within the lot lines of a particular development. To meet effective tree canopy requirements, the preservation of existing trees is granted 200% canopy credit, the planting of native trees is granted 125% canopy credit and planting of street trees is granted full canopy credit even though half of their canopies overhang streets, which are not part of the calculations.

The end result is that even though a particular development may have a 40% effective tree canopy requirement, as little as 16% of the development may actually be covered in tree canopy.

Mature Canopy Area

▸ The expected canopy area for a list of common street trees, parking lot trees and native trees are included in the Urban Forestry Manual.



For More information

Urban Forestry Plan Requirements (Development Code, 18.790.030): Volume II

Discretionary Urban Forestry Plan Review Option (Development Code, 18.790.040): Volume II

Peer Review: Volume II

Urban Forestry Plan Standards (Urban Forestry Manual, Section 10): Volume IV

Implementation: Urban Forestry Manual

Summary

The Urban Forestry Manual, which can be found in Volume IV, consists of administrative rules that implement the details of the urban forestry related code provisions. Sections 10 through13 of the Urban Forestry Manual contain some of the more significant implementation details for the Urban Forestry Standards for Development, such as Urban Forestry Plan requirements, Tree Canopy and Fee-In-Lieu calculations, and Soil Volume requirements. The details for implementing the Urban Forestry Standards for Development in Title 18 are described below.

How it Works

The Urban Forestry Manual contains administrative rules that implement the details of the urban forestry related code provisions, and is organized into 13 sections. Sections 1 through 9 address tree situations outside of the land use process; hazard trees and street trees are examples. Sections 10 through 13 include the Urban Forestry Standards for Development, which are more fully described below:

Section 10 of the Urban Forestry Manual specifies:

- Site plan requirements documenting:
  - Trees to be removed or preserved with development (Volume IV, Section 10, Part 1), and
  - The location, species, size and mature canopy of trees to be planted (Volume IV, Section 10, Part 2).
- Arborist or landscape architect report requirements documenting:
  - Detailed information on each tree shown to be removed, planted or preserved on the site plans (Volume IV, Section 10, Part 3);
  - The effective tree canopy cover; and
  - Tree canopy fee calculations (Volume IV, Section 10, Part 4).
- Significant tree grove preservation considerations (Volume IV, Section 10, Part 5).

Section 11 of the Urban Forestry Manual specifies implementation standards such as monitoring requirements during development. Sections 12 and 13 detail soil volume standards for street and parking lot trees.

Calculations

Detailed information about how to calculate effective tree canopy cover is in Section 10, Part 3.M of the Urban Forestry Manual. Here are some of the highlights:

- Tigard citizens favor native trees because they create a strong sense of place. Planting native trees is encouraged by applying their mature canopies at 125%.
- Tigard citizens value healthy mature trees because they are irreplaceable. Preservation of healthy mature trees is encouraged by applying their existing canopies at 200%.
- Tigard citizens value street trees because leafy, tree lined streets help make Tigard "A Place to Call Home". Street trees are encouraged by granting full canopy credit even though the canopy may cover the street and not the development.

Through strategic site design and species selection, all three of the options described above could be used to minimize the relative amount of tree canopy to open space and development if desired by the project applicant.

Implementation: Urban Forestry Manual

Fee in lieu

Although the recommended code has been designed so that the tree canopy requirements are achievable on the typical range of development projects in Tigard, some property owners may just not want any trees on their lot.

The CAC and Planning Commission included a fee in lieu mechanism to address this personal preference while recouping the value of tree canopy for use in tree planting, preservation and other urban forestry program activities elsewhere in the community.

The tree canopy fee in lieu option is described in detail in the Tree Canopy Fee Memo in Volume V. The CAC and Planning Commission decided the tree canopy fee in lieu is a fair and reasonable proposal since it is based on the International Society of Arboriculture's tree appraisal methodology. In fact, the fee in the proposed code is lower than the fee in lieu in the existing code.

Fee Comparison

▼ Tigard staff calculated the fee per caliper inch of several local jurisdictions as an approximation in order to establish a common unit for comparison.

City	Fee Per Caliper Inch
City of Tigard (existing)	$125
City of Tigard (proposed)	$87
Beaverton	$45 - $100
Lake Oswego	$164
Oregon City	$145
Portland	$300
West Linn	$87.50
Wilsonville	Market Price
Vancouver, WA	Market Price

Soil Volumes

Trees need soil to grow. In fact, there is a direct relationship between the amount of soil provided and the mature size of trees.

The Urban Forestry Manual includes minimum soil volume standards for street trees and parking lot trees because these tree types are not typically provided adequate soil volumes. Council prioritized increasing tree canopy over streets and parking lots through the Urban Forestry Master Plan. The soil volume concept is described in the Soil Volume memo in Volume V. The details of calculating soil volumes for street trees are in Section 12 of the Urban Forestry Manual and for parking lot trees are in Section 13 of the Urban Forestry Manual in Volume IV.

For street trees, soil volumes standards are tied to the width of the sidewalk. For parking lot trees, 1000 cubic feet of soil volume is required per tree. In addition, parking lots are required to be designed to achieve 30% tree canopy cover at tree maturity.

Right of Way Width (feet)	Minimum Soil Volume Requirement (cubic feet per tree)
Up to 10	400
Over 10 up to 12	500
Over 12 up to 14	600
Over 14 up to 16	700
Over 16 up to 18	800
Over 18 up to 20	900
Over 20	1000

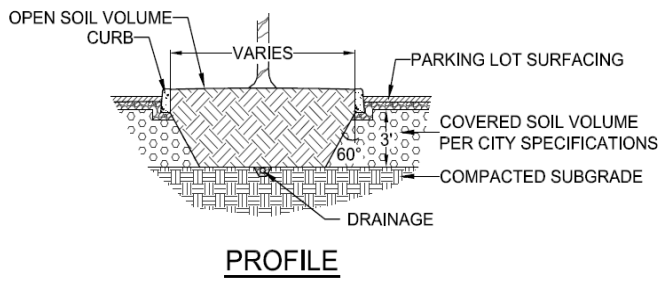
Soil Volume Standards

▲ For street trees, soil volumes standards are tied to the width of the sidewalk.

Implementation: Urban Forestry Manual

Structural Soils

On some development sites, there may not be enough room to provide open soil areas because more parking or paving is needed. In these cases, structural soils may be used under paving to provide trees with the soil volumes they need to grow



Structural Soils

▲ Appendix 17 of the Urban Forestry Manual includes example covered soil volume specifications and includes requirements for materials, placement, etc.

For More Information

Urban Forestry Plan Standards (Urban Forestry Manual, Section 10) Volume IV

Urban Forestry Plan Implementation Standards (Urban Forestry Manual, Section 11): Volume IV

Street Tree Soil Volume Standards (Urban Forestry Manual, Section 12): Volume IV

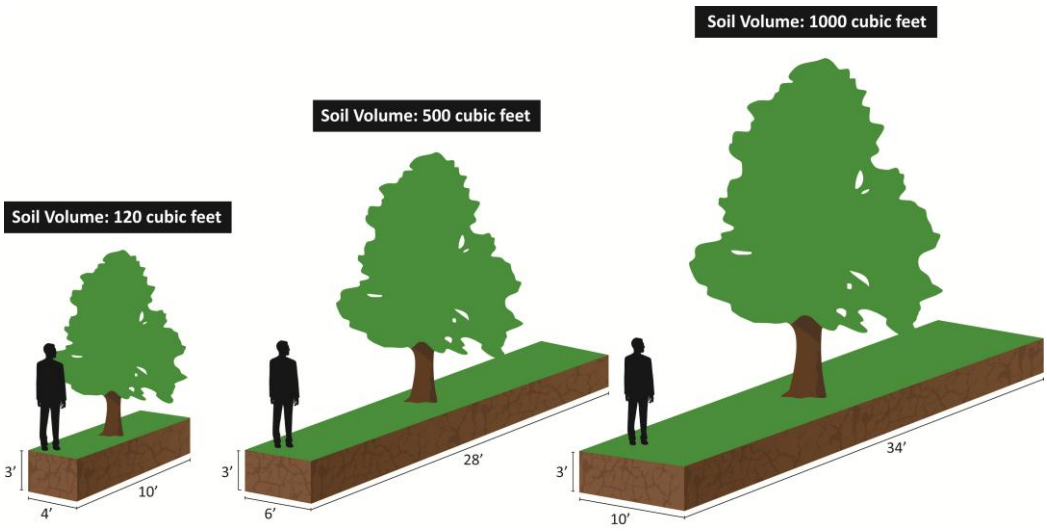
Parking Lot Tree Canopy Standards (Urban Forestry Manual, Section 13): Volume IV

Peer Review: Volume II

Canopy Standards Memo: Volume V

Soil Volume Memo: Volume V

Tree Canopy Fee Memo: Volume V



Size Potential

◀ There is a direct relationship between the amount of soil provided and the size potential of trees. Soil volume standards are included in the proposal for street and parking lot trees.

Tree Grove Preservation Incentives

Summary

The Urban Forestry Master Plan brought to light that while residents prioritize tree grove preservation, the city's large groves are disappearing. In eleven years, from 1996 to 2007, there was a 24% decline in large tree groves in Tigard. As such, council provided direction through the Urban Forestry Master Plan to, "Establish an incentive-based program to preserve Tigard's remaining groves of native trees."

Flexible standards and incentives are allowed under the proposed code to facilitate the preservation of the city's remaining tree groves. These standards and incentives were developed in compliance with statewide Goal 5 requirements and allow:

- Waiver of minimum density requirements (less units than otherwise required by code),
- Density transfer from the tree grove to the non-tree grove portion of a site,
- Attached units,
- Flexible setbacks,
- Flexible lot sizes,
- Flexible street widths, and
- Increased building heights for commercial and industrial development.

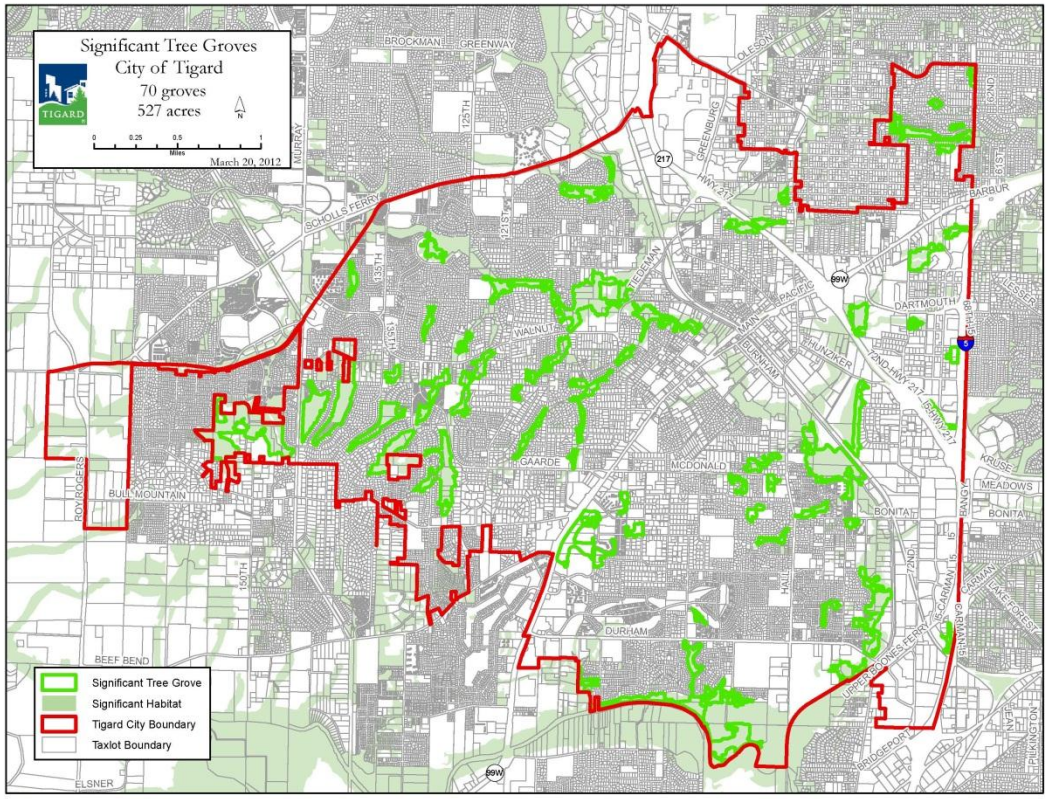
The Tree Grove ESEE analysis in Volume II describes the significant tree grove designation process. Section 18.790.050.D of the Tigard Development Code in Volume II includes the flexible code standards and incentives.

While 527 acres of tree groves are eligible, the 114 acres of tree groves on the city's buildable lands inventory are most likely to be developed and therefore utilize the flexible standards and incentives. All options are designed to increase flexibility and reduce costs for developers to preserve at least a portion of a tree grove.

How it Works

- A map of significant tree groves will be adopted into the Comprehensive Plan and maintained by the Community Development Director.
- In order to qualify for these flexible standards and incentives a new development must:
  - Contain at least 10,000 square feet of significant tree grove outside of protected sensitive lands,
  - Preserve at least 50% of tree grove onsite, and
  - Permanently protect the tree grove, such as by placing it in an open space tract.
- Project applicants will be required to work with a certified arborist or landscape architect to maximize the connectivity and viability of the preserved portion of a tree grove. Section 10, Part 5 of the Urban Forestry Manual in Volume IV includes Significant Tree Grove Preservation Considerations that will be used to guide which portion of a tree grove to preserve.
- Neighborhood compatibility components have been included in the flexible standards and incentives.

Tree Grove Preservation Incentives



Significant Tree Groves Map

◀ The city identified 70 large groves of primarily native trees covering 527 acres, including 114 acres within the city's buildable lands inventory. This map will be adopted as part of the UFCR project.

Goal 5 ESEE Analysis

To develop these new flexible standards and incentives, the city was required to follow the statewide Goal 5 requirements. The city hired a consultant to inventory Tigard's tree groves, evaluate the economic, social, environment, and energy (ESEE) consequences of preservation, and to assist in collaborating with affected property owners. 70 large groves of primarily native trees covering 527 acres have been deemed eligible for the flexible standards and incentives, including 114 acres within the city's buildable lands inventory.

The city held two tree grove open houses: one during the inventory phase, and another later in the process to discuss the draft code standards and incentives for tree grove preservation. At the first open house tree grove property owners were somewhat concerned that the city was trying to limit their property rights. However, at the second open house they realized that the flexible standards and incentives were designed to provide them with additional development options that they would not otherwise have but for the presence of their tree groves. The Tree Grove ESEE Analysis in Volume II demonstrates that the city's process of developing the Tree Grove Preservation Incentives complies with statewide Goal 5 requirements and reflects the local values of the Tigard community.

For More information

Flexible Standards and Incentives for the Preservation of Significant Tree Groves (Development Code, 18.790.050.D): Volume II

Significant Tree Grove Preservation Considerations (Urban Forestry Manual, Section 10, Part 5): Volume IV

Tree Grove ESEE Analysis: Volume II

Tree Grove Preservation Incentives

Tree Grove Preservation Example

Option 1: Standard lot subdivision, no tree grove preserved

Average Lot Size: 75-8500 sq. ft.
Number of Units: 28

Option 2: Standard lot subdivision, all tree grove preserved

Average Lot Size: 75-8500 sq. ft.
Number of Units: 15
Minimum Density Waived

Option 3: Standard and small lot subdivision, portion of tree grove preserved

Average Lot Size: 75-8500 sq. ft. and 35-4500 sq. ft.
Number of Units: 11 standard, 17 small lot
28 Units Total

Resolution of Hazard Tree Situations

Summary

It is important to recognize that trees are massive living organisms within the urban environment. Trees can sometimes quickly change from healthy specimens to weak, dead or unstable hazards to people or property around them. In recognition of the risks posed by trees, during the Urban Forestry Master Plan process the community recommended and council accepted "develop[ing] a hazard tree identification and abatement program."

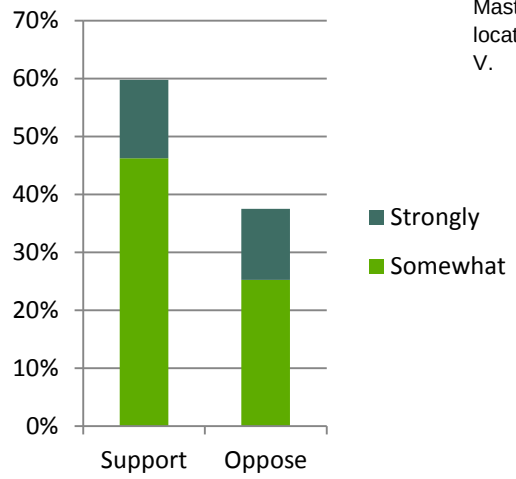
The CAC followed through on this council directive noting in their guiding principles, "When managing the urban forest, safety shall be of primary importance, and clear code standards and procedures for addressing hazard trees creates the regulatory framework for minimizing tree risk."

Hazard trees are prohibited in both the current and the proposed Tigard Municipal Code. Currently the definition of hazard tree is unclear and there is a lack of understanding about what the city's role in disputes between private property owners should be. The proposed code provides clarity about what constitutes a hazard tree and sets forth a process for resolving disputes. The purpose, as defined in Chapter 8.06 of the Municipal Code in Volume II is to "protect the health, safety, and welfare of people within the City of Tigard by establishing standards and procedures for the identification, evaluation and abatement of hazard trees." The Hazard Tree Evaluation and Abatement Procedures are detailed in Section 1 of the Urban Forestry Manual in Volume IV.

How it Works

- The definition of "hazard tree" is now consistent with the standardized rating system developed by the International Society of Arboriculture. This helps to remove subjectivity during the hazard tree evaluation process by using industry standard methods and terminology.
- When there are disputes between private property owners, the owners are required to present clear evidence that they tried to work the issue out themselves before involving the city.
- When the city does become involved, a third party arborist would be hired to conduct the evaluation in order to provide an objective voice while at the same time limiting the city's legal exposure.
- If the arborist does determine there is a hazard, abatement would be required according to a specified timeframe.

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 hazard trees?



* Excerpted from a statistically valid survey of Tigard residents conducted as part of the 2009 Urban Forestry Master Plan. Full results are available in Appendix A of the Master Plan located in Volume V.

In drafting these processes staff worked closely with the city's risk division and attorney. Both agree that the proposal creates an efficient and effective framework for addressing hazard trees while not unduly exposing the city to liability.

Resolution of Hazard Tree Situations

Abatement Procedures

The Hazard Tree Evaluation and Abatement Procedures include the options of 1) *informal reconciliation* between parties without city involvement; or 2) *formal reconciliation* where the claimant submits an application, provides information, and pays fees. The city documents informal reconciliation and ensures abatement and apportionment of costs by private property owners or through city action.

As with the current code, if there is an eminent threat to public safety, the city has the authority to immediately abate the hazard instead of following the procedures described in Section 1 of the Urban Forestry Manual.

Standing

After discussion, the CAC reached consensus that individuals or organizations who can demonstrate their life, limb or property is at risk by a tree in question have the right to file a hazard tree dispute resolution application. This is intended to limit the concern that people could use the hazard tree process as a means of harassment or intimidation.

Definition

The definition of hazard tree incorporates by reference the probability of failure, size of defective part and target area.

For More information

Tigard Municipal Code (Chapter 8.08): Volume III

Hazard Tree Evaluation and Abatement Procedures (Urban Forestry Manual, Section 1): Volume IV

Heritage Tree and Significant Tree Program

Summary

Tigard's Heritage Tree Program was established in 2005 to identify and raise public awareness of rare and/or exceptional trees due to their age, size, species, horticultural quality or historical importance. The Heritage Tree Program is voluntary, initiated by the owners of the trees.

Once approved by City Council, Heritage Trees becomes protected via deed restriction. In exchange, the property owners receive city assistance with tree maintenance, a plaque, and recognition on the city map and website.

Although the city has the capacity to designate up to two Heritage Trees per year, only four Heritage Trees have been designated since 2005. Some property owners have expressed concern about the deed restriction requirement as a reason for not applying for designation since they would lose flexibility for removing a Heritage Tree in the future.

To address these concerns, the CAC recommended establishing two tracks for publicly recognizing landmark trees. The Heritage Tree track is consistent with the city's existing Heritage Tree Program while the Significant Tree track provides for public recognition without the associated protections from removal. These tracks are detailed in Chapter 8.18 of the Tigard Municipal Code in Volume II.

Monkey-Puzzle Tree

◀ This significant tree, *Araucaria araucana*, is located at SW 103rd in Tigard.

How it Works

A two track designation system is proposed for publicly recognizing trees.

- The Heritage Tree track provides city assistance for maintenance in exchange for regulatory protection.
- The Significant Tree track allows trees to be publicly recognized without regulatory restrictions. Significant Trees would not be eligible for city assistance for maintenance since the property owner could choose to remove the tree at any time.

For More Information

Tigard Municipal Code (Chapter 8.18): Volume III

Tree Removal Permits

Proposal Summary

The following categories of trees are currently regulated by the city:

- Street and median trees,
- Trees in sensitive lands,
- Trees that were required with development,
- Trees that were planted using the Urban Forestry Fund, and
- Heritage trees.

In the proposed Title 8, these categories of trees will continue to be regulated, with no expansion of regulations to additional categories. The most notable change in this topic area is the creation of a consolidated permit system to make the permitting process clear, consistent and user friendly.

The CAC agreed that a consolidated permit system to address these protected categories of trees would make the permitting process more efficient. The group favored a dual track approach with automatic approval through a no- or low-fee process for trees that are in poor or hazardous condition, damaging property or preventing allowed development. A discretionary track would allow more unique situations to be addressed, when there is nothing wrong with the tree itself, but benefits such as views, solar access or a landscape redesign outweigh the benefits provided by the tree. The discretionary track would allow the public an opportunity to comment without requiring an expensive and time consuming land use review often required by existing code.

The group agreed not to expand the regulations to additional categories of trees.

For More Information

Tree Permit Procedures (Tigard Municipal Code, 8.04): Volume III, p. xx

Tree Removal Requirements (Tigard Municipal Code Chapter 8.10 – 8.16): Volume III, p. xx

Tree Removal Approval Criteria (Urban Forestry Manual Sections 3-9): Volume IV, p. xx

Tree Permit Comparison

Tigard currently requires tree removal permits for the categories of trees listed below. The CAC desired the new code to consolidate the permitting process to make it clearer, consistent and user friendly.

Tree Category	Permit Required In		Issues with current code
	Proposed Code	Current Code	
Street and median trees	☑	☑	▪ No criteria, so removal is always approved.
Sensitive lands	☑	☑	▪ Currently approval based on erosion, which is difficult to quantify, so permits are almost always approved. ▪ The current fee is nearly $300, which is a significant cost for a process with limited community benefit.
Required with development	☑	☑	▪ To remove a tree required with development, the original land use permit would need to be modified. This is significantly costly and time consuming.
Urban Forestry Fund	☑	☐	▪ Developing and tracking separate written agreements for each planting project is an administrative challenge.
Heritage Trees	☑	☑	▪ Heritage Trees are approved by Council and may only be removed if Council agrees or if they die.

Tree Removal Permits

How it Works

- Proposed Tigard Municipal Code Chapter 8.04 in Volume II establishes a framework for all tree permit decisions.
- Permits can be approved by way of two processes: either a staff process for simple situations or a city board or committee for more complex situations.
- Replacement is required through planting or a fee in lieu when protected trees (except heritage trees) are removed.
- The approval criteria for removing each of the protected categories of trees can be found in the Urban Forestry Manual:
    - Street and median trees (Section 3 and Section 5)
    - Trees in sensitive lands (Section 6)
    - Trees that were required with development (Section 7)
    - Trees that were planted using the Urban Forestry Fund (Section 8)
    - Heritage Trees (section 9)

Is a tree permit required?

Yes	No
Street and median trees Trees in sensitive lands Trees required with development Trees planted using the Urban Forestry Fund Heritage trees	All other situations

What type of permit is required?

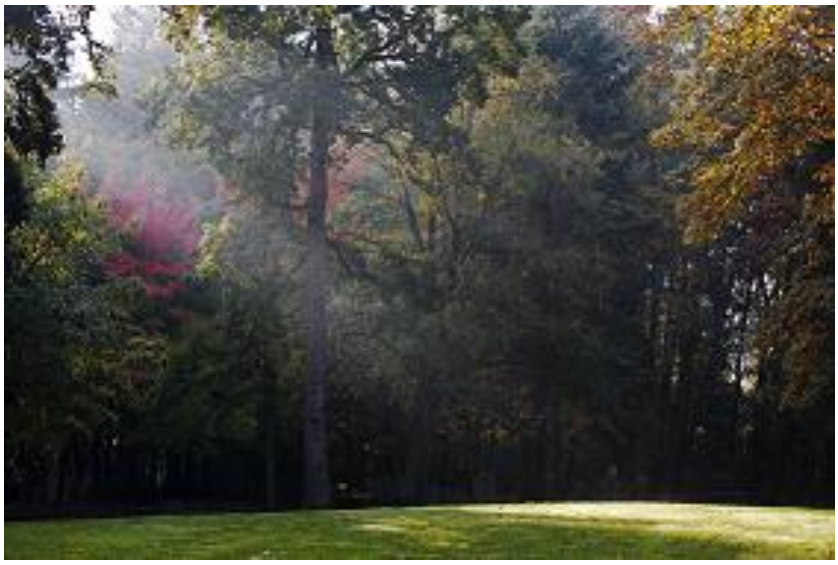
Simple	Complex
For example, trees: ▪ In poor or hazardous condition ▪ Considered a nuisance ▪ Damaging structures or infrastructure ▪ Preventing allowed development	For example, trees: ▪ Blocking views or solar access ▪ Not desirable due to species or personal preferences such as aesthetics or location

What is the process?

Simple	Complex
City staff review based on approval criteria listed in the Urban Forestry Manual	City board or commission uses discretion to weigh tree benefits and reasons for removal

Trees on City Property

The Citizen's Advisory Committee didn't continue current code into proposal, voting to remove the "Trees on City Property" section in favor of consistent regulations that applied to all properties in Tigard, regardless of ownership.



Early Morning Light
By Paul August

Urban Forestry Manual

Summary

The Urban Forestry Manual in Volume IV consists of administrative rules that implement the details of the urban forestry related code provisions in Title 8, Title 18 and other applicable titles in the Tigard Municipal Code.

These administrative rules were developed for the Urban Forestry Code Revisions project to document most of the city's current administrative practices regarding tree planting, preservation and maintenance without making the code excessively long. For example, administrative items such as planting specifications, tree lists and methods for calculating tree canopy are more appropriate in an administrative manual rather than in the code. Also when administrative changes are required such as adding or subtracting trees from the tree lists, the amendment process for administrative rules is more efficient while at the same time providing for adequate public notice and the opportunity for public participation.

How it Works

- Once authorized by council, the city manager may create and amend administrative rules according to the public process detailed in Chapter 2.04 of the Tigard Municipal Code.

Topics

Urban Forestry Manual		
Section	**Description**	**Code Title Implemented**
1	Hazard Tree Evaluation and Abatement Procedures (creates a process for the reconciliation of hazard tree disputes between neighboring property owners)	Title 8
2	Street Tree Planting and Maintenance Standards (creates a process for property owners to plant and maintain trees along streets)	Title 8
3	Street Tree Removal Standards (creates a process for property owners to remove trees along streets)	Title 8
4	Median Tree Planting and Maintenance Standards (creates a process for the city to plant trees in center landscape medians within streets)	Title 8
5	Median Tree Removal Standards (creates a process for the city to remove trees in center landscape medians within streets)	Title 8
6	Sensitive Lands Tree Removal and Replacement Standards (creates a process for property owners to remove and replace trees within sensitive lands)	Title 8
7	Development Tree Removal and Replacement Standards (creates a process for property owners to remove and replace trees that were required with development)	Title 8
8	Urban Forestry Fund Tree Removal and Replacement Standards (creates a process for property owners to remove and replace trees that were planted using the Urban Forestry Fund)	Title 8
9	Heritage Tree Designation and Removal Standards (creates a process for designating and removing both Heritage Trees and Significant Trees)	Title 8
10	Urban Forestry Plan Standards (includes plan submittal standards and methods for calculating tree canopy cover for development)	Title 18
11	Urban Forestry Plan Implementation Standards (includes requirements for monitoring trees during the development process)	Title 18
12	Street Tree Soil Volume Standards (includes specifications for providing street trees adequate soil volumes)	Title 18
13	Parking Lot Tree Canopy Standards (includes specifications for achieving 30% tree canopy for parking lots and for providing parking lot trees adequate soil volumes)	Title 18

Appendix: Additional Details

Process Summary

This section describes the planning process and public involvement efforts to date as part of the development of the Urban Forestry Code Revisions proposal. The public process kicked off in June 2010 and continues through the City Council adoption process

Citizens Advisory Committee

Tigard City Council appointed a Citizens Advisory Committee (CAC) containing a broad range of community interests to advise city staff and seek consensus solutions during the code revisions process. Council recognized the importance of a citizen group for this process as the issues related to the health of the urban forest crosses over a diverse range of interests and would benefit from thoughtful consideration by individuals representing those interests.

Figure 1: CAC and Planning Commission member Don Schmidt with his family at the first Tree Grove open house

The CAC met 11 times between June 2010 and September 2011, and was professionally facilitated by JLA Public Involvement. The 11-member committee included community members appointed by council and representing a broad spectrum of interests and expertise. In January 2011, the CAC meeting schedule was expanded to include additional and longer meetings to ensure the committee had ample time to discuss the project's topics. Community representation included members of existing city boards and committees: The Planning Commission, Parks and Recreation Advisory Board, and Tree Board. The committee also contained two members from the development community, including a Homebuilders Association representative, and single representatives from the environmental community, arborist profession, and citizens at-large.

Morgan Holen, Certified Arborist and CAC member, said, "The city has done a great job of responding to citizen input, and the draft code represents a balance of the various viewpoints heard throughout the process." The guiding principles presented in Volume V of this document represent the culmination of the CAC's work on this project.

Technical Advisory Committee

The Technical Advisory Committee (TAC) was comprised of city staff and agency representatives. It also advised staff throughout the development of the code. Internal city staff from several departments participated including Finance (Capital Improvement Program), Engineering, Development Services, Parks, Streets, Wastewater/Storm, Information Technology/Geographic Information Services, Permit Coordination, Building, Current Planning and Long Range Planning. External agency representatives included Clean Water Services and the Oregon Department of Transportation.

In total, the 20-member committee met 14 times between June 2010 and November 2011. The group's purpose was to provide recommendations to staff based upon technical knowledge and familiarity with urban forestry issues. In general, the TAC meeting schedule and agendas were similar to that of the CAC. The log of input in Volume V includes the technical input provided by the TAC, and comments of the CAC and public during the technical review phase.

Public Involvement

A public involvement plan for the Urban Forestry Code Revisions project was approved by the city's Committee for Citizen Involvement in May 2010. This plan addressed how the public involvement for the Urban Forestry Code Revisions would meet the city's Comprehensive Plan goals for opportunities for stakeholders to participate, communicate, and receive information about the project. This plan states that communication on the project will be guided by the following set of priorities:

- Employ multiple communication channels to ensure we are able to reach a broad audience.
- Keep city policy makers up-to-speed on the project
- The task is to manage conflict, not resolve it.

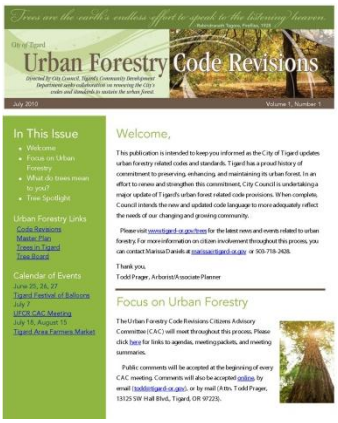


Figure 2: Project newsletters were sent by email and posted on the project website.

The theme of the initial messaging and outreach was that progress would result from improvements rather than solutions. A staff level communications team composed of the project manager and public involvement lead met regularly throughout the process to ensure the Public Involvement Plan was followed. Significant outreach efforts are described below.

Two **open houses** on the tree grove preservation incentives and one on the entire proposed code were held during the process. Comments collected at each open house helped to shape the proposal presented to the Planning Commission

A **project newsletter** was sent to interested parties by email fifteen times between July 2010 and May 2012. This newsletter featured project highlights, local tree information and ways for the community to be involved in the process.

Public comment was invited via email and at the beginning of every CAC meeting. This information was shared with both the project management team and the TAC for consideration.

Outside events attended by project staff where project information was disseminated included the Balloon Festival, CPO 4B meeting, and the Tigard Area Farmers Market.

The **city's website** was regularly updated throughout the process with project information. Specific Web tools using GIS were developed to help residents and property owners identify tree groves and trees which may be subject to permitting on their property.

The city's **Cityscape newsletter** was regularly used to announce updates about the Urban Forestry Code Revisions Project. Seventeen articles appeared between April 2010 and June 2012.

A summary of community ideas and concerns gathered throughout this process is covered in the following section.

Planning Commission Outreach

Briefings for the Planning Commission on the Urban Forestry Code Revisions project efforts began in early 2010 and continued through fall 2012. The commission received a comprehensive briefing from Community Development department staff on the Staff Proposed Draft Urban Forestry Code Revisions on January 9, 2012. The purpose of the briefing was to provide an overview of the planning process, draft code amendments and those aspects of the code that received the most attention in order to prepare the Planning Commission for their public hearings.

City Council Outreach

After directing staff to undertake the Urban Forestry Code Revisions process in February 2010 City Council remained engaged in the process through regular staff updates.

Summary of Community Ideas and Concerns

A wide range of stakeholders, including community groups, developers and staff, identified concerns about the city's current urban forestry regulations. This section summarizes the community's ideas and concerns that were addressed by the Citizen Advisory Committee on each of the urban forestry topics/code categories.

Urban Forestry Standards for Development

The city currently regulates trees during development through chapter 18.790, which requires tree protection, removal, and replacement plans. Chapter 18.745 also includes requirements for street trees, parking lot trees, and trees as buffers between differing uses.

Chapter 18.790

The major issues identified with the current tree plan requirements in chapter 18.790 are:

- The mitigation standards encourage overplanting since trees are replaced on an "inch for inch" basis rather than "tree for tree".
- Since mitigation standards are only applicable to trees over 12-inch diameter, the incentive is to retain larger trees, which are less likely to survive development impacts.
- Tree plan requirements only apply to sites with existing trees. Property owners with trees are penalized while property owners without trees are not.
- Tree plan requirements are only applicable to trees on site at or near the time of development. This incentivizes the removal of trees in advance of development to avoid tree plan requirements and mitigation.
- People often want to modify their tree plans during the course of development when they find there are conflicts between trees and buildings, roads, or infrastructure. However, the modification process is time consuming and cost prohibitive. This creates another incentive to remove all trees before development rather than risk conflicts with trees during the course of development.

The Citizen Advisory Committee consensus was that applying a tree canopy standard, which requires development to achieve a set percentage of tree canopy through planting or preservation, is the best way to address these issues. A tree canopy standard will not encourage overplanting because it is based on the mature growth of the trees rather than number of trees. It will not incentivize the preservation of inappropriate trees because the project designer will not be penalized for tree removal, as long as they replant. The committee recommended a bonus credit for preservation, which eliminates the incentive to remove trees in advance of development.

Since a tree canopy standard is unlikely to fit every future development scenario, the committee agreed there should be a tree canopy fee in lieu option and a discretionary review option when planting and preservation are not possible or are undesired. The committee also agreed there should be a low cost and user friendly process for modifying trees plans for adaptation to unforeseen circumstances during development. The committee addressed post-development tree issues in their discussion of tree permit requirements.

The committee's major issues of debate were whether the city should require a base level of preservation, whether the percent of tree canopy required was reasonable, and whether the tree canopy standard should be applied to additional development scenarios.

In the end, the group decided that requiring a base level of preservation would have the effect of limiting options for people with existing trees compared to people without trees. This type of inequity is what the committee was striving to move away from.

For the tree canopy requirement, the group initially studied a blanket 40% tree canopy requirement for all development citywide for consistency with the long term citywide tree canopy goal in the urban forestry master plan. However, after further discussion there was agreement that the development code was not going to be the sole method for meeting the 40% citywide tree canopy goal, and the committee decided it was important to set achievable tree canopy requirements that were tiered based on each zoning district and the typical development types found in each zone.

The committee considered applying the standards to additional development permits such as grading permits, building additions, and demolition permits. However, after reviewing past projects the group agreed tree removal for these types of smaller scale projects was not a significant issue and it was not necessary to apply additional regulations. The committee agreed that larger projects in sensitive lands should be required to meet additional standards since tree removal in sensitive lands has been a significant community issue in the past.

Chapter 18.745

The major issues identified with the current tree planting requirements in chapter 18.745 are:

- Trees planted to meet the landscaping requirements in chapter 18.745, are not eligible for mitigation credit. This contributes to poor design and the overplanting of sites.
- Parking lot and street tree standards do not include industry accepted soil volume requirements. This contributes to high failure rates and pavement damage due to lack of space for roots.
- There is no bonding requirement to ensure the establishment of newly planted trees.

The Citizen Advisory Committee reached consensus that trees planted to meet the standards in chapter 18.745 should receive full credit towards the tree canopy cover requirements. This allows flexibility in design and avoids overplanting of sites. The group also agreed to require bonding to ensure the establishment of all newly planted trees.

Due to cost concerns, the group was initially split as to whether there should be minimum soil volume standards for parking lot trees and street trees. However, the group decided there was enough flexibility in the draft development standards such as reduced parking and increased planting strip size to ensure trees could meet the requirements without more costly methods such as structural soil installation.

Tree Grove Preservation Incentives

Based on community input, council directed staff to develop new flexible and incentive based code standards for the preservation of Tigard's remaining groves of native trees.

Figure 3: Held in February 2011, the second tree grove open house included a presentation from staff

To develop these new standards, the city was required to follow the statewide Goal 5 requirements which involve inventorying tree groves, evaluating the economic, social, environment, and energy (ESEE) consequences of preservation, and involving affected property owners.

The city identified 70 large groves of native trees covering 527 acres, including 114 acres within the city's buildable lands inventory.

The Citizen Advisory Committee agreed to a wide range of flexible standards and incentives for tree grove preservation through staff level reviews. Among them are a waiver of minimum density requirements, density transfer from the tree grove to the non-tree grove portion of a site, attached units, flexible setbacks, flexible lot sizes, flexible street widths, and increased building heights for commercial and industrial development.

In exchange for these flexible standards and incentives, the committee agreed that the remaining portions of the groves should be permanently preserved through instruments such as open space tracts or dedication to the city.

The group was initially split on whether to allow more intense multi-family residential development in single family zones for tree grove preservation, but later reached consensus not to allow it because of compatibility issues.

The group was also initially split as to whether tree removal permits or mitigation should be required for tree groves, but later agreed this would be inconsistent with an incentive-based program. They also thought it could increase tree grove removal from people trying to avoid regulations in advance of adoption of the proposed code.

Finally, the committee requested that staff investigate a tree canopy transfer system whereby excess preservation in one development could be transferred to a subsequent development. After researching the issue, staff recommended against developing such a system because of the equity issue involved with exempting one neighborhood from tree canopy standards due to excess preservation in another neighborhood. Also, the staff time associated with developing and maintaining a transfer system may not be justified given the limited amount of tree groves within buildable lands and uncertainty with the effectiveness of such a system.

Hazard Trees

The city currently prohibits hazard trees within the city limits of Tigard. However, the definition of what constitutes a hazard tree is unclear and there is a lack of understanding about what the city's role should be when there are disputes over hazard trees between private property owners.

The committee agreed the city should define hazard trees according to the International Society of Arboriculture standard and continue to prohibit hazard trees in Tigard. When there is a hazard tree dispute between private property owners, the committee consensus was that the parties should be encouraged to work out the issues themselves and involve the city only as a last resort. When the city does become involved, a third-party arborist should be retained and the city should recover any costs incurred as a result of the dispute.

The main issue for the committee involved who should have standing to file hazard tree claims with the city. The committee reached consensus that only people that can demonstrate their life, limb, or property is at risk by a tree

in question has the right to file a claim. This is intended to limit the concern that people could use the hazard tree process as a means of intimidation whether or not a real threat exists.

Tree Permit Requirements

Certain categories of trees are currently protected by the city. Tree removal permits are required for trees in sensitive lands and street trees. Trees that were required to be planted or preserved with development can only be removed by modifying the original land use permit. Heritage Trees are designated by council, and can be removed if approved by council. Trees planted using the Urban Forestry Fund are protected through written agreements with every planting project.

The main issues with the current tree permit requirements include:

- The approval criteria for tree removal in sensitive lands are based on erosion control, which is difficult to quantify, so permits are almost always approved.
- The fee for sensitive lands tree removal permits is nearly $300, which is a significant cost for a process with limited community benefit.
- There are no approval criteria for street tree removal, so removal is always approved.
- The process for removing and/or redesigning trees that were required with development is cost prohibitive. It involves modifying the original land use permit which costs thousands of dollars.
- The heritage tree process limits participation because of the protections against removing designated trees.
- Developing and tracking separate written agreements for planting projects funded by the Urban Forestry Fund is an administrative challenge.

The Citizen Advisory Committee agreed that a consolidated permit system to address these protected categories of trees would make the permitting process more clear, consistent and user friendly. The group favored a dual track approach with automatic approval through a no- or low-fee process for trees that are in poor or hazardous condition, damaging property or preventing allowed development. A discretionary track would allow more unique situations to be addressed, when there is nothing wrong with the tree itself, but benefits such as views, solar access or a landscape redesign outweigh the benefits provided by the tree.

The group agreed not to regulate any additional tree situations, but they did support creating a new, voluntary "significant tree" process to recognize important trees without the protections and restrictions associated with Heritage Trees.

The committee was initially split as to whether permits should be required for the removal of dead and hazardous trees that fall within one of the protected categories (street trees, sensitive lands tree, etc.). The final consensus was to require permits so there is adequate documentation to limit disputes between neighbors, and to ensure replacement trees are planted.

They also debated whether dead trees, such as those in natural areas, should be required to be retained for wildlife purposes. The consensus decision was not to prevent dead tree removal because the costs associated with tree removal will naturally result in their preservation. However, the group did agree that dead trees (that are not hazards) should not be prohibited in Tigard as they are in the current code.

Finally, the committee discussed requiring permits for removing over a certain number of unprotected trees per year to limit clear cutting in advance of development. The group reached consensus not to require permits because the new standards for development do not incentivize pre-development clearing.

Use of Existing Tree Mitigation Funds

The city has collected over $1 million in tree mitigation fees from applicants that did not replace trees that were removed with development. These funds are used by the city to plant trees on public property and along streets. The city's practice has been to use the funds for new tree planting and three years of early establishment only.

The Citizen Advisory Committee discussed whether the use of tree mitigation funds should be expanded to additional items such as preservation of existing trees, long term maintenance, education and outreach, and planning. While the committee was initially split on the issue, they did reach consensus that the city should continue to restrict the use of current tree mitigation funds to planting and three years of early establishment. Their rationale was the development community paid fees with the expectation that the funds would be used for planting trees, and that using those funds for expanded purposes would be inconsistent with that real or perceived commitment. However, the committee did agree that the revised code should allow for future funds collected to be used for a broader range of urban forestry activities.

The committee's recommendation was subsequently endorsed by the Tree Board and forwarded to council. In May 2011, council adopted Resolution 11-16 clarifying that the newly named "Urban Forestry Fund" shall be used for an itemized list of activities required for tree planting and 3 years of early establishment.

For a final summary of the CAC's decisions, see their guiding principles in Volume V.

Summary of Planning Commission Deliberations

This section provides a brief summary of the Planning Commission's deliberations which led to their decision to unanimously recommend Council approval of the Urban Forestry Code Revisions on May 7, 2012. A detailed summary of their deliberations can be found in Urban Forestry Code Revisions Volume V.

During the Planning Commission portion of the legislative adoption process, the urban forestry code revisions were considered as four separate yet interconnected elements: 1) The significant tree groves map which was the subject of the comprehensive plan amendment, 2) amendments to the land use regulations in Title 18 which were the subject of the proposed development code amendments, 3) amendments to the non-land use regulations in all other titles except Title 18 which were not part of the commission recommendation to council, and 4) administrative rules in the Urban Forestry Manual which were also non-land use regulations and therefore not part of the commission's recommendation to council.

In order to provide for a comprehensive view, Planning Commission reviewed, took testimony, deliberated, and commented on both the land use elements and non-land use elements in the urban forestry code revisions. However, the Planning Commission's recommendation to Council was limited to the land use elements of the proposal which are the comprehensive plan amendment incorporating the significant tree groves map and development code amendments to Title 18.

The Planning Commission held one workshop and four public hearings on the Staff Proposed Draft Urban Forestry Code Revisions from January 2012 through May 2012. Although they received a range of public testimony from a variety of people during their public hearing process (see Urban Forestry Code Revisions Volume V), the commission's deliberations focused on two major themes:

1. Ensuring the tree canopy requirements appropriately balance the amount of trees, development and open space; and
2. Ensuring the Urban Forestry Code Revisions do not result in an excessive increase in costs for development.

Their deliberations and decisions on both themes are summarized below.

Theme 1: Ensuring the tree canopy requirements appropriately balance the amount of trees, development and open space.

Deliberations on Theme 1: The Planning Commission discussed whether the tree canopy requirements, which consist of three tiers based on zoning district intensity, will result in an appropriate balance between the amount of trees, development and open space. They also discussed whether there would be excessive shading as required trees mature over time.

The commission used the results of the peer review, where the tree canopy requirements were tested on actual development projects, to inform their deliberations. Based on the peer review results, the commission felt generally comfortable with the resulting balance between trees, development and open space. However, they did decide to move the R-12 district from Tier I, which requires the highest percent canopy cover, into Tier 2. This was because the R-12 district was not tested as part of the peer review phase, but the higher density residential districts (R-25 and R-40) were able to meet the Tier 2 requirements.

In addition, to increase flexibility the Commission decided to reduce the minimum amount of tree canopy required per lot from 20% down to 15% in Tier 1, which contains the lower density residential districts and to eliminate the per lot minimum requirement in Tiers 2 and 3, which include all other districts. This change to Tier 2 and 3also resulted in effectively lowering the tree canopy requirements by allowing the requirements to be met based on the overall development site, rather than on a lot by lot basis.

The commission recognized that the draft code includes a number of options for decreasing the relative amount of trees to development and open space. These options include granting 200% credit for preserving existing trees, and granting full credit for street trees even though half of their canopies overhang streets, which are not part of the lot area calculations. The commission noted that there is also a discretionary review option that allows green building or development techniques instead of trees and an option to provide a fee in lieu of tree canopy.

In addition, the commission included one more option to decrease the relative amount of trees compared to development and open space by granting 125% credit for the planting of native trees.

Commission Decisions on Theme 1: The commission decided that in most cases the tree canopy requirements provide a reasonable balance between trees, development and open space. However, to be conservative, the commission moved the R-12 district into the Tier 2 category.

In addition, the commission decided to effectively lower the tree canopy requirements by 20 percent for the use of native trees by giving 125% canopy credit:

Tree Canopy Requirements without Native Trees	Tree Canopy Requirements with Native Trees
Tier 1: 16-40% actual canopy on site Tier 2: 13-33% actual canopy on site Tier 3: 10-25% actual canopy on site	Tier 1: 16-32% actual canopy on site Tier 2: 13-26% actual canopy on site Tier 3: 10-20% actual canopy on site

Finally, to increase flexibility the commission decided to reduce the per lot minimum from 20% down to 15% for Tier 1 sites, and to eliminate the per lot minimum for Tier 2 and 3 sites.

Theme 2: Ensuring the Urban Forestry Code Revisions do not result in an excessive increase in costs for development

Deliberations on Theme 2: The commission discussed whether the Urban Forestry Code Revisions would result in an excessive increase in costs for development. Of specific concern for the commission was: 1) Whether the proposed tree canopy fee is fair and reasonable, and 2) Whether urban forestry costs for higher density residential development and Minor Land Partitions will be fair and reasonable.

The proposed tree canopy fee is based on tree appraisal methodology developed by the Pacific Northwest Chapter of the International Society of Arboriculture. The commission agreed it was more fair and reasonable to base the fee on tree care industry methodology, rather than creating the fee without guidance from the tree care industry.

The commission compared the proposed fee to the existing fee in the code, as well as fees across the region. This provided them further evidence that the proposed fee is fair and reasonable because it is less than the existing fee and on the lower end of fees across the region:

Comparison of Fee in Existing and Proposed Code	
Existing Tigard Code	**Proposed Tigard Code**
Mitigation Based	Canopy Based
$125/caliper inch	$2.95/sq. ft.
Fee for 12" DBH Tree = $1,500	Fee for 12" DBH Tree = $1,463 [1]
[1] DBH converted to canopy using the Krajicek formula (see the Tree Canopy Fee memo in Volume V for more information on the formula)	

Regional Fee Comparison			
City	**Fee**	**Fee Per Caliper Inch***	**Context**
City of Tigard (existing)	$125 per caliper inch	$125	Based on average cost to purchase, install and maintain a two-inch caliper replacement tree.
City of Tigard (proposed)	$2.95 per square foot of canopy	$87	Based on the median wholesale cost of a three-inch deciduous tree in the Willamette Valley ($174).
Beaverton	$90 coniferous $175 deciduous $200 street tree	$45 conifer $87.50 decid. $100 st. tree	Costs are based on the purchase and planting of two-inch caliper trees to mitigate for loss of Significant Trees/Groves on a 1:1 basis.
Gresham	n/a	n/a	No established fee in lieu program per planner on duty.
Hillsboro	n/a	n/a	No established fee in lieu program per planner on duty.
Lake Oswego	$328 per mitigation tree	$164	Code strongly emphasizes protection over mitigation.
Oregon City	$290 per mitigation tree	$145	Fee in lieu of replacement tree standards of two-inch caliper deciduous or six-foot high conifers.
Portland	$300 per caliper inch	$300	Applies to all trees regulated under Portland code.
Tualatin	n/a	n/a	No established fee in lieu program per planner on duty.
West Linn	$175 per street tree	$87.50	Mitigation fees not required. Applicants can pay the city $175 to install street trees, or $75 to inspect developer-installed trees.
Wilsonville	Market Price	Market Price	Applications must include the actual cost of the required replacement trees (generally 1:1), with documented bids included with application materials. Per planner on duty.
Vancouver, WA	Market Price	Market Price	Fee in lieu rates based on estimated market cost to purchase, install and maintain required tree units (based upon DBH). Applicant submits documented bid with application materials.

** Fee per caliper inch column is an approximate conversion by City of Tigard staff to establish a common unit for comparison.*

In addition to the comparison of fees indicating the proposed fee is fair and reasonable, the peer review results demonstrate the proposed code has been structured so that the canopy requirements are achievable on the typical range of development projects in Tigard, without requiring payment of a fee in lieu. This is in contrast to the existing code where the mitigation requirements are not achievable for many projects, particularly those with many large existing trees. Therefore, the commission viewed the tree canopy fee as a fair and reasonable option for choosing not to plant or preserve trees, rather than something applicants will be required to pay for typical projects.

The second part of the commission's cost discussion involved deciding whether the costs of developing urban forestry plans for higher density residential development are excessive since the peer review results show the requirements can be met through strategic planting of large stature street trees. They also discussed whether the costs for developing urban forestry plans for Minor Land Partitions are excessive since there is less profit associated with these types of developments.

The commission noted that the peer review results do demonstrate that for higher density residential sites, the effective tree canopy requirements can be met primarily through strategic planting of large stature street trees. However, they understood the incentive to maximize street tree canopy is deliberate, as street trees have particularly high benefit to cost ratios in urban areas.

The commission recognized that for street trees to achieve their potential canopy growth, adequate soil resources and proper planting methods are critical. The commission viewed the proposed code as placing high value on the role of arborists in designing and implementing the conditions for sustainable urban tree canopy, which include providing adequate soil volumes.

The commission acknowledged that requiring arborists adds cost to projects, but it is consistent with the direction of the Urban Forestry Code Revisions: to distribute development costs more equitably (rather than only requiring arborists for projects with existing trees) and to focus on establishing healthy future canopy (rather than only penalties for tree removal). They also recognized that the existing code already requires plans developed by a certified arborist for higher density residential projects.

For Minor Land Partitions, again the commission noted that plans developed by a certified arborist for the preservation and planting of trees are already required by the existing code.

Further, the commission analyzed the buildable lands inventory and found that the largest share of buildable sites in Tigard is between 10,000 sq. ft. and 1 acre. This means that Minor Land Partitions likely represent a significant share of future residential development in Tigard. Therefore, the commission decided it was important to apply the Urban Forestry Code Revisions to Minor Land Partitions to support Tigard's long term urban forestry goals.

The cost estimated by staff to develop and implement an urban forestry plan for a Minor Land Partition based on interviews with local arborists is between $4,000 and $5,000 (includes inventory field work, site plan, arborist report, revisions based on city review and implementation inspections). However, the commission considered that this is significantly less than costs associated with the existing code for tree removal mitigation which can reach $30,000 for a Minor Land Partition (this is in addition to the cost of developing a tree plan).

The commission did identify an opportunity for creating efficiencies when developing urban forestry plans, while ensuring high quality design and implementation. The code required a certified arborist to develop urban forestry plans (which involve developing a tree inventory, protection and planting plan). However, the code also required a landscape architect when alternative methods such as structural soils are used to meet soil volume requirements. For projects that use structural soils to meet their requirements, the commission decided it would reduce costs if the landscape architect could also complete the urban forestry plan (without requiring a certified arborist) since landscape architects also have the skill set needed to inventory, protect and plan trees.

Commission Decisions on Theme 2: The commission decided the proposed tree canopy fee is fair and reasonable because it is based on tree appraisal methodology developed by the Pacific Northwest Chapter of the International Society of Arboriculture. In addition, they decided the proposed fee is fair and reasonable because it is

less than the existing fee and on the lower end of fees across the region. Finally, they decided the proposed fee is fair and reasonable because the proposed code has been structured so that the requirements are achievable on the typical range of development projects in Tigard, without requiring payment of a fee in lieu. The fee is simply an option for applicants that choose not to plant or preserve trees. Therefore, the commission did not think any revisions to the proposed tree canopy fee were needed.

The commission decided that the costs for developing urban forestry plans were not excessive for higher density residential development and Minor Land Partitions. This is because the existing code requires arborists for these development types to create tree plans. In addition, since mitigation is proposed to be eliminated, costs will likely decrease, particularly for those projects with existing mature trees. The commission decided it is consistent with the direction of the Urban Forestry Code Revisions: to distribute development costs more equitably (rather than only requiring arborists for projects with existing trees) and to focus on establishing healthy future canopy (rather than only penalties for tree removal). Therefore, the commission did not think any revisions to applying the Urban Forestry Plan requirements to higher density residential development and Minor Land Partitions were needed.

However, the commission did think that allowing landscape architects, in addition to arborists, to develop urban forestry plans to reduce costs by eliminating the need for hiring two urban forestry professionals was appropriate.

Existing Conditions

Tigard's urban forest has a rich natural and cultural history that has shaped its present conditions. This section summarizes the history and existing conditions of Tigard's urban forest.

Figure 4: Sketch of Kalapuya man drawn by Alfred Agate, a member of the Wilkes Expedition in 1841

EARLY HISTORY

The Kalapuya (Native Americans) were the first known caretakers of Tigard's urban forest 3,500 years before present. They used a management technique known as pyroculture which thinned native trees and forests through controlled burning to increase plant and animal food production.

At the time of European settlement in the 1850s, the canopy cover within the current city limits of Tigard was estimated to be 52 percent. The predominant tree species in the riparian and wetland areas were Oregon ash, red alder, bigleaf maple, willow, black cottonwood, Oregon white oak, western red cedar, and Pacific dogwood. 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.

While a detailed canopy analysis for the settlement period after the 1850s has not yet been performed, early aerial photography from the 1940s shows relatively large clusters of native forests evenly distributed throughout Tigard. In between these forest clusters was land that was cleared for agricultural and timber production.

URBAN FOREST MANAGEMENT

As an organized community, Tigard has sought to grow and manage its urban forest since the city's incorporation in 1961. The first street tree planting requirements for development were enacted in 1967. In 1983, the city began requiring permits for the removal of trees on all public and undeveloped lands, and all commercial and industrial lands. In 1997, the city significantly revised its urban forestry code to require removal permits within environmentally sensitive lands. Also in 1997, the city began requiring tree protection, removal, and mitigation plans for certain types of development projects. The current "inch for inch" mitigation standard was enacted which requires, for example, the replacement of one 12-inch diameter tree with six 2-inch diameter trees. An optional fee-in-lieu of replacement plantings was also allowed.

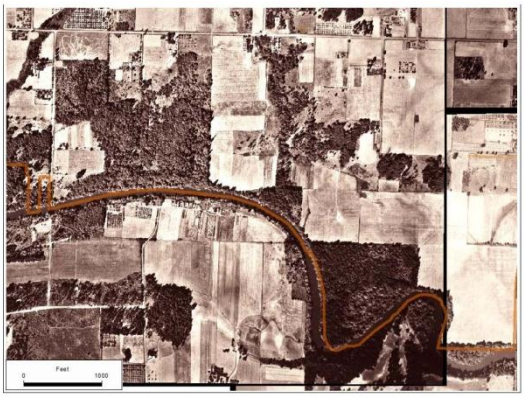


Figure 5: 1940s aerial photo of the city's southern boundary near Cook Park

As fee-in-lieu deposits have accumulated, the Tree Canopy Replacement Program was developed to plant replacement trees within Tigard's neighborhoods on public properties and along streets. Currently, $150,000 is budgeted annually for the Tree Canopy Replacement Program.

Another city program, the community tree planting challenge, began in 2005 to improve the environmental quality of Tigard's streams. The city budgets approximately $150,000 annually to meet the goal of planting 135,000 streamside trees by 2025.

To help coordinate, oversee, and implement Tigard's growing urban forestry program, the city hired its first urban forester in 1998 and appointed its first Tree Board in 2001. In recognition of these expanded efforts, Tigard has been designated as a Tree City USA by the National Arbor Day Foundation since 2001 and has received the Tree City USA Growth Award since 2009.

In recent years, the Tigard community has found it increasingly important to direct efforts toward the long-term sustainability of the urban forest. Led by the Tree Board, in 2008 the city's first urban forest section of the Comprehensive Plan was adopted by council and contains broad, 20-year urban forestry goals and policies. This important document ensures trees and forests are integrated into Tigard's long term growth and development plans.

The Comprehensive Plan led to the more specific Urban Forestry Master Plan which was accepted by council in 2009. The development of the Urban Forestry Master Plan involved extensive outreach to citizens, and local development and urban forestry professionals. Included in the outreach efforts was a statistically valid survey of Tigard residents. Among the survey results was support for development regulations (66 percent support), protections for trees on private property (76 percent support) and development of a hazard tree abatement program (60 percent support). There was also a consistent community preference for preserving significant groves of native trees wherever possible.

The Urban Forestry Master Plan summarizes the input received with over 50 specific implementation items to be achieved by the year 2016 when the plan will again be reviewed and updated. The majority of the implementation items relate to revising the urban forestry code with an eye toward increasing citywide tree canopy to 40 percent by the year 2047.

POLICY FRAMEWORK

The urban forestry code revisions exist within the context of various federal, state, regional and local policies and regulations. The Urban Forestry Manual in Volume V includes a review of the federal, state and regional framework for the urban forestry code revisions in Appendix G and the local framework in Appendix H. The staff report in Volume II provides findings on how the urban forestry code revisions are consistent with and supportive of those policies and regulations that are applicable to the land use elements of the urban forestry code revisions.

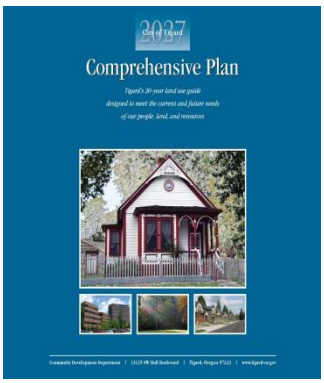


Figure 6: Tigard's Comprehensive Plan includes a section dedicated to urban forestry

URBAN FOREST CANOPY – A MEASUREMENT OF SUCCESS

In recent years, the city has tracked changes in its urban forest canopy using high resolution aerial photography. Despite high levels of development activity, citywide tree canopy dropped only slightly from 25% in 1996 to 24% in 2007. Tigard's current 24% citywide canopy puts it in the middle of the range for cities in the metro area with neighboring places like Lake Oswego towards the high end (47%) and King City at the low end (12.5%).

Despite Tigard's relatively stable urban forest canopy citywide, it is becoming increasingly fragmented with large forest clusters being replaced by individual trees. In 1996, there were 63 forest clusters over five acres in size and by 2007 this number had dropped to 48 forest clusters. This represents a 24% decline in an 11-year period.

Figure 7: 2011 aerial photo of the city's southern boundary near Cook Park

The current urban forest canopy is not evenly distributed throughout the city. While residential zones have a relatively healthy 30% canopy, industrial, commercial, and mixed used zone have much less with 16%, 14%, and 10% canopy respectively.

Finally, the current urban forest canopy is not distributed in a way to maximize environmental and economic benefits. While trees along streets and within parking lots are proven to provide maximum benefits, there is currently only 9% canopy over Tigard streets and 6% canopy over Tigard parking lots.

The Urban Forestry Code Revisions are designed to address these deficiencies and support achievement of Tigard's long term tree canopy goals outlined in the Urban Forestry Master Plan.