



## **MEMORANDUM**

**To:** Planning Commission

**From:** Deb Powers, Urban Forester  
Jeremy McMahan, Planning and Building Deputy Director

**Date:** May 23, 2019

**Subject:** Draft Code Amendments, Kirkland Zoning Code Chapter 95  
Tree Management and Required Landscaping, File Number CAM18-00408

### **Staff Recommendation**

Review and provide staff direction to draft code revisions including the general concepts resulting from stakeholder input on [Kirkland Zoning Code Chapter 95](#) (KZC 95).

### **Background**

KZC 95 establishes a permit process and standards for the protection and replacement of trees - mainly on private property. The regulations address tree management in three basic categories: tree removal where no development is involved; tree retention associated with development activity; and landscaping/buffer requirements.

Apart from minor code amendments, KZC 95 was last updated in 2010. Since then, policy goals established in Kirkland's Comprehensive Plan were revised and an [Urban Forestry Strategic Management Plan](#) was created to maintain a healthy, sustainable urban forest in Kirkland. The purpose of the 2018-2019 tree code amendment project is to support these goals, to address issues and challenges that have arisen since 2010 and to update the code so that it is effective and practical to use for developers, homeowners and City staff.

The process to update the tree code started with the Planning Commission in June of 2018. The Planning Commission, Houghton Community Council, and City Council have held several study sessions and briefings to provide staff with direction on the proposed amendments. Discussions from the [September 13, 2018](#), [September 27, 2018](#) and [November 8, 2018](#) Planning Commission (PC) meetings resulted in general agreement that a more streamlined and predictable tree ordinance could be achieved with code amendments that:

- Eliminate the three categories of high, moderate and low retention value tree definitions
- Clearly define those trees that are required to be retained
- Use tree density credits, not canopy cover, as the metric
- Increase tree credit requirements per acre

- “Cap” the number of credits awarded to any individual tree
- Not award credits for arborvitae and similar species

The November 8 PC meeting involved discussions on code sections addressing tree retention with development activity, the most complex and controversial of the potential code amendments. The PC agreed on a general approach for some items and directed staff to return with recommendations that incorporated input from the newly-formed partnership between the Master Builders Association of King and Snohomish Counties (MBAKS) and the Finn Hill Neighborhood Alliance (FHNA). The Houghton Community Council and the City Council agreed at subsequent public meetings that staff should continue working with the stakeholder groups on the remaining code issues.

The PC resumed discussions at the [February 14, 2019](#) PC meeting with information resulting from the prior three months stakeholders’ collaboration. The PC supported most recommendations and directed staff to get additional stakeholder feedback on:

- Numerical thresholds such as Landmark tree size and credit requirements
- Descriptions and protection measures for trees aside from Landmarks
- Determining tree retention earlier in the short plat/subdivision design process (Integrated Development Plan, or IDP)

### **Stakeholder Approach to Tree Retention with Development**

Staff met with the stakeholder groups six times in March and April 2019 on the requested topics and general concepts for tree retention. Meetings included conducting exercises to better understand the challenges of retaining very large trees, responding to requests for additional data and gaining agreement on the topics tracked in Attachment 1. From those discussions and previous stakeholder work arose a two-tiered approach to tree retention described at the [April 25, 2019](#) PC meeting presentation and in more detail below. Staff summary of the proposed approach and our analysis of the outcome is included below. The stakeholders have submitted a letter with their observations and conclusions, included as Attachment 8.

#### Tier 1 Trees

The primary objective of the MBAKS-FHNA tree retention approach is to retain the largest, mature trees on development sites using the highest standards and the most code requirement flexibility for protection. Tier 1 trees are defined as:

- A tree with a minimum 30-inch diameter trunk that receives the same level of protection regardless of their location on a development site; or
- Superior groupings or tree groves with:
  - 3 or more trees – one of which has a minimum 30-inch diameter trunk
  - 5 or more trees – the stakeholders may have intended that one of these trees must have a minimum 24-inch diameter trunk, but the intent is not clear

Details on the health and condition of Tier 1 trees and groves were briefly discussed but not resolved in staff meetings with the MBAKS-FHNA stakeholders.

Once Tier 1 trees were defined, staff developed a chart to facilitate the ongoing discussions exploring the protection standards to retain Tier 1 trees/groves (Attachment 2). The intended result was to move away from subjective requirements and code language such as "to the maximum extent possible," towards a more predictable code that describes more specifically how landmark trees would be retained. Discussions focused on the premise that a builder/property owner can always count on defined zoning provisions, but must retain landmark trees using clearly defined methods, and additional flexibility in development standards will be allowed/required to provide greater ability to retain these trees. These provisions are summarized below:

*To retain landmark trees and groves, the applicant is guaranteed these development rights:*

- A 40-foot wide by 36-foot deep building pad, with a 20-foot width allowed behind that pad, based on access to standard room sizes behind the garage.
- Floor Area Ratio (FAR) as allowed by zoning
- Lot coverage as allowed by zoning
- Density as allowed by zoning

*The applicant shall, and City will require the following site plan alterations and engineering technologies to retain landmark trees and groves:*

- Flip house and driveway configuration to mirror proposed plan
- 15-foot front/5-foot rear setbacks, possibly a 10-foot front setback
- Redesign deck, patio and paths
- Redesign/modify garage width to minimum parking pad limits
- Reroute utilities (unless gravity-fed utility conditions prevent it)
- Limited changes to grade, ie. rockery, retaining walls in root zones
- Vary lot size when clustering lots with short plats and subdivisions, while allowing achievement of full FAR & lot coverage through averaging
- Changes to access roads with short plats and subdivisions
- Utilize shoring for basements and excavations
- Allow 18 foot by 18-foot parking pads
- Cluster houses with short plats and subdivisions
- Modify right-of-way improvements subject to Public Works approval
- Adjust stormwater vault dimensions
- Cantilever structures over root zones (applicability uncertain)
- Mandatory property line adjustments with short plats/subdivisions
- Use methods to avoid impacting landmark tree roots such as air spade excavations, tunneling/boring under roots instead of trenching, placing additional protection over roots regardless of fencing (plywood sheets, steel plating, mats, wood chips, etc.
- Possibly increase allowed building height

*To retain landmark trees and groves, the City has the authority to vary these development standards:*

- Reduce side yard setbacks to 3 feet wide with internal lots only on short plats and subdivision developments
- Allow 15-foot-wide front (possibly 10 foot) and 5-foot-wide rear setbacks
- Modify garage widths requirements

- Vary lot size when clustering lots/building footprints while allowing achievement of full FAR & lot coverage through averaging with short plats and subdivisions
- Allow 18' x 18' parking pads
- Allow modifications to right of way improvements (no landscape strip, etc.)

While the stakeholder's requirements include a credit approach as a means to limit the City's authority to require retention above the minimum tree credits (discussion below), the credit limit did not apply to these Tier 1 trees.

#### **Analysis of Tier 1 trees approach:**

Staff and the stakeholders discussed the complexities of large tree retention with mock development scenarios using paper cut-out building footprints, driveways, trees, etc. to scale on conference table tops. The group observed that the root zone of large (30-inch diameter trunk) can cover a significant portion of an average-sized lot and that it's often not possible to provide adequate root zone protection for large trees on smaller lots. Although affording the highest level of tree protection to these large trees "located anywhere on a lot" sounds promising, it became apparent that the greatest likelihood for successful tree retention is still with trees located farthest from the center of the lot, which is the rationale behind the current code protecting trees located in setbacks.

The exercise prompted discussion on measures that would need to be taken to protect Tier 1 trees. Staff and the stakeholders worked at length on Tier 1 tree requirements and expectations with general consensus around the conceptual approach outlined above and in Attachment 2. Attachment 3 is a handout staff prepared to illustrate some of the methods available to protect trees from development impacts.

Based on a number of examples discussed, staff and the stakeholders acknowledged that retention of these large trees on typical single family development sites will be challenging, and a high percentage of these large trees will continue to be lost to development. However, staff agrees with the stakeholder's conclusion that these larger trees are important to the community and they deserve the additional efforts and code flexibility to retain.

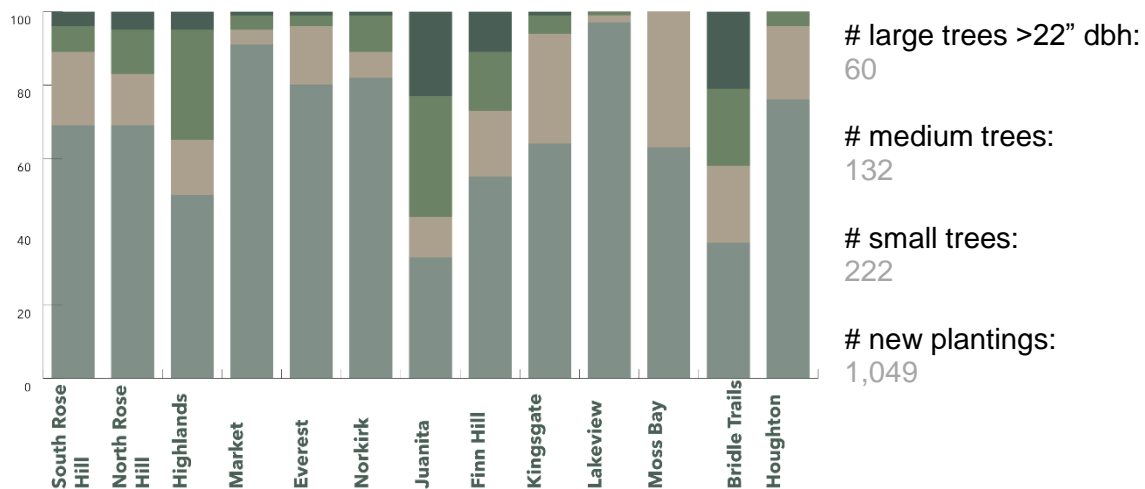
#### **Tier 2 Trees**

Tier 2 trees are any trees on the site that are not landmarks or protected grove trees. The key concept of the stakeholder's approach to retention of these trees is that once the minimum tree density credits (ranges of 40-50 credits per acre were discussed) were met, all other trees on the site could be removed. In addition, "capping" the credits awarded to any one retained tree was agreed to be limited to 11 credits.

Compared with the requirements for retention of Tier 1 trees, the stakeholder's concept was that there would be some lesser degree of authority to require retention of these smaller trees and greater ability to simply replant to meet the credit requirement.

Staff was uneasy with the unknown consequences of tilting current retention requirements toward Tier 1 trees and reducing retention requirements for trees less

than 30-inch diameter trunk. The data below from the 2018 field study for short plats indicates the number of large trees retained as a result of development is very low, primarily due to the challenges discussed under the Tier 1 tree exercise. Nearly six times the number of large trees retained on single family development sites were trees smaller than 22-inch diameter trunks, so describing Tier 2 tree retention standards is an important aspect of the tree code.



In addition to the raw data from the field study, the stakeholder group requested additional information on the number and size of trees found on the same sites *prior to development*, which was consolidated into one spreadsheet (Attachment 4). An analysis comparing the pre- and post-development trees is shown in Attachment 5.

Staff's concern with the stakeholder's approach to Tier 2 trees has been the focus of our two May meetings. To get a sense of the consequences of changing from current code requirements to meeting a tree credit quota, staff gathered 22 recently-approved single family building permits to document tree retention under the current code and estimated tree retention under the suggested Tier 1 and Tier 2 approach.

On May 13, staff presented the resulting analysis (Attachment 6). The result of this exercise indicated that taking a credits-per-acre quota approach resulted in a significant loss of trees under 30 inches dbh and a significant loss of associated tree credits compared to the results yielded by the current Chapter 95 standards. The cases reviewed did not indicate a substantive increase in the retention of trees greater than 30 inches diameter trunk. **Analysis of Tier 2 Trees approach:**

Based on discussions with the stakeholder group and conclusions drawn from the analysis of short plat and building permit data, staff recommends that the effort to retain trees that are not Tier 1 trees be focused on trees in setbacks. That continues Kirkland's long-standing approach to retaining trees on the portion of property that is least developable. Staff also concludes that imposing a retention quota, even at an increased 50 credits per acres, would have a significant detrimental impact on the number of trees retained with development and the resultant tree canopy.

Staff does not conclude that planting replacement trees adequately addresses the potential impact of significantly increasing tree removal allowances. Discussions on the assumption that simply planting trees solves canopy loss were addressed in a 'This Week in Kirkland' article that was published April 10, 2019 (Attachment 7). Research does not support the assertion that tree planting efforts, rather than tree retention will result in greater canopy cover gains.

If the Planning Commission endorses staff's recommendation that we continue to focus on retention of trees in setbacks, then staff can devote our efforts to drafting a code that provides the level of clarity and predictability around those retention requirements that have been the focus of the stakeholder's efforts to date. If directed by the Planning Commission, staff will meet with the stakeholders again to attempt to flesh out a consensus approach to providing that level of predictability in the draft code.

### **Houghton Community Council Comments**

Code changes the Houghton Community Council (HCC) communicated to staff at the [August 27, 2018 meeting](#) include:

- Define trees required to be retained in a less subjective manner
- Clarify the integrated tree plan review process (IDP)
- Address tree removal prior to development permit submittal

Most of these code changes were reiterated at a joint meeting with the PC on [November 26, 2018](#). At that meeting, the HCC provided guiding principles developed for their analysis of the Chapter 95 code amendments. Staff will provide a brief description of whether proposed code amendments achieve each principle in the next Chapter 95-related staff report for HCC.

### **Next Steps**

First, staff would like to acknowledge our appreciation for the stakeholder group members that have generously devoted their time and energy in providing their perspective on what the code should say and what mechanisms can be used or required to meet the City's goals for tree retention. Staff has met regularly with the stakeholder group ten times over the course of 6 months discussing the stakeholder's proposed changes to the Trees/Development section of the code and other topics outside of the PC-directed code changes. Staff would recommend that the public process for the amendments be refocused back to the Planning Commission to seek broader community input on the proposed updates.

Staff has enough information to proceed with drafting a more prescriptive and streamlined tree ordinance and is seeking direction from the Planning Commission to draft code around the concepts discussed in this memo for Planning Commission, the Houghton Community Council and the broader community to weigh in on. Staff plans on returning to the Planning Commission in July 2019 with draft code.

### **Attachments**

1. Meeting Topic Summary
2. Tier 1 Tree Retention Matrix
3. Tree Protection Handout
4. Combined Field Study Data
5. Analysis of Combined Field Study Data
6. Analysis of Current Code Compared to Stakeholder Approach
7. This Week in Kirkland Article #6
8. Stakeholder's Joint Letter to the Planning Commission

cc: File Number CAM18-00408





**KZC 95 TREE CODE UPDATE****MBAKS-FHNA STAKEHOLDER MEETING TOPIC SUMMARY***Revised 5/15/19**Grey shaded areas: code topics for stakeholder input per PC (2/14/19)**Blue text: summary of discussion*

GENERAL SUPPORT	Continue using tree density credits rather than canopy cover
	Eliminate High, Moderate and Low Retention Value Trees
	Agree in principle to define trees of merit, i.e. what's worthy of retention and the extent of requirements
	Agree in principle to increase tree credit requirements per acre
	Agree in principle to cap total number of credits awarded for individual trees
	Don't award credits for arborvitae or other slow-growing/small-statured trees
	Agree in principle to increase species diversity and a more uneven-aged urban forest
	Tier 1 Landmark/grove trees may be located outside setbacks and required yards
	Define Tier 1 groves by size/number of trees 3 or more trees that include one Landmark (30" dbh) 5 or more trees that include one 24" dbh tree (undecided)
	Define Tier 1 Landmark tree by size Stakeholders propose 30" dbh trees for highest level of protection measures, staff agrees. Conducted mock scenario exercise, discussed challenges with setting threshold at 30" dbh: <ul style="list-style-type: none"> <li>The 2018 field study shows a very low percentage of 30" dbh trees on pre-development sites to begin with</li> <li>Targets trees with largest root zone (30' CRZ radius, 60' diameter) which typically covers small-average size lots.</li> <li>Singles out the most mature trees rather than a broader range of older trees</li> <li>High likelihood that the outcome on small and average size properties is no/few 30" Landmark retention</li> <li>Best chance of success may be large lots that are not maxing out lot coverage and medium to large short plats and subdivisions where clustering can be a new tool</li> </ul>
	Determine what development rights applicants are guaranteed to retain Tier 1 Landmark/grove trees: See Tier 1 matrix
	Determine what modifications/site plan alterations are required to retain Tier 1 Landmark/grove trees: See Tier 1 matrix
	Define trees that are <i>not</i> required to be retained or count towards tree density credits.

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STILL UNDER CONSIDERATION	Defined as trees in poor health and/or have significant defects in structure that cannot be mitigated with treatment. Can be expected to decline regardless of management. The species or individual tree may possess characteristics that are incompatible or undesirable in landscape settings or be unsuited for the intended use of the site.
	Don't require supplemental trees that grow to a certain size in 10 years and/or require native species.
	Not typical code language. Requiring tree species on private property adds complexity to the code and additional review time. Incentives?
	Hazard tree definition per TRAQ/industry standard is justified and clearly distinguished from emergency tree removal.
	Don't "borrow" against future tree removal.
	City can't track "borrowed" removals on its permit database. Doesn't meet intent of code to slow canopy loss. Staff concerned with abuse of rules by developers, who are already incentivized to cut trees prior to filing permits. The draft code partially closes loophole with 12-month delay on filing. Need to discuss consequences of Landmark/best tree removed from potential development sites then waiting 13 months to file permits.
	Determine tree credit requirements per acre
	Last discussed 50 credits per acre as a retention standard, not a planting requirement. May be contingent on Tier 2 tree retention.
	Determine the "cap" or maximum credits awarded for any one tree. Currently credits correlate to dbh, with up to 21 credits for a 50" dbh tree
	Stakeholders propose 11 credits max (correlates to 30" dbh tree) contingent on Landmark and other tree retention measures. Staff may recommend lowering to 8 credits (24" dbh tree) pending staff input on retention data.
	Define Tier 1 Landmark tree condition
	Still under consideration
	Define Tier 1 groves by condition
	Master Builders (MBAKS) feels the current definition is often applied to trees of limited significance or health. Still under consideration.
	Determine Tier 2 or "other" trees retention requirements/application of credits
	Still under consideration
	Define Tier 2 or "other" trees to be retained when no Landmark trees exist on site or they cannot be retained due to their location well within building footprint or are in poor condition.
	Staff proposed criteria:
	<ul style="list-style-type: none"> <li>• Significant (6" dbh or greater)</li> <li>• In good health*</li> <li>• Low risk of failure due to structural defects*</li> <li>• Windfirm if isolated (or remains as part of a grove) *</li> <li>• A species suitable for its location*</li> <li>• Has potential for longevity at the site*</li> </ul>

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	<i>*as determined by a qualified professional per industry standards</i> <i>Discussed moderate candidates for retention that are in fair health and/or have structural defects that may be mitigated with treatment.</i>
	Determine what development rights are guaranteed for applicants to retain Tier 2 trees. <i>Discussed 5/1 and 5/13, still under consideration</i>
	Determine what modifications/site plan alterations are required to retain Tier 2 Landmark/grove trees: <i>Discussed 5/1 and 5/13, still under consideration</i>
	Should an integrated development review process (IDP) be required city-wide (now mandated in the HPO)? <i>Current code offers phased review as an option, where tree removals can occur with multiple development permits. IDP allows tree retention decisions to be made early in the SPL/SUB design process, when access roads and utilities are planned. Another issue that's become a result of phased review is the public perception of "saved" trees getting removed. The stakeholder group has no consensus on mandating IDP city-wide. MBAKS would like to retain phased review for short plats (&lt;10 lots) while allowing larger builders to use IDP. However, access road and utility locations dictate tree removal at the LSM phase regardless of development size. If successful at establishing clear and predictable regulations, we should circle back to the IDP question and see if objections remain.</i>
	MBAKS objects to adding the term "immovable" to tree protection fence requirements. <i>"Immovable" is an update on response to the public, City Council and Planning Commission regarding prevalence of fence creep/tree damage on construction sites. Staff is open to clarification on wording or further discussion of pros/cons of pier block vs driven fence posts.</i>
	A covenant rather than an easement is preferred by MBAKS for grove protection. <i>Current code says applicants can use appropriate legal mechanism, does not stipulate easement. CMO is considering alternative code language or a process to review applicant's grove covenants.</i>
<b>REQUESTS FOR INFORMATION</b>	Did the intern's data record the sizes of trees retained or the sizes of trees removed or both? Is the City estimating the prevalence of 30" diameter trees that have been retained during development activity or does data include info on trees that were removed during such activity? <ul style="list-style-type: none"> <li><i>The intern collected data on the end results of the tree code: the number of retained trees and their sizes, plus the number of new trees planted to meet credits. What we found was plenty of new trees are planted and there's a low percentage of large retained trees, causing an uneven-aged urban forest.</i></li> <li><i>We obtained/shared additional data regarding the trees original to the development site, categorized by size.</i></li> </ul>
	Does the City have field data on groves to continue preserving groves in the same way as the current code? <i>Not from the intern's field work, but we do have general data from the <a href="#">canopy assessment</a>. In the non-annexed city boundary under the current code, canopy cover increased from 2002 to 2010 in SFR areas. From 2010 to 2018 within the same boundary, the greatest canopy loss of any land use was SFR. The average number of trees removed (no development) over the same period is relatively low (approx. 1K/year).</i>

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	<p>Does the City have data that breaks down land use and trees? That is, does the City know what zoned areas have what percentage of current tree canopy, what has been lost, and where the areas of potential gains could be seen over the next 20-years?</p> <ul style="list-style-type: none"> <li>• Yes, the canopy assessment shows data in various land use/other geographic areas.</li> <li>• Yes, it shows changes in canopy for all those areas from 2010 to 2018, the most recent canopy assessment cycle. It also shows potential planting areas for each land use classification.</li> </ul>
"PARKING LOT" ISSUES TO CIRCLE BACK TO	<p>MB-FH: In 95.05 there is no stated goal of balancing the needs of City landowners, nor recognition that those owners will bear all the costs of implementing Chapter 95. Is there room to insert recognition of the 'cost' side of the equation?</p> <ul style="list-style-type: none"> <li>• Staff has not circled back to this section in our draft but is open to ongoing comment and discussion. KZC 95.05.2(c, d, e) addresses development in the context of tree retention. KZC 95.30 establishes that "the City's objective is to retain as many viable trees as possible on a developing site while still allowing the development proposal to move forward in a timely manner."</li> <li>• The assertion that "owners will bear all the cost of implementing..." may not be true or appropriate code language.</li> </ul>
	<p>MB-FH: Does the City have a concurrent plan, or is willing to include in 95.05, the City's role to improve tree canopy and urban tree health on municipal land? And to update the 2013 Urban Forest Management Plan?</p> <ul style="list-style-type: none"> <li>• Speaking to municipal tree management is not the purpose of zoning codes, however it is addressed in KZC 95.05 in the general sense.</li> <li>• Updates to the Urban Forestry Strategic Management Plan is on the Planning Department Work Plan, pending resources.</li> </ul>
	<p>MB-FH: If data supports that greater gains could be found in some areas of the City on municipal land, should policy reflect that data and strategy shift to include ways to fund and implement (City Forestry Account?)</p> <p>Data supports slowing canopy loss on private property, namely SFR. The primary purpose and current use of City Forestry Account funds is to plant trees on public property.</p>
	<p>MB-FH: Short verbiage if possible when all this is done. We agree with City it's still too long</p> <p>Is this asking when the revised code will be fully implemented?</p>
	<p>MB-FH: Provide annual review with community and industry stakeholders on how the code is working in practice. Develop a community advisory committee for code implementation over the next few years. Propose to Council that KZC 95 is brought back for necessary amendments at 12, 18 and 24 months based on staff/stakeholder feedback?</p> <p>Open for discussion.</p>

<b>General Principles to Retain Tier 1 Trees/Groves</b>		
<b>1. The applicant is guaranteed...</b>	<b>2. The applicant shall pursue, and City will require these site plan alterations and engineering technologies:</b>	<b>3. ...and the City has the authority to vary these development standards:</b>
<ul style="list-style-type: none"> <li>40' wide by 36' deep building pad, with 20' width behind pad. Total 40'w x 56-60'd pad based on garage location and access to rooms behind garage. 20' w based on standard room sizes. TBD if any adjustments will be made on wider lots (just not with larger lot area). (by x' deep; maybe the depth of the garage if that is the primary layout issue?)</li> <li>FAR</li> <li>Lot coverage</li> <li>Density</li> </ul>	Flip house and driveway configuration to mirror proposed plan	Reduction down to 3' wide side setbacks applicable only with internal lots on SPL/SUBs, not SF infill.
	15' front (how about 10'?) / 5' rear setbacks <b>Builders: Agree and would accept 10' front setback. DR Horton wants minimum 10' rear yard setback.</b> 4/11 – City supports, visual appearance needs to be discussed	15' front (how about 10'?) / 5' rear setbacks <b>Builders: Agree (but note DR Horton comment re: rear yards).</b> 4/11 – not discussed
	Redesign deck, patio, path, etc. <b>Builders: Agree in principle but need limits, including limits on reductions in path/driveway widths.</b> 4/11 – discussed that redesign/alternative construction methods apply to retain Landmark trees. Need MBAKS/FHNA feedback on limits.	Modify garage width to minimum 18' x 18' parking pad limits, need to be designed to retain Landmark trees.
	Utility locations (with exception to gravity-fed limitations) 4/11 – Support to reroute gravity-fed utilities to retain Landmark trees. Note: ROW matters are a “parking lot” or separate discussion, can resume conversation with Public Works if MBAKS/FHNA wants.	Reduced common recreation space (applicable to MF/COMM)* N/A
	Limit changes to grade, ie. rockery, retaining walls <b>Builders: Need to see details; grade changes are driven by necessity.</b> 4/11 – details not discussed, City needs additional feedback from MBAKS-FHNA.	Can vary lot size when clustering to retain Landmark trees, while allowing achievement of full FAR & lot coverage through averaging (SPL/SUBs)
	Changes to access roads (for SPL/SUBs) 4/11 – City: what are limits to MBAKS/FHNA?	Parking /access location (applicable to MF/COMM) N/A
	Shoring for basements and excavations <b>Builders: Need to see details; limits on requirements for shoring should be specified.</b> 4/11 - City: what are limits to MBAKS/FH? Discussed costs.	Allow 18' x 18' parking pads
	Cluster houses on SPL/SUBs mandatory to retain Landmark trees. Subject to Public Works approval.	Modifications to ROW improvements (no landscape strip, etc.) <b>Builders: City needs to clarify whether measures to save Landmark trees take precedence over Public Works priorities.</b>

		4/11 – discussed, can resume conversation with Public Works if MB/FH wants.
	Stormwater vault sizing (ie. more depth vs. footprint, location) 4/11 – N/A in part because builders already have incentives to minimize vault footprint. Staff will ask Public Works for input.	Number of parking stalls* (applicable to MF, COMM, ADU developments) N/A
	Cantilever structures over CRZs 4/11 – need additional input from MBAKS-FHNA on who would be required to pursue cantilevering for Landmark tree retention.	Swap Landmark tree if better trees are located outside setbacks – explore how to equate quality for quality/DBH. 5/13 – MBAKS-FHNA supports concept that significant trees in a setbacks can be retained as Tier 2 trees.
	Property line adjustments would be mandatory to retain Landmark trees. City needs feedback on who would be required to pursue for Landmark tree retention?	Building height restrictions loosened MBAKS: Supportive if builders know during feasibility analysis whether they can build higher to save a Landmark tree. FHNA: Relaxing height limits for lots on flat terrain is an appealing option but should the option of encouraging basements (particularly on sloped sites) also be explored? Satisfying FAR quotas via basements might be more palatable in neighborhoods where views are important. 4/11 – MBAKS to provide specific design examples showing how this might result in Landmark tree retention.
	Use arboricultural methods to minimize impacts to landmark trees such as air spade excavations, tunneling/ boring instead of trenching, additional CRZ protection (plywood sheets, steel plating, mats, hogfuel, etc. 4/11 – Discussed developing Pre-Approved Plans or other site guidance notes.	

\*an additional process is required to use these variations to development standards

## RESOURCES FOR TREE PROTECTION ON DEVELOPMENT SITES

*Tree Protection on Construction & Development Sites: A Best Management Practices Guidebook for the Pacific Northwest.* Produced by Oregon Dept of Forestry, WA Dept of Natural Resources, Oregon State University Extension Service, WA State University Extension in cooperation with USDA Forest Service Urban and Community Forestry Program and the Pacific Northwest Chapter of the International Society of Arboriculture. On tunneling and boring, see pages 6, 9. Online at [http://file.dnr.wa.gov/publications/rp\\_urban\\_treeprotnguidbk.pdf](http://file.dnr.wa.gov/publications/rp_urban_treeprotnguidbk.pdf)

*ANSI A300 Part 5 2012: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices* (Management of Trees & Shrubs During Site Development). Alternative building methods (discontinuous footings, piers and structural grade beams p. 15. Utilities p. 16. Trenchless pipe installation (ie: boring) p. 21.

*Best Management Practices: Managing Trees During Construction* - ISA companion publication to the ANSI standard above. Tunneling under roots p. 12, Table 1. Alternatives to Trenching (ie boring/auguring) p. 17, 18.

Webinar: *Reducing Tree Damage during Construction*. Urban Horticulture Institute/Cornell University, aired December 2018. Nation-wide presentation that used Kirkland tree protection signage as example (slide #36).

<https://forestry.usu.edu/files/webinars/bassuk-powerpoint.pdf> or watch the YouTube presentation at <https://www.youtube.com/watch?v=Zv4zFWlp3EI&feature=youtu.be>

### Examples of typical tree retention methods - Urban Forestry Services, Inc.

Powerpoint presentation – *Tree Protection Case Studies*: [http://urbanforestnursery.com/wp-content/uploads/2018/08/Tree-Protection-Case-Study-Presentation-Urban-Forestry-Services.com\\_.pdf](http://urbanforestnursery.com/wp-content/uploads/2018/08/Tree-Protection-Case-Study-Presentation-Urban-Forestry-Services.com_.pdf)

Examples of shoring, air spade excavations, root pruning, rooftop tree retention, etc.

Powerpoint presentation - *Saving Existing Mature Trees During Development*: <http://urbanforestnursery.com/wp-content/uploads/2018/08/Why-Save-Trees-Presentation-Urban-Forestry-Services-Inc..pdf>

High-level presentation on protecting trees with development.

### Tree retention case studies - Tree Solutions, Inc.

#### King County Courthouse

Seattle, WA

Preserved 6 Sweetgum trees during major sidewalk and utility conduit replacement in downtown Seattle. Involved air spade work and other protection measures for trenchless utility installation.



#### Greenbridge Phases 1 & 2

Unincorporated King County, WA

Worked with King County/multiple contractors during demolition, soil abatement, and street/utility construction. Installed >360 yards of mulch in Critical Root Zones and surrounding tree protection fencing.



#### Bastyr University

Kenmore, WA

Worked with design team on new student housing proposed near a heavily-wooded area. Ensured landscape design was compatible with existing mature trees and adequate tree protection was in place for construction.



## Rainier Vista

Seattle, WA

Seattle Housing Authority project with multiple contractors: began South Phase with Walsh Construction in 2005, worked on North Phase with Gary Merlino Construction in 2010.



## High Point

Seattle, WA

Seattle Housing Authority's innovative development; involved tree inventory, risk assessment, develop/implement tree protection.



## Technical Guidance - Barrell Consultants, LLC

Publications, useful documents and illustrated Site Guidance Notes on:

SG Note 2: Fencing protected trees

SG Note 3: Ground protection

SG Note 7: Excavation in root protection areas

SG Note 8: Removing (paved) surfacing and structures in root protection areas

SG Note 9: Installing/upgrading (paved) surfacing in root protection areas

SG Note 10: Installing structures in root protection areas

SG Note 11: Installing (utility) services in root protection areas

<https://www.barrelltreecare.co.uk/resources/technical-guidance/>

## Local contractors on tree root protection costs

*Root Cause, LLC on cost of root-air excavations:* Rough numbers equate to approximately \$40 per linear foot for a 2' deep trench. Exploratory excavations to locate roots averages \$1500, most locations involve a \$2K minimum. For installation of a single utility line under existing tree roots, will air spade 3' deep by 2' wide. A 20' length takes approximately 1 day, roughly \$1800-2K. Doesn't do directional boring (*Brian Holers 4/17/19 phone conversation*).

<https://www.rootcausesseattle.com/>

*O'Neill Service Group* performed air spade operation for the protected sequoia on Market Street and is a good resource for root protection estimates.

*Full Bore, Inc. on boring for utilities under tree roots:* Operates horizontal, directional, and pierce drilling for any diameter from 1" to 30" cable, electrical, fiber, water, sewer and gas pipe lines. Say trenchless digs save up to 40% cost over trenching, are much faster and more flexible with difficult terrain, can go under existing buildings, streams, parking lots, driveways, roads and trees (*website and Cesar Iara 4/25/19 email*). <https://www.fullboretrenchless.com/>

## Architects/design professionals that incorporate tree protection measures

Jennifer Munde [jennifer@cascadedesigncollab.com](mailto:jennifer@cascadedesigncollab.com) of Cascade Design Collaborative. Architect David Moering [dmoehring@consultant.com](mailto:dmoehring@consultant.com). Patrick Brennan of Brennan Architecture, Allworth Design, NK Architects, Build Urban.

## Local consulting arborists with construction management expertise

Tree Solutions <http://www.treesolutions.net/>, Layton Tree Consulting LLC, Favero Greenforest, Urban Forestry Services <http://www.urbanforestnursery.com/ufs/ufshomepage.html>, American Forest Management, Inc. <https://americanforestmanagement.com/land-management/arboriculture>, the Watershed Company <https://www.watershedco.com/arborist-services>, Robert W. Williams & Associates [robert@treeinspector.com](mailto:robert@treeinspector.com), Katy Bigelow Arborist LLC <https://www.katybigelow.com/>, Symbiosis Tree Care LLC [kurtfick@gmail.com](mailto:kurtfick@gmail.com), and Brian Gilles Consulting <https://gillestreeconsulting.com/>.

This handout is for informational purposes only; it is not an endorsement of these businesses nor is an all-inclusive list of contractors/services.



SHORT PLAT DATA										PRE-DEVELOPMENT TREE SIZE DATA						EARLY TREE REMOVAL DATA						POST-DEVELOPMENT TREE DATA															
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application	Viable Trees 6-11.9"	Viable Trees 12-21.9"	Viable Trees 22-23.9"	Total # of Viable Trees 24-29.9"	Total # of Viable Trees > 30"	Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # new plantings	# Small Trees	# Medium Trees	# Big Trees					
SPL08-00003	RSX 7.2	no	South Rose Hill	2	no	1/29/2008	3/5/2008	7/16/2013	11	7	1	1	1	3	1	no									2547200200												
																									2547200200	Lot 1	13019 NE 74TH ST	BSF13-04638	4	4	0	0	0				
																									2547200190	Lot 2	13013 NE 74TH ST	BSF13-04637	11	2	8	0	1				
SPL08-00004	RSX 7.2	no	North Rose Hill	7	no	1/31/2008	2/20/2008	7/9/2013	113	77	23	25	6	10	13	no									3888100190												
																									3888100190	Lot 1	13001 NE 96TH PL	BSF12-03307	34	32 (26 Arbor)	0	1	1				
																									3888100197	Lot 2	13002 NE 96TH PL	BSF14-01563	20	10 (10 Arbor)	4	5	1				
																									3888100198	Lot 3	13006 NE 96TH PL	BSF14-01535	15	10 (10 Arbor)	4	0	1				
																									3888100199	Lot 4	13009 NE 96TH PL	BSF14-03594	25	22 (18 Arbor)	3	0	0				
																									3888100209	Lot 5	13010 NE 96TH PL	BSF14-01499	5	2	2	0	0				
																									3888100214	Lot 6	13014 NE 96TH PL	BSF14-01493	5	2	1	2	0				
																									3888100215	Lot 7	13017 NE 96TH PL	BSF14-01502	4	2	2	0	0				
SPL08-00008	RSX 7.2	no	South Rose Hill	2	no	4/28/2008	5/19/2008	7/8/2016	9	9	2	5	0	0	2	yes	TRE07-00018	1/9/2007	2						425059016												
																									425059018	Lot 1	8321 132ND AVE NE	BSF16-01544	5		3	0	1				
																									425059016	Lot 2	8319 132ND AVE NE	BSF16-02225	0		0	0	0				
SPL08-00010	RSX 7.2	no	South Rose Hill	2	no	6/16/2008	7/2/2008	5/21/2013	13	12	1	4	3	0	4	no									6400700360												
																									6400700363	Lot 1	7017 122ND AVE NE	BSF13-02782	3		3	0	0				
																									6400700360	Lot 2	7007 122ND AVE NE	BSF13-02432	6		5	0	1				
SPL08-00016	RSX 7.2	no	North Rose Hill	4	no	11/20/2008	1/29/2009	1/8/2014	60	49	16	19	1	5	8	no									1233100703												
																									1233100703	Lot 1	8742 126TH AVE NE	BSF14-00152	6		0	1	2				
																									1233100710	Lot 2	8744 126TH AVE NE	BSF14-00115	7		0	5	1				
																									1233100711	Lot 3	8746 126TH AVE NE	BSF14-00221	5		2	2	0				
																									1233100712	Lot 4	8748 126TH AVE NE	BSF14-00263	8		3	5	0				
2009																																					
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application						Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # of new plantings	# Small Trees	# Medium Trees	# Big Trees					
SPL09-00002	RS 8.5	no	Highlands	2	no	6/19/2009	7/13/2009	7/19/2013	4	2	0	0	0	1	1	yes	TRE06-00058	9/25/2006	2		Evergreen		Evergreen		1236300296												
																									1236300296	Lot 1	9412 112TH AVE NE	BSF13-05004	4	3	1	0	0				
																									1236300301	Lot 2	9418 112TH AVE NE	BSF13-00886	3	2	1	0	0				
SPL09-00004	RS 7.2	no	Market	2	no	12/3/2009	1/8/2010	8/29/2012	9	8	3	3	1	0	1	no									856000055	Lot 1	631 11TH AVE W	BSF17-04488	6	0	5	1	0				
																									856000057	Lot 2	1012 WAVERLY WAY	BSF12-01129	4	0	3	1	0				
2010																																					
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application						Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # of new plantings	# Small Trees	# Medium Trees	# Big Trees					
SPL10-00008	RS 8.5	no	Everest	4	no	11/30/2010	12/28/2010	2/11/2016	47	44	18	20	2	1	3	no									0120000250												
																									0120000250	Lot 1	333 8TH ST S	BSF16-00796	20	19 (11dead arbor)	1	0	0				
																									0120000251	Lot 2	714 4TH LN S	BSF16-03216	9		6	3	0				
																									0120000252	Lot 3	710 4TH LN S	BSF16-03217	19	14 (12 arbor)	5	0	0				
																									0120000253	Lot 4	706 4TH LN S	BSF16-04822	12		6	3	2				
SPL10-00001	RS 8.5	no	Market	2	no	1/4/2010	2/16/2010	7/14/2014	12	6	1	0	1	4	0	yes	TRE08-00333	10/9/2008	2						1245500805												
																									1245500804	Lot A	814 16TH AVE W	N/A		NOT BUILT							
																									1245500805	Lot B	818 16TH AVE W	N/A		NOT BUILT							
SPL10-00007	RS 6.3	no	Nokirk	2	no	10/27/2010	12/13/2010	1/18/2012	4	4	0	2	0	1	1	no									1245002765												
																									1245002766	Lot 1	116 12TH AVE	BLD11-00327	11		6	5	0				
																									1245002766	Lot 2	120 12TH AVE	N/A	6		4	2	0				
SPL10-00004	RSX 7.2	no	South Juanita	2	no	7/12/2010	9/1/2010	2/21/2013	36	18	3	10	0	5	0	no									2926059165												
																									2926059165	Lot A	11104 NE 116TH ST	BSF18-00071	9		3	1	3				
																									2926059219	Lot B	11616 111TH AVE NE	BLD12-00180		NOT BUILT							
2011																																					
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application						Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed (1/2)	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # of new plantings	# Small Trees	# Medium Trees	# Big Trees					
SPL11-00008	RSA 6	no	Finn Hill		no	5/31/2011	7/19/2011	9/21/2012	26	15	7	7	0	0	1	no									2426049066												
																									2426049066	Lot 1	7806 NE 143RD ST	BSF12-04794	5		0	4	1				
																									2426049196	Lot 2	7812 NE 143RD ST	BSF12-03991	3		0	3	0				
																									2426049197	Lot 3	7804 NE 143RD ST	BSF12-03943	3		2	0	0				
																									2426049198	Lot 4	7815 NE 144TH ST	BSF12-04795	3		2	1	0				
																									2426049199	Lot 5	7819 NE 144TH ST	BSF12-03944	2		0	2	0				
SPL11-00011	RSA 6	no	Kingsgate	3	no	10/26/2011	2/8/2012	9/18/2012	3	3	0	2	0	0	1	no									866000010												
																									866000010	Lot 1	13506 132ND AVE NE	N/A	12		7	4	1				

[illegible]

														293900014	Lot 7	8315 NE 120TH ST	BSF16-03543		2		2	0	0	0		
														293900015	Lot 8	8319 NE 120TH ST	BSF16-02595		4		0	2	2	0		
SUB13-02187	RSA 4	yes	Finn Hill	4	no	12/13/2013	1/2/2014	11/17/2017	24	14	3	5	2	3	1	yes	TRE11-00264	8/9/2011	3							
														3761700085	Lot 1	13323 HOLMES POINT DR NE	BSF17-03112									
														3761700062	Lot 2	13327 HOLMES POINT DR NE	BSF18-00598									
														3761700063	Lot 3	13331 HOLMES POINT DR NE	BSF18-00595									
														3761700064	Lot 4	13335 HOLMES POINT DR NE	BSF18-00596									
SUB13-00686	RS 8.5	no	Highlands	2	no	5/7/2013	6/25/2013	11/4/2013	23	12	5	4	1	0	2	no										
														1238501184	Lot 1	9006 116TH AVE NE	BSF13-02591		8		3	1	4	0		
														1238501188	Lot 2	9002 116TH AVE NE	BSF13-04955		5		2	0	2	1		
SUB13-00028	RSA 6	no	Kingsgate	2	no	2/13/2013	4/25/2013	11/22/2013	10	6	0	5	0	0	1	no										
														9329300120	Lot 1	13206 NE 129TH PL	BSF14-07315		18		17 (10 Arbor)	1	0	0		
														9329300122	Lot 2	13202 NE 129TH PL	BSF14-00683		19		1	15	3	0		
SUB13-01867	RM 3.6	no	Lakeview	4	no	10/22/2013	11/20/2013	10/15/2015	4	1	0	1	0	0	0	no										
														2650000005	Lot 1	6234 LAKE WASHINGTON BLVD NE	BSF15-05773		5		4	0	1	0		
														2650000010	Lot 2	6214 LAKE WASHINGTON BLVD NE	BSF15-05247		2		2	0	0	0		
														2650000011	Lot 3	10119 NE 63RD ST	MSF17-05546		2		2	0	0	0		
														2650000012	Lot 4	10113 NE 63RD ST	BSF15-07796		2		2	0	0	0		
SUB13-00145	MSC 1	no	Market	3	no	1/30/2013	2/25/2013	4/9/2014	16	7	2	3	0	1	1	no										
														3885802136	Lot 1	1250 4TH ST W	BSF13-00919		11		7	1	2	1		
														3885802134	Lot 2	1240 4TH ST W	BSF14-02107		3		3	0	1	0		
														3885802135	Lot 3	1230 4TH ST W	BSF13-00918		4		2	1	0	0		
SUB13-00580	RS 7.2	no	Market	2	no	4/16/2013	5/6/2013	12/23/2014	7	6						no										
														1245500740	Lot 1	1818 7TH ST W	BSFP12-01369		9		8	1	0	0		
														1245500730	Lot 2	1814 7TH ST W	BSF12-03956		52		50 (48 Arbor)	2	0	0		
SUB13-00838	RM 3.6	no	Moss Bay	3	no	7/18/2013	7/29/2013	1/13/2014	6	5	2	3	0	0	0	no										
														1238900229	Lot 1	829 KIRKLAND WAY	BSF13-06974		1		0	1	0	0		
														1238900230	Lot 2	835 KIRKLAND WAY	BSF14-06402		2		0	2	0	0		
														1238900233	Lot 3	846 KIRKLAND AVE	BSF14-00355		2		2	0	0	0		
SUB13-00057	RS 7.2	no	Nokirk	2	no	1/11/2013	1/25/2013	6/19/2013	5	4	3	0	0	1	0	no										
														1245001251	Lot 1	114 16TH AVE	BSF13-01537		35		31 (30 Arbor)	3	0	1		
														1245001253	Lot 2	102 16TH AVE	BSF13-02916		53		52 (45 Arbor)	1	0	0		
SUB13-00087	RS 6.3	no	Nokirk	2	no	1/16/2013	2/7/2013	7/31/2013	2	2	2	0	0	0	0	no										
														1245002785	Lot 1	122 12TH AVE	BSF13-01990		10		6	2	1	1		
														1245002787	Lot 2	128 12TH AVE	BSF13-01998		8		8 (8 Arbor)	0	0	0		
SUB13-00583	RS 7.2	no	Nokirk	2	no	4/10/2013	4/16/2013	9/5/2013	17	17						no										
														1245500051	Lot A	2008 MARKET ST	BLD06-00618		7		5	2	0	0		
														1245500056	Lot B	15 21ST PL	BSF13-02719		2		3	2	1	0		
SUB13-00668	RS 7.2	no	Nokirk	2	yes	4/30/2013	8/5/2013	2/12/2014	9	7	4	3	0	0	0	yes	TRE12-04972		2							
														1245000120	Lot 1	19 20TH AVE	BSF13-03099		5		3	2	0	0		
														1245000122	Lot 2	23 20TH AVE	BSF14-00109		15		13 (9 Arbor)	0	2	0		
SUB13-01189	RSX 7.2	no	North Rose Hill	2	yes	7/11/2013	9/20/2013	5/20/2014	14	14	1	9	0	4	0	no										
														2216090240	Lot 1	10413 126TH AVE NE	BSF13-06198		5		3	0	2	0		
														2216090241	Lot 2	10407 126TH AVE NE	BSF13-06207		5		2	0	3	0		
SUB13-01251	RSX 7.2	no	North Rose Hill	3	yes	7/19/2013	9/19/2013	10/10/2014	9	7	2	1	0	2	2	no										
														6743700110	Lot 1	10220 124TH AVE NE	BSF14-01347		7		5	0	2	0		
														6743700113	Lot 2	10215 125TH AVE NE	BSF14-06718		5		4	1	0	0		
														6743700112	Lot 3	10219 125TH AVE NE	BSF14-06717		7		5	0	0	0		
SUB13-01260	RSX 7.2	no	North Rose Hill	4	yes	7/30/2013	9/25/2013	12/1/2014	25	22	5	16	1	0	0	no										
														1233110824	Lot 1	8714 124TH AVE NE	BLD06-01364		6		3	2	0	1		
														1233110826	Lot 2	8718 124TH AVE NE	BSF14-06136		2		1	1	0	0		
														1233110827	Lot 3	8722 124TH AVE NE	BSF15-01270		3		0	0	0	0		
														1233110825	Lot 4	8728 124TH AVE NE	BSF14-07097		12		10 (Arbor)	0	2	0		
SUB13-01711	RSX 7.2	no	North Rose Hill	3	no	11/6/2015	11/19/2015	6/21/2017	55	47	11	16	3	8	9	no										
														1233110715	Lot 1	8738 126TH AVE NE	BLD04-00798		6		2	1	0	3		
														1233110716	Lot 2	8736 126TH AVE NE	SEC18-00335		5		3	0	0	2		
														1233110717	Lot 3	8734 126TH AVE NE	N/A		5		1	1	2	1		
SUB13-00040	RSX 7.2	no	South Rose Hill	2	no	1/8/2013	4/25/2013	6/24/2013	8	6	1	3	0	0	2	yes	TRE13-00133	1/8/2013	2							
														6400700058	Lot 1	7311 122ND AVE NE	BSF13-02407		16		11 (10 Arbor)	4	1	0		
														6400700060	Lot 2	7309 122ND AVE NE	BSF13-03437		14		11 (10 Arbor)	2	1	0		
SUB13-00779	RSX 7.2	no	South Rose Hill	2	yes	5/16/2013	8/22/2013	2/3/2014	31	29	11	14	1	2	1	no										
														6400700332	Lot 1	7041 122ND AVE NE	existing old home on site		15		6	5	3	1		
														6400700337	Lot 2	7037 122ND AVE NE	BSF13-06122		9		4	1	3	1		
SUB13-01216	RS 5.0	no	South Rose Hill	3	yes	8/19/2013	8/30/2013	7/6/2014	35	9	6	2	0	1	0	no										
														925059325												
														925059342	Lot 1	7618 116TH AVE NE	BSF13-05886		9		8	1	0	0		
														925059225	Lot 2	7620 116TH AVE NE	BSF13-07025		5		0	0	0	0		
														925059326	Lot 3	7622 116TH AVE NE	BSF13-07037		2		1	1	0	0		
SUB13-01833	RSX 7.2	no	South Rose Hill	3	no	10/18/2013	11/5/2013	8/28/2014	13	12	1	3	0	2	6	no										
														925059229	Lot 1	12423 NE 80TH ST	BSF14-06238		5		3	0	1	1		
														925059050	Lot 2	7931 125TH LN NE	BSF14-06278		7		6	1	0	0		
														925059230	Lot 3	7925 125TH LN NE	BSF14-06279		3		2	0	0	0		



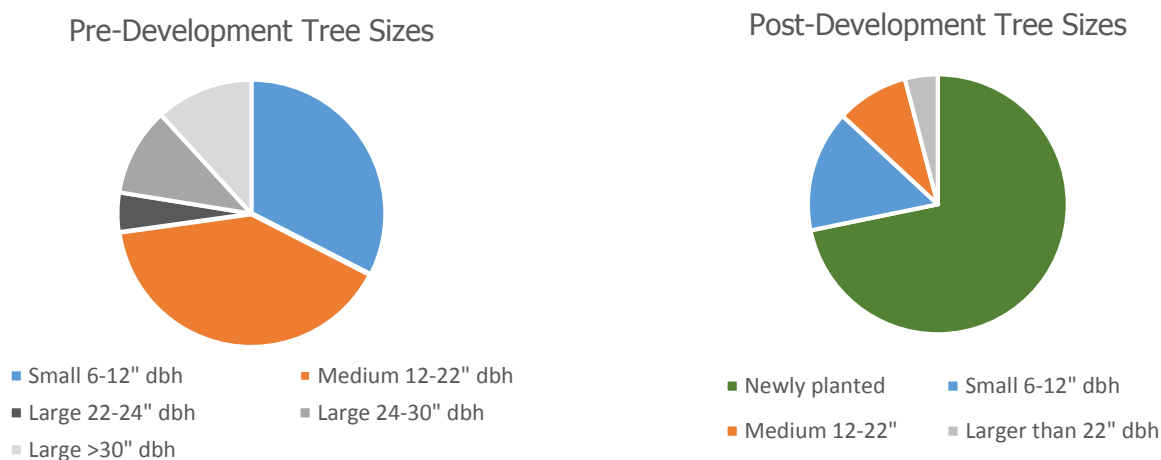
### Analysis Comparing Combined 2018 Field Study Data

The 2018 field studies revealed interesting trends regarding the number and size of trees on sites following development, enabling staff to revise the City's tree codes to better support the policies and goals established in Kirkland's Comprehensive Plan and Urban Forest Strategic Management Plan.

Following the Planning Commission direction to establish appropriate numerical thresholds for trees required to be retained on development sites, staff proposed a 24" trunk diameter Landmark tree designation based on the field study data. Stakeholder groups working with City staff on the code update felt that establishing an appropriate Landmark tree size should be based on the size of trees that were present on the same sites *prior to development* and requested that additional information.

Because the scope of the 2018 field study was to examine the results of the City's tree code, the project intern collected data on trees that were on the site *after development*. To obtain the requested information, staff culled through the arborist reports required for 154 single family developments that were filed in the City's permit database, noting trees sizes in the related tree inventory or surveys.

Staff combined the two data sets into one spreadsheet (Attachment 4 in the May 23, 2019 Planning Commission meeting memo). When comparing the 2 datasets, it became even more clear that the effect the City's tree code has had on Kirkland's urban forest: from an even distribution of tree ages/sizes to begin with, a very low percentage of large trees are retained because of development:



The grey shades represent a breakdown of large trees sizes (greater than 22" dbh) on sites prior to development on the left. Combined, the large trees as a group are evenly distributed with small and medium trees, the ideal for a sustainable urban forest. On the right, two-thirds of all trees on sites after development are newly-planted. While it makes sense to plant trees to ensure future canopy cover, large numbers of trees planted at relatively the same time will decline and die at the same time. So, it's important to balance healthy, large tree retention with planting new trees.



Analysis – current code to stakeholder approach tree retention  
 22 projects randomly selected recently approved single family projects  
 May 10, 2019

Permit No. Property Size	Under current KZC 95 (30 credits per acre)					Under Proposed Landmark-Minimum Credit Approach (50 credits per acre)					# Trees on Site >30" dbh	+/- Retained Credits	+/- Retained Trees	+/- Retained Grove	+/- Retained Trees >30" dbh	Notes
	Credits Needed	Credits Retained	# Trees Retained	Groves Retained	>30" dbh Trees Retained	Credits Needed	Likely Credits Retained	Likely # Trees Retained	Likely Groves Retained	Likely >30" dbh Retained						
BSF18-05491 7560 sq. ft.	6	0	0	0	0	9	0	0	0	0	0	0	0	0	0	Insufficient outcome. Poor existing trees; plant 6 or 9 trees to meet minimum credits
BSF18-07677 7701 sq. ft.	6	0	0	0	0	9	0	0	0	0	0	0	0	0	0	Insufficient outcome. No trees on site; plant 6 or 9 trees to meet minimum credits
BSF18-05718 7235 sq. ft.	5	11	1	0	1	9	11	1	?	1	1	0	0	?	0	Is grove possible with 30" DF, 24" BLM, 19" WRC, 22" DF? Would IDP result in Lot 1 grove/Landmark retention, prevent prior removals on Lot 2 east side?
BSF18-06307 32612 sq. ft.	23	51.5	6	1	3	38	49.5	3	1	3	3	-2	-3	0	0	3 Landmark >30" dbh trees create grove.
BSF18-07533 8500 sq. ft.	6	57	6	1	1	10	49.5	5	1	1	1	-7.5	-1	0	0	Retention of Tree #449 (not in grove) depends on Tier 2 rules.
BSF18-07358 7232 sq. ft.	5	30	19	2	0	8	8	2	0	0	0	-22	-17	-2	0	Unable to retain groves if defined as >30" dbh. Assumes applicant retains existing trees to meet minimum credits.
BSF19-00604 7640 sq. ft.	6	64.5	6	1	0	9	64.5	6	1	1	2	0	0	0	0	Could 29" DF and 24" DF be retained using modifications to development plans?
BSF18-06345 7290 sq. ft.	5	22	4	1	0	8	9	2	0	0	0	-13	-2	-1	0	Unable to retain grove if defined as >30" dbh. Could 29" DF be retained w/ modifications? Trees #40-41, 48 removed preemptively; would they be retained with IDP?
BSF18-06810 7252 sq. ft.	5	22	3	0	1	8	16.5	1	0	1	4	-5.5	-2	0	0	Unable to retain 3 additional Landmark trees (+28" WRC) using modifications due to lot size.
BSF19-00792 9115 sq. ft.	7	40.5	3	1	0	11	15	1	0	0	0	-25.5	-2	0	0	Lot 2 - proposed approach assumes applicant retains trees just to meet credits.
BSF18-04584 5444 sq. ft.	4	12.5	4	1	0	6	8	1	0	0	0	-4.5	-3	-1	0	26" SEQ unable to retain due to lot size, could retain trees in rear setback easily.
BSF18-02800 7644 sq. ft.	6	10.5	1	0	0	9	10.5	1	0	0	0	0	0	0	0	Retention to meet 50 credits per acre depends on Tier 2 rules, raises issue of existing tree selection. Pin piles used to retain 22.5" SPR.
BSF19-00603 6980 sq. ft.	6	28	5	0	0	8	10.5?	1	0	0	0	-17.5	-4	0	0	Unable to retain 2 Landmark trees. Raises issue of how to select Tier 2 trees (largest possible? location? "Landmark Plus 1" etc.)
BSF18-07055 5544 sq. ft.	4	30	4	0	1	6	16.5	1	0	1	1	-13.5	-3	0	0	
BSF18-04380 12266 sq. ft.	9	17.5	2	0	1	14	16.5	1	1	1	1	-1	-1	0	0	Landmark located in stream buffer/critical area
BSF18-04585 4752 sq. ft.	4	6	2	0	0	5	6	2	0	0	0	0	0	0	0	Proposed approach assumes applicant retains existing trees to meet credits.
BSF18-06258 8963 sq. ft.	7	4	1	0	0	11	4	1	0	0	0	0	0	0	0	Proposed approach assumes applicant retains existing trees to meet credits. Plant 3/7 supplemental trees to meet credits.
BSF18-05851 8142 sq. ft.	6	7.5	5	0	0	9	7.5	5	0	0	0	0	0	0	0	Proposed approach assumes applicant retains existing trees to meet credits (plus 2 supplemental trees). Note preemptive removals.
BSF18-04799 9181 sq. ft.	7	17	6	0	0	11	11	3	0	0	0	-6	-3	0	0	Proposed approach assumes applicant retains existing trees to meet credits.

Permit No. Property Size	Under current KZC 95 (30 credits per acre)					Under Proposed Landmark-Minimum Credit Approach (50 credits per acre)					# Trees on Site >30" dbh	+/- Retained Credits	+/- Retained Trees	+/- Retained Grove	+/- Retained Trees >30" dbh	Notes
	Credits Needed	Credits Retained	# Trees Retained	Groves Retained	>30" dbh Trees Retained	Credits Needed	Likely Credits Retained	Likely # Trees Retained	Likely Groves Retained	Likely >30" dbh Retained						
BSF19-00488 8024 sq. ft.	6	34	4	0	1	9	11	1	0	1	1	-23	-3	0	0	Note number of >24" dbh trees that don't meet 30" dbh Tier 1 threshold. Raises issue of how to select Tier 2 trees (largest possible? location? "Landmark Plus 1" etc.)
BSF19-01336 7200 sq. ft.	5	57	4	0	2	9	33	2	0	2	5	-24	-2	0	?	Could additional 3 Landmarks be retained using modifications to development plans? If plat was laid out differently with IDP?
BSF18-04622 6065 sq. ft.	5	0	0	0	0	7	16.5	1	0	1	1	+16.5	+1	0	+1	May have retained Landmark using Tier 1 modifications to development plans.
<b>TOTALS</b>											20	-148.5	45	-4	+1	
Observations	An additional 148.5 credits/45 trees/4 groves retained with the current KZC 95 in comparison to the hypothetical Proposed Landmark/Minimum Credit Approach. Potentially 1 Tier 1 tree (>30" dbh) may have been retained using modifications to development plans.															



## THIS WEEK IN KIRKLAND ARTICLE 6 – April 10th publication date

In our [last article](#) we explored how specific changes to Kirkland’s tree code can address some emerging issues we’ve discovered through our monitoring efforts. This article discusses the importance of preserving mature trees.

Nearly 40 years of scientific [studies](#) tell us that trees make cities healthier places to live. Trees improve air and water quality, provide energy savings, regulate temperatures, mitigate flooding and buffer noise. Shoppers will spend 9-12% more in retail settings having a quality urban forest. The presence of larger trees in yards and on the street can add 3-15% to home values. Trees add value to our lives in a multitude of ways. We mentioned in a [previous article](#) that Kirkland has a city-wide 40% tree canopy cover goal.

One way to reach canopy cover goals is with tree planting initiatives that strive to plant a large number of trees by a certain date. Although tree planting efforts are very worthwhile, [research indicates](#) the majority of urban tree canopy cover is not the result of human planting.<sup>1</sup> Newly-planted trees must reach a certain size before they begin [contributing any benefits](#).<sup>2</sup> Within the context of an existing urban forest a few hundred, or even a million planted trees, do not automatically translate into an [increase in the overall tree population](#)<sup>3</sup> and the odds are [stacked against a young tree “replacing” a mature one](#).<sup>4</sup>

Our field studies showed that Kirkland is doing a great job replanting trees after land has been developed. However, preserving [existing trees might be the best method of maximizing tree benefits](#).<sup>5</sup> This brings us to an important question: when considering the benefits of trees, wouldn’t our time and energy be better spent preserving the mature trees we already have?<sup>6</sup>

The next public meeting on Kirkland’s tree code includes a quick update at the April 25 Planning Commission meeting, then a more in-depth review of proposed tree codes at the May 9 Planning Commission meeting.

<sup>1</sup>“Changing Urban Tree Canopy Cover,” November 15, 2018 webinar, archived at [urbanforestrytoday.org](http://www.urbanforestrytoday.org). <http://www.urbanforestrytoday.org/videos.html>, jump to 1:30 - 5 minutes.

<sup>2</sup>David Nowak, Eric J. Greenfield, “Declining urban and community tree cover in the United States,” *Urban Forestry and Urban Greening* 32 (2018) 32-55. [https://www.fs.fed.us/nrs/pubs/jrnl/2018/nrs\\_2018\\_nowak\\_005.pdf](https://www.fs.fed.us/nrs/pubs/jrnl/2018/nrs_2018_nowak_005.pdf)

<sup>3</sup>How Many Trees are Enough? Tree Death and the Urban Canopy. *Scenario Journal* 2014. <https://scenariojournal.com/article/how-many-trees-are-enough/>

<sup>4</sup>Max Piana & Blake Troxel, “Beyond Planting: an Urban Forestry Primer,” *Scenario Journal* Spring 2014. <https://scenariojournal.com/article/beyond-planting/>

<sup>5</sup>Leda Morritz, “A Million Trees? Only if We Can Keep Them Around,” *Next City*, 1/18/2012. <https://nextcity.org/daily/entry/a-million-trees-only-if-we-can-keep-them-around>.

<sup>6</sup>Ellyn Shea, “Running to Stand Still: Predicting Benefits for Replacement Tree Plantings,” *deeproot.com*, October 23, 2017.





May 15, 2019

Honorable Sandeep Singhal, Chair  
Kirkland Planning Commission  
123 5<sup>th</sup> Avenue  
Kirkland, WA 98033

RE: KZC 95: Proposed Staff Amendments to Tier 2 Trees

Dear Chair Singhal and Kirkland Planning Commissioners:

The Master Builders Association of King and Snohomish Counties (MBAKS) and the Finn Hill Neighborhood Alliance (FHNA) are pleased to provide our first round of comment regarding the Kirkland Zoning Code, Chapter 95, Tree Protection Ordinance (tree code) for the May 23, 2019, Planning Commission (Commission) meeting.

As you're aware, the FHNA and MBAKS (workgroup) began meeting in October 2018 to discuss changes to the tree code. After a preliminary meeting, it was evident we shared common perspectives on key issues, and representatives of both groups presented this message at the November 8, 2018, Commission meeting. The Commission encouraged both sides to continue working together to help find potential solutions and code language for the City.

Our workgroup continued to meet on a regular basis, with eight in person meetings as well as via phone and email spanning October 2018 to January 2019. On January 15, we sent materials to staff addressing the most primary and contentious issues facing our two organizations and submitting what we'd hoped to be guidance to further assist the City with the difficult code draft and decision-making process.

Our two groups reached and drafted a significant baseline consensus through collaboration and compromise on the most-prickly issues, including predictability and feasibility, landmark trees, tree groupings, significant trees, retention versus replanting, tree canopy versus credits, and phased review/IDP.

Our workgroup continued meeting, sometimes twice a week, with the City's staff whose initial draft ordinance was different from the one we proposed, affording us the unique



opportunity to bring together experts at the same table; planners, engineers, an arborist, home builders, code drafters, lawyers, engaged and impacted citizens, to create a new, more equitable tree ordinance that was easier to understand and apply. We've made some meaningful progress with City staff on Tier 1/Landmark Trees ("exceptional" trees, provisionally defined as having a trunk diameter of at least 30"). This was an issue where our workgroup led the discussion and on which we placed a significant amount of priority, choosing to protect these trees because of their sheer size and community impact. They were the center of our negotiations and the basis for which each side gave a little and took a little when it came to other parts of the draft code.

The agreement on Tier 1/Landmark Trees also answered an immense concern raised by many City staff and leadership, a concern we were also tasked with help solving: the loss of these Landmark trees and the concerns of residents over their loss through development.

Regarding non-Landmark trees (or Tier 2 trees), our approach was to focus on retention up to a specific tree credit threshold regardless of the location of trees on a property being developed. In recent meetings with City staff, we began to discuss how to define standards for retaining Tier 2 trees, including tree groups, and potentially limiting site design and/or owner use of property for such retention.

However, a change in direction was proposed by City staff at our latest meeting, on May 13<sup>th</sup>. Instead of continuing with the minimum credit system as we had proposed, City staff has recommended that tree credits should not be used for retention purposes. The staff's recommendation is that tree retention rules should concentrate on:

1. Tier 1: Landmark trees and groups
2. Tier 2: Significant trees in setbacks (front, rear and side)

Under Tier 1, the applicant would receive certain negotiated guarantees and the City could require site plan alterations with the authority to vary development standards to accommodate those alterations to preserve landmark trees and groups. With respect to Tier 2, staff appears to suggest that the City should continue to endeavor to preserve all significant healthy trees in setbacks, like what it does today with High Retention value trees. Based on its assessment of recent permit applications, staff believes that its approach would result in the preservation of more trees on parcels undergoing development than the framework we had proposed.

The builder concessions made within the workgroup on Tier 1/Landmark Trees were largely tied to less restrictions on Tier 2 trees. It was a mutual agreement between MBAKS and the FHNA that we believed achieved a balance to place priority preservation





on Tier 1/Landmarks and Groups, allowing for the building of housing with the retention of “lesser” trees capped at certain credits throughout the development site.

Unfortunately, because of the late notice and significant change in policy course, our City/workgroup did not get the time to thoroughly vet the Tier 2/tree setback option or what associated guarantees or requirements should or should not be included in this lesser Tier 2 tree standard.

The work group believes that the setback proposal requires more in-depth analysis and review, and continued discussion of the potential impact of any standards, requirements, and site plan alterations the City may propose.

We will defer specific comment on the staff’s suggestions until the Commission’s meeting packet is published for the May 23<sup>rd</sup> meeting. In the meantime, we appreciate the significant work City staff is doing to consider different approaches that ultimately protects canopy while providing predictable and fair outcomes for property owners and builders. We also wish to emphasize that our workgroup is committed to maintaining open, transparent dialogue throughout the remainder of this code adoption process, even if it means we ultimately disagree on portions of this ordinance.

MBAKS and FHNA may have differing views on the City’s proposals; FHNA is exceptionally keen to preserve as many trees as possible for a healthy canopy while MBAKS would like balanced and objective regulations that will not unduly impair the construction of a variety of housing choices for Kirkland residents at all price points. Despite our differing viewpoints, we have made encouraging progress in the past few months in aligning ourselves on key priorities. We want the opportunity to continue discussions so that we can find common ground on as many issues as possible. We’ve come too far in creating a trusted relationship and finding mutually beneficial ways to preserve trees and build homes.

We are committed to find the best possible solutions for a fairer, more balanced code that is easier to apply and understand, and that preserves tree canopy and landmark trees. To do this, we’d request to be included in the ordinance drafting process by the City, especially with a considerable, last-minute course change that requires continued discourse.

Thank you for your consideration. If you have any questions, please feel free to contact Gina Clark at [gclark@mbaks.com](mailto:gclark@mbaks.com) or (425) 460-8224 or Scott Morris at [scott@finnhillalliance.org](mailto:scott@finnhillalliance.org) or 206-972-9493.



Sincerely,

Gina Clark  
Government Affairs Manager  
King County  
MBAKS

Sincerely,

Scott Morris  
President  
FHNA

cc: Mayor Penny Sweet  
Kirkland City Council  
Houghton Community Council  
Kurt Triplett, City Manager  
Adam Weinstein, Planning Director  
Jeremy McMahan, Deputy Planning Director  
Deb Powers, Urban Tree Forester