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MEMORANDUM

To: Houghton Community Council

From: Jon Regala, Senior Planner
Deborah Powers, Urban Forester
Paul Stewart, AICP, Deputy Planning Director

Date: August 10, 2009

Subject: TREE REGULATIONS UPDATE – STUDY SESSION
FILE ZON08-00016

RECOMMENDATION

Review the information under the *Requested Moderate Changes* subsection of this memo and provide feedback to staff. The Houghton Community Council recommendations will be used in creating draft regulations and procedures.

BACKGROUND DISCUSSION

In November 2005, the City Council adopted Chapter 95 of the Kirkland Zoning Code (KZC) that established new regulations, standards, and procedures for tree management and required landscaping (see Attachment 1). The code went into effect in 2006. At the time of the adoption of the tree amendments, the City Council requested that a two-year status report of the regulations be prepared and brought back for Council review. Staff has reviewed the tree regulations and their operation over the past two-and-a-half years and believes that some aspects of tree management in the City could be improved.

Staff presented a report to the Council at the September 2, 2008 City Council study session which included three "tiers" of amendments for Council's consideration: minor, moderate or major changes to the adopted regulations. *"Minor amendments"* would improve the current system but would not change the basic approach. *"Moderate changes in policy direction"* would result in some fairly substantive changes to the regulations. The third tier "*major policy questions*" would fundamentally alter the regulations and implement new policy directions.

At the conclusion of the study session, the City Council directed staff to pursue studying changes identified as being in the 'minor' and 'moderate' categories. Changes to the KZC are subject to the requirements found in KZC Chapter 135 – Amendments to the Text of the Zoning Code and KZC Chapter 160 - Process IV.

On May 14, 2009, the Planning Commission held a study session where they discussed and approved the work program scope and public participation for this project. The Planning Commission also wanted to explore some additional topics:

- Tree removal limits not associated with development;
- 'Saving trees' versus 'replacing trees' associated with development; and
- Adding more strength to the code where tree retention is concerned.

The proposed *minor amendments* were discussed at the Planning Commission's June 11, 2009 meeting and the Houghton Community Council's June 22, 2009 meeting. The meeting packets for those meetings are available on the City's Planning Department website: http://www.ci.kirkland.wa.us/depart/Planning.htm

REQUESTED MODERATE CHANGES

Below are changes that the City Council asked staff to pursue having moderate code implications. Each topic contains a brief description of the issue and followed by staff response and request for Houghton Community Council direction.

1. **Should the City provide for different procedural options for a short plat permit application under an Integrated Development Plan review process?**

   Kurt Latimore, the City's consultant for single family building permit and short plat/subdivision process efficiency, has helped the City identify steps to improve review timelines and overall review processes for these types of projects. Mr. Latimore has developed the idea of an Integrated Development Plan (IDP). An excerpt from Mr. Latimore's final report describing the IDP can be found in Attachment 2. While the IDP involves multiple City departments and suggested improvements to the development review process, a main item identified for consideration is the Planning Department review of trees as it relates to the single-family short plat, grading, and building permit review.

   A goal of an IDP is to identify trees to be retained on a parcel early in the project's design phase. Then, all tree removals may occur at once, rather than in phases through the grading and building permit process. Utilizing Mr. Latimore's recommendations, staff would implement three subdivision process options for developers to choose from. Although the underlying principles of the integrated development plan may be found in the existing Tree Plan III requirements (KZC Section 95.35.2.3 in Attachment 1), minor code changes will be necessary to fully implement this approach.

   Three procedural options have been presented in the final IDP report, depending on when the required tree information is submitted by the applicant during the short plat/subdivision process (see Attachment 3):

   Pre-submittal: This option provides a developer with predictable tree retention requirements, and allows all tree removals to occur at the grading permit stage. The IDP, including very detailed information, is submitted at the pre-submittal meeting stage of a project, including tree plan information, utility locations, access point, and building footprints. This option moves the tree review to a point very early in the development process, prior to an applicant submitting for a permit. Trees identified for retention at this very early stage must be retained throughout the development. As mentioned in the draft IDP report, this is the best time to take advantage of modifications to development standards in order to save trees worthy of retention.

   Accelerated: This is similar to the *Pre-submittal* process described above, except that the IDP is submitted at the time of short plant/subdivision permit application rather than the pre-submittal meeting stage. Tree plan review will then occur concurrently with the review of the short plant/subdivision permit.

Both *the Pre-submittal* and *Accelerated processes* will require the applicant to submit a tree preservation and maintenance agreement prior to final plat.

Progressive: This option reviews tree retention with each step of the development process (i.e. short plat, grading permit, and single-family building permit) and is representative of how tree plans are currently processed in the City. This typically results in minimal tree removal occurring with the grading permit, then subsequent tree removals with the building permits. It offers the most flexibility to a developer that is not ready to submit a very detailed development plan. Additional review time is needed at each stage for tree plan review.

Staff Response

The City will be implementing the IDP as a standard procedure in the review of short plat/subdivision permits and subsequent single family building and grading permits. As most trees currently are saved through the short plat and land surface modification (grading) stages and then are lost as individual building permits are approved, staff welcomes an approach that would allow a more comprehensive review at the beginning of the process that would carry on throughout the life of the project. Early identification of trees suitable for retention can result in lot lines being adjusted or other modifications in order to save the most viable trees. The procedural options available under the IDP offer this type of early review.

The disadvantage to this approach is that the developer needs to identify approximate building footprints very early in the process and would have less flexibility later in the building process. This is difficult for developers who do not plan to build the final structures, or new owners/builders of partially-developed properties. The benefit of this approach, however, is that tree retention expectations are clear to all future developers and builders before lots are sold or plans prepared much like other protected natural resources, such as wetlands or streams. This could help ensure improved tree retention, reduce permit review time, and increase predictability.

Developers have expressed that IDP's should offer flexibility in terms of when modifications to their site plans should occur in the development process. Having all IDP procedural review options available to developers will give them the flexibility they desire since development programs typically vary with each project. In addition, developers have also asked that a mechanism be included to modify tree plans later in the process even if trees have been identified for retention earlier in the review process.

Staff recommends the following and would like feedback from the Houghton Community Council regarding each item:

a. All three procedural IDP review options should be made available to applicants. Since pre-submittal meetings are already mandatory by Code, it could be more efficient to require the tree information up front. However, if an applicant does not have enough information at this stage regarding tree retention or is in the feasibility stage of a project, then the *Accelerated* or *Progressive* option would be the appropriate process.

b. Rename the IDP review options as the terms may be easily confused with other permit processes.

c. Change the Zoning Code Tree Plan III requirements to allow for the different IDP procedural review options.

d. Develop modification criteria to allow changes to a tree plan later in the development process.

2. Should code enforcement fines be increased?

Although greatly increased from previous levels, code enforcement fines still may be too low. To ensure tree retention, the fines must be more than just the "cost of doing business". Currently, the $1,000 fine for an unauthorized tree removal is not a deterrent for those intending to illegally remove trees or clear a site for development. If regulations for right-of-way trees and private property trees are consolidated, code enforcement fines should also be consistent with that approach.

Staff Response

Another aspect of the Tree Regulation Amendment project is to consolidate all of the City's tree regulations into one chapter, Kirkland Zoning Code Chapter 95. The City is also pursuing a separate project to consolidate all of the City's code enforcement provisions, including tree code enforcement, into the Kirkland Municipal Code. This project is occurring simultaneously with the Tree Regulation Amendment project and is still in the very early stages. Recommendations on this project will be presented to the Planning Commission and the Houghton Community Council in the upcoming months. However, it is uncertain when this project will be completed relative to the Tree Regulation Amendment project.

Currently, background information is being gathered by staff on how the City of Bellevue regulates and process code enforcement actions. The topic of fines as it relates to illegal tree removal will also be discussed as part of the code enforcement consolidation project. At this point, staff recommends that no changes should be made to the tree code enforcement provisions until the code enforcement consolidation project is complete.

3. How will the City monitor its tree canopy coverage?

The Comprehensive Plan contains the following policy regarding the City's tree canopy goal:

> ***Policy NE-3.1: Work toward increasing Kirkland's tree cover to 40 percent.***
>
> *In 2003, Kirkland's overall tree cover was estimated to be 32 percent (see Figure NE-4: Tree Canopy). Significant improvements in storm water management and air quality could be realized if the average tree cover were to be increased to 40 percent (1). To approach measurable economic and ecologic benefits, Kirkland's regulations, programs, and public outreach should aim toward increasing the City's tree canopy long term, to the extent feasible when balancing other City goals. In order to track progress, it will be important to complete, then monitor and maintain the inventory of public trees, as well as to periodically assess the canopy Citywide. As land develops, care should be taken to preserve and protect trees and other natural resources of value whenever feasible.*

(1) Regional Ecosystem Analysis: Puget Sound Metropolitan Area – Calculating the Value of Nature, 1998, by American Forests, www.americanforests.org.

Ordinance 4026, adopted by the City Council on December 13, 2005, included language directing the City to undertake an analysis estimating the City's tree canopy coverage by December 31, 2010. With current in-house data, the City cannot determine whether progress toward the Comprehensive Plan goal of 40% canopy coverage is being achieved.

In addition, tree monitoring should aim to establish and maintain an overview of citywide tree canopy coverage. The canopy analysis, first published in 2003 as part of the Natural Resource Management Plan is a generalized digital map of forest canopy (see Attachment 4). Staff worked with a consultant to create this thematic map from satellite imagery. Although this process was considered to be state-of-the-art and highly repeatable, area calculations are assumed to have an inherent error range of plus/minus a few percentage points.

Staff Response

Staff points to the need for accurately assessing and monitoring the City's biomass of trees and vegetation. In order to proceed, Planning staff would begin working with the City's Information Technology-GIS Department (IT-GIS) to prepare a plan for how this level of tree monitoring might be implemented, and formulate a procedure for incorporating citywide tree canopy statistics. To measure progress toward the planned canopy goal, staff recommends that a recurring cycle of analysis be established beginning in 2010. However, this will have budget considerations. The City's Forestry Account balance may be a funding source for the service package in 2010.

Data from implementing this performance measure will allow the City to determine whether or not additional changes to the tree regulations will be needed in order to meet our tree canopy goal. This sentiment was also acknowledged by several people who attended the stakeholder meetings.

IT-GIS and Planning staff could research approximate costs and also consider whether this process can reasonably be accomplished in-house rather than outsourced. Tree canopy updates could be utilized to derive other comprehensive citywide statistics as well. Staff considers it possible that the cost of an outside vendor could be shared by neighboring jurisdictions that might also benefit from the data. Should staff pursue gathering this information?

Also, in order to track tree activity, should the City begin requiring a permit or some sort of registration to remove significant trees? Currently, it has been the standard practice of homeowners to submit a tree removal request form. Staff believes that homeowners wish to comply with the tree regulations and submit tree removal requests to confirm their compliance. In addition, the documenting tree removals are helpful if complaints are submitted, which occur frequently. Below is a chart which shows the number of tree removal requests processed by the City.

Year	Number of Tree Removal Requests
2006	101
2007	290
2008	269
2009 – as of July 26, 2009	125
TOTAL	***785***

Most local jurisdictions with tree protection regulations (Issaquah, Seattle, Bellevue, Woodinville, and Vancouver, WA) charge fees for tree removal permits ranging from $35 to $240. Currently, the City of Kirkland processes, on average, over 200 Tree Removal Requests per year without charging a permit fee. As part of any update to our fee study, staff would conduct an analysis on reasonable fees for tree removal.

ADDITIONAL PLANNING COMMISSION TOPICS

At their first study session on this project, the Planning Commission requested three additional topics be added to the discussion. Depending on the extent of potential changes, these topics may be beyond the scope of review requested by the City Council, but can help provide background for future code and/or policy changes. The topics are listed below and contain a brief description of the issue followed by staff response.

1. **Should the tree removal limit *not* associated with development be relative to the size of the subject property?**

   With the 2006 amendments, in order to slow tree canopy loss, tree removal not associated with development was reduced to 2 significant trees per year for lots smaller than one acre. The previous standard was 5 significant trees per year. Properties larger than one acre were allowed to remove an additional 5 trees per acre.

   The following chart summarizes the different scenarios for tree removal on private property not associated with development that is currently allowed in the City.

	General Tree Removal – No permit required but strongly encouraged	**Tree Plan IV**	**Tree Plan V – Forest Management Plan**
Remove up to 2 significant trees per 12-month period	**X**		
Remove more than 2 significant trees		**X**	
Tree removal in protected easements, critical areas and their buffers		**X**	
Tree removal of one or both of the last two significant trees		**X**	
Hazard or nuisance tree removal		**X**	
Tree removal on private property larger than 35,000 sq. ft. for more than 2 significant trees			**X**

A concern raised at the Planning Commission meeting was that the tree density requirement is not applied until the last two trees on the subject property are removed. For example, on a property where there are 10 significant trees, a property owner can currently remove two trees per year until there are only two trees remaining. The last two trees would then be subject to the tree density requirements if removed.

It may be possible in the above scenario that some of the trees could have been saved or replaced in order to meet tree density requirements. Since tree density requirements are not triggered until the last two trees are affected, the opportunity to retain additional mature trees is lost.

A solution that was brought up at the Planning Commission meeting was to require that *any* tree removal must comply with the City's tree density requirement regardless if they are the last two trees or not. The tree density requirement should also be based on the City's canopy goal and provide a simple calculation to determine the required tree density and/or required tree replacement.

Also, there is no regulatory difference between removing two significant trees on a 5,000 square foot lot or a 34,000 square foot lot. However, properties with significantly wooded sites larger than 35,000 square feet are subject to a Forest Management Plan where there is no limit as to the maximum number of trees allowed to be removed. The

City still has to review and approve the Tree Plan IV. Below are the standards from the Zoning Code regarding a Forest Management Plan.

Tree Plan V. Tree Plan V is a Forest Management Plan for developed, significantly wooded sites of at least 35,000 square feet in size in which tree removal is requested that is not exempt under Section 95.20 of this Chapter. A Forest Management Plan must be developed by a qualified professional. The Tree Plan shall include the following:

a) A plan depicting the location of all significant trees (a tree survey is not required) with a numbering system of the trees (with corresponding tags on trees in the field). The plan shall include size (DBH), species, and condition of each tree;

b) Identification of trees to be removed, including reasons for their removal and a description of low impact removal techniques pursuant to subsection (4)(e) of this section;

c) A reforestation plan that includes location, size, species, and timing of installation;

d) A narrative report of prescribed, long-term maintenance activity for the site as outlined [below].

Forest Management Plan. For properties proposing tree removal requiring a forest management plan, the following standards shall apply:

1) Trees to remain should be dominant or co-dominant in the stand, healthy and wind-firm.

2) No removal of trees from critical areas and their buffers, unless otherwise permitted by this chapter.

3) No removal of landmark or specimen trees, unless otherwise permitted by this chapter.

4) No removal of healthy trees that would cause trees on adjacent properties to become hazardous.

5) The reforestation plan ensures perpetuity of the wooded areas. The size of planted trees for reforestation shall be a minimum of three feet tall.

6) Logging operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, native shrubs, ground cover and stumps shall be retained where feasible. Where not feasible, appropriate erosion control measures to be approved by the City shall be implemented.

7) Removal of tree debris shall be done pursuant to Kirkland Fire Department standards.

8) Recommended maintenance prescription for retained trees with a specific timeline for such management.

Staff Response

Eventually, staff would like to explore the relationship between the tree density requirements and how they relate to our canopy goal. Currently there is no correlation between the density requirements and our tree canopy goal. It is possible that the tree density requirement is either too strict or too relaxed. In doing so, our tree retention and tree replacement regulations could become more canopy goal based and be applied to any tree removal scenarios. Staff could also use this data to determine the appropriate number of replacement trees needed in order meet tree density requirements.

Currently, lots larger than 35,000 square feet may remove additional trees subject to a Forest Management Plan (Tree Plan V); they are no longer limited to 5 trees per acre. Additional flexibility to the number of trees removed for properties larger than 35,000 square feet were incorporated into the 2006 amendments as long as the criteria listed in the previous section were met. These changes were adopted by the City Council to address tree removal concerns held by owners of larger properties in Kirkland. No Forest Management Plans have been submitted since the changes to the code in 2006. Staff does not recommend any changes at this time.

2. Why pursue retention of existing mature trees instead of allowing complete clearing and replanting for new development?

The benefits of saving mature trees are best summarized in the Purpose and Intent section of Kirkland Zoning Code Chapter 95:

> *KZC Section 95.05 Purpose and Intent. Trees and other vegetation are important elements of the physical environment. They are integral to Kirkland's community character and protect public health, safety and general welfare. Protecting, enhancing, and maintaining healthy trees and vegetation are key community values. A goal is to achieve an overall tree canopy coverage of 40 percent for the community. The many benefits of healthy trees and vegetation contribute to Kirkland's quality of life by:*
>
> *a. Minimizing the adverse impacts of land disturbing activities and impervious surfaces such as runoff, soil erosion, land instability, sedimentation and pollution of waterways, thus, reducing the public and private costs for storm water control/treatment and utility maintenance;*
>
> *b. Improving the air quality by absorbing air pollutants, assimilating carbon dioxide and generating oxygen;*
>
> *c. Reducing the effects of excessive noise pollution;*
>
> *d. Providing cost-effective protection from severe weather conditions with cooling effects in the summer months and insulating effects in winter;*
>
> *e. Providing visual relief and screening buffers;*
>
> *f. Providing recreational benefits;*

g. *Providing habitat, cover, food supply and corridors for a diversity of fish and wildlife; and*

h. *Providing economic benefit by enhancing local property values and contributing to the region's natural beauty, aesthetic character, and livability of the community.*

In addition, staff has found a tree benefit calculator on the internet which helps quantify some of the benefits listed above. The website is located at: www.treebenefits.com. The following is a brief excerpt about the tree benefit model from the website:

> *The Tree Benefit Calculator allows anyone to calculate a first-order approximation of the benefits individual street-side trees provide. This tool is based on i-Tree's street tree assessment tool called STRATUM. With minimal inputs of location, species and tree size, users will get an understanding of the environmental and economic value trees provide on an annual basis.*
>
> *The Tree Benefit Calculator is intended to be simple and accessible. As such, this tool should be considered a starting point for understanding trees' value in the community rather than a scientific accounting of precise values. For more detailed information on urban and community forest assessments, visit the i-Tree website.*

As an example, below is a summary of the benefits of 24" diameter Douglas fir tree located a single-family neighborhood in the City of Kirkland. Attachment 5 contains the complete printout of the results.

Stormwater:	Intercept 2,964 gallons of stormwater in a year
Energy:	90 Kilowatt/hour saved for electricity for cooling
	Reduce consumption of oil or natural gas by 2 therms
Air Quality:	See chart in Attachment 5
CO2:	Reduce atmospheric carbon by 466 pounds

Additional information regarding the benefits of trees can be found in the following reports:

- Attachment 6. Excerpt from *Planning the Urban Forest*: Ecology, Economy, and Community Development. James C. Schwab. American Planning Association, 2009.
- Attachment 7. Excerpt from *City of Kirkland 2001 Tree Management Review*. Brian Gilles. Gilles Consulting, 2001.

The Growth Management Act encourages and directs density and new development to the urban cities. However, balancing tree retention with increasing development is always a challenge. The Kirkland Zoning Code contains standards for development that are directly related to tree retention such as required setback yards and maximum lot coverage. Developers typically seek to maximize development based on these standards which can result in little room for tree retention.

Staff Response

While tree removal may occur as part of development, simultaneously retaining mature viable trees and meeting minimum tree density requirements results in a gradual succession of tree canopy and a sustainable urban forest. By protecting existing mature trees immediate benefits are provided whereas planting supplemental trees ensures those same benefits for future generations.

In terms of retention, the City can begin implementing the Integrated Development Plan. As mentioned in a previous section, by working with a developer very early on in the process in determining tree retention, there could be more use of the Code's incentives and variations section to preserve existing trees by working with the developer early on as part of the design process.

The City can also expand its education on the benefits of trees. Periodically informing various stakeholder groups such as arborist/tree care professionals, developers, and the general public can go a long way in understanding the value of trees as a resource.

3. Should the code be strengthened where tree retention is concerned?

A concern consistently expressed by the public is that too many mature trees are still being removed. For single-family building permits, trees in required setback yards are to be retained 'to the maximum extent possible'. Elsewhere on-site, retention is 'encouraged'. Although the regulations provide opportunities for some variations to development standards to protect trees within the required setback yards (Type 1 trees), the Planning Official can only require minor adjustments to the location of building footprints and driveways to achieve this end. Below is the provision in the Zoning Code that describes the Planning Official's authority in retaining Type 1 trees.

> *KZC 95.35.4.a.2 - Incentives and Variations to Development Standards. In order to retain trees, the applicant should pursue provisions in Kirkland's codes that allow development standards to be modified. Examples include but are not limited to number of parking stalls, right-of-way improvements, lot size reduction under Chapter 22.28 KMC, lot line placement when subdividing property under KMC Title 22, Planned Unit Developments, and required landscaping, including buffers for lands use and parking/driving areas.*
>
> *Requirements of the Kirkland Zoning Code may be modified by the Planning Official as outlined below when such modifications would further the purpose and intent of this chapter as set forth in KZC 95.05 and would involve Type 1 trees.*
>
> *a) Common Recreational Open Space. Reductions or variations of the area, width, or composition of required common recreational open space, may be granted.*
>
> *b) Parking Areas and Access. Variations in parking lot design and/or access driveway requirements may be granted when the Public Works and Planning Officials both determine the variations to be consistent with the intent of City policies and codes.*

c) Required Yards. Initially, the applicant shall pursue options for placement of required yards as permitted by other sections of this code, such as selecting one front required yard in the RSX zone and adjusting side yards in any zone to meet the 15-foot total as needed for each structure on the site. The Planning Official may also reduce the front or side required yards provided that:

i. No required side yard shall be less than five feet; and

ii. The required front yard shall not be reduced by more than five feet in residential zones. There shall not be an additional five feet of reduction beyond the allowance provided for covered entry porches.

d) Stormwater. Requirements pertaining to stormwater may be varied if approved by the Public Works Official under KMC 15.52.060.

Additional Variations. In addition to the variations described above, the Planning Official is authorized to require site plan alterations to retain Type 1 trees. Such alterations include minor adjustments to the location of building footprints, adjustments to the location of driveways and access ways, or adjustment to the location of walkways, easements or utilities. The Planning Official and the applicant shall work in good faith to find reasonable solutions.

Type 2 trees are trees located outside of the required setback yards but not within the building footprint or proposed improvements. These trees may or may not be impacted due to their proximity to the proposed development and/or the amount of work being done relative to the tree and trees root system. Type 2 trees are to be retained only 'if feasible' and their retention is not required.

Type 3 trees are those trees that are not viable or are in an area where 'removal is unavoidable due to anticipated development activity'. For example, dead or declining trees and trees that are located within the footprint of a proposed development would be considered Type 3 trees.

Staff Response

To increase tree retention of existing mature trees, new development would have to incorporate trees worthy of retention into their projects early in the design phase and code language will have to be changed significantly. Staff believes that simplifying and clarifying the current tree regulations and offering the Integrated Development Plan review process options will enable developers to collaborate with the City on the best manner in which to preserve trees most worthy of retention while still allowing development to move forward in a timely manner.

Currently, under the *Minor Amendments* being pursued by staff, the definition for *exceptional* or *landmark* trees will be clarified. Staff would like to explore incentives and programs in regards to these types of trees. Background research can be done by staff to determine what other municipalities are doing in regards to these types of trees.

PUBLIC COMMENT

Staff invited various stakeholders of this project (developers, property owners, applicants that submitted a short plat application since 2006, and arborists/tree care professionals) to attend

one of three meetings at City Hall. The meetings were informal and meant to obtain input from the perspective of the various groups on the proposed changes. While minimally attended, each meeting had a mix of stakeholders from different groups which resulted in engaging discussions. Below is a summary of the key items discussed.

- Predictability, clarity, and simplicity should be the overall goal of the tree regulation amendments
- Clarify review process and/or retention requirements for Type 2 trees
- What is the expectation for retention of Type 1 trees and how does it relate to the minimum tree density credits?
- Integrated Development Plan concept is a good idea since it allows flexibility (in terms of process) and predictability (depending on how early in the process the submit tree information) for developers
- Trees identified for retention early in the development process should be allowed to be removed later in the process due to unforeseen circumstances; establish criteria to allow this in a Integrated Development Plan
- Trees should be planted in a location suitable for the species to reach mature size (location and species of replacement trees are important)
- Apprehension from home owners in hiring a certified arborist
- Education and public outreach regarding trees and tree regulations is important for arborists/tree care companies, the development community, and the general public
- Online tree registration instead of permit for tree removals
- Utilize Urban Forester to 'scope' project prior to home owner hiring a certified arborist
- Need statistics on tree removal since 2006
- Need information to determine if City is meeting 40% canopy goal plus further breakdown of tree canopy; are all area goals equitable? I.e.: City-owned (street tree corridors vs. natural area parks), private property (Bridle Trails vs. 5,000 square foot lots vs. commercially zoned areas)
- Notification of tree removal is good…online? Post on site? Notify neighbors on adjacent property?
- Change terminology for tree type locations to something more intuitive
- Need exceptional tree criteria
- Should non-significant trees be considered in tree density calculations?
- Need to have better homeowner awareness for tree retention (5 year maintenance agreements)
- Should the City enforce trees that block private property views?

As part of a future study session packet, the results of a questionnaire to help understand the thoughts of stakeholders will be presented. A copy of the draft questionnaire can be found in Attachment 8. Based on the direction provided by the Houghton Community Council and Planning Commission, staff will begin drafting the regulations for consideration.

Several emails were also submitted to the City since the last study session with the Houghton Community Council and the Planning Commission. The emails can be found in Attachment 9.

ATTACHMENTS

1. KZC Chapter 95
2. IDP Summary
3. IDP Procedural Options
4. City of Kirkland Tree Canopy Map dated December 11, 2003
5. Results from www.treebenefits.com
6. Excerpt from Planning the Urban Forest: Ecology, Economy, and Community Development. James C. Schwab. American Planning Association, 2009.
7. Excerpt from *City of Kirkland 2001 Tree Management Review*. Brian Gilles. Gilles Consulting, 2001.
8. Draft Tree Questionnaire
9. Public Comment Emails

Chapter 95 – TREE MANAGEMENT AND REQUIRED LANDSCAPING

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- 4. Commercial Nurseries or Tree Farms

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- 1. Introduction
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95.05 Purpose and Intent

1. Trees and other vegetation are important elements of the physical environment. They are integral to Kirkland's community character and protect public health, safety and general welfare. Protecting, enhancing, and maintaining healthy trees and vegetation are key community values. A goal is to achieve an overall tree canopy coverage of 40 percent for the community. The many benefits of healthy trees and vegetation contribute to Kirkland's quality of life by:

   a. Minimizing the adverse impacts of land disturbing activities and impervious surfaces such as runoff, soil erosion, land instability, sedimentation and pollution of waterways, thus, reducing the public and private costs for storm water control/treatment and utility maintenance;

   b. Improving the air quality by absorbing air pollutants, assimilating carbon dioxide and generating oxygen;

   c. Reducing the effects of excessive noise pollution;

   d. Providing cost-effective protection from severe weather conditions with cooling effects in the summer months and insulating effects in winter;

   e. Providing visual relief and screening buffers;

   f. Providing recreational benefits;

   g. Providing habitat, cover, food supply and corridors for a diversity of fish and wildlife; and

   h. Providing economic benefit by enhancing local property values and contributing to the region's natural beauty, aesthetic character, and livability of the community.

2. Tree and vegetation removal in urban areas has resulted in the loss to the public of these beneficial functions. The purpose of this chapter is to establish a process and standards to provide for the protection, preservation, replacement, proper maintenance, and use of significant trees, associated vegetation, and woodlands located in the City of Kirkland.

The intent of this chapter is to:

a. Maintain and enhance canopy coverage provided by trees for their functions as identified in KZC 95.05(1);

b. Preserve and enhance the City of Kirkland's environmental, economic, and community character with mature landscapes;

c. Promote site planning, building, and development practices that work to avoid removal or destruction of trees and vegetation, that avoid unnecessary disturbance to the City's natural vegetation, and that provide landscaping to buffer the effects of built and paved areas;

d. Mitigate the consequences of required tree removal in land development through on- and off-site tree replacement with the goals of halting net loss and enhancing Kirkland's tree canopy to achieve an overall healthy tree canopy cover of 40 percent City-wide over time;

e. Encourage tree retention efforts by providing flexibility with respect to certain other development requirements;

f. Implement the goals and objectives of the City's Comprehensive Plan;

g. Implement the goals and objectives of the State Environmental Policy Act (SEPA); and

h. Manage trees and other vegetation in a manner consistent with the City's Natural Resource Management Plan.

95.10 Definitions

The following definitions shall apply throughout this chapter unless the context clearly indicates otherwise. Definitions that apply throughout this code are also located in Chapter 5 KZC.

Caliper – The American Association of Nurserymen standard for trunk measurement of nursery stock. Caliper of the trunk shall be the trunk diameter measured six inches above the ground for up to and including four-inch caliper size and 12 inches above the ground for larger sizes.

Critical Root Zone – The area surrounding a tree at a distance from the trunk, which is equal to one foot for every inch of tree diameter at breast height or otherwise determined by a qualified professional.

Crown – The area of a tree containing leaf- or needle-bearing branches.

Diameter at Breast Height (DBH) – The diameter or thickness of a tree trunk measured at 4.5 feet from the ground.

Dripline – The distance from the tree trunk, that is equal to the furthest extent of the tree's crown.

Impact – A condition or activity that affects a part of a tree including the trunk, branches, and critical root zone.

Grove – A group of three or more significant trees with overlapping or touching crowns.

Landmark Tree – A tree or group of trees designated as such because of its exceptional value to the residents of the City.

Limit of Disturbance – The boundary between the area of minimum protection around a

tree and the allowable site disturbance as determined by a qualified professional.

Qualified Professional – An individual with relevant education and training in arboriculture or urban forestry. The individual must be an arborist certified by the International Society of Arboriculture or

a registered consulting arborist from the American Society of Consulting Arborists and for Forest Management Plans may be a certified forester by the Society of American Foresters. A qualified professional must possess the ability to perform tree risk assessments and prescribe appropriate measures necessary for the preservation of trees during land development. For Forest Management Plans, the qualified professional must have the ability to assess wooded sites and prescribe measures for forest health and safety.

Significant Tree – A tree that is at least six inches in diameter at breast height (DBH).

Significantly Wooded Site – A subject property that has a number of significant trees with crowns that cover at least 40 percent of the property.

Site Disturbance – Any development, construction, or related operation that could alter the subject property, including, but not limited to, tree or tree stump removal, road, driveway or building construction, installation of utilities, or grading.

Site Perimeter – The area of the subject property that is 10 feet from the property line.

Specimen Tree – A viable tree that is considered in very good to excellent health and free of major defects, as determined by the City's Urban Forester.

Target – Person or property that can be damaged by failure of a tree.

Tree Removal – The removal of a tree, through either direct or indirect actions, including but not limited to: (1) clearing, damaging or poisoning resulting in an unhealthy or dead tree; (2) removal of at least half of the live crown; or (3) damage to roots or trunk that is likely to destroy the tree's structural integrity.

Viable Tree – A significant tree that a qualified professional has determined to be in good health, with a low risk of failure due to structural defects, is relatively windfirm if isolated or remains as part of a grove, and is a species that is suitable for its location.

Wildlife Snag – The remaining trunk of a dying, diseased, or dangerous tree that is reduced in height and stripped of all live branches.

Windfirm – A condition of a tree in which it can withstand moderate storm winds.

95.15 Applicability – Permit Required

No person, directly or indirectly, shall remove any significant tree on any property within the City, except City right-of-way, without first obtaining a tree removal permit as provided in this chapter, unless the activity is exempted in KZC 95.20. Trees in City right-of-way are regulated pursuant to Chapter 19.36 KMC.

95.20 Exemptions

The following activities are exempt from the provisions of this chapter:

1. Developed Property.

    a. Any owner of developed property may remove up to two significant trees from their property within a 12-month period; provided, that there is no current application for development activity for the site; and provided further, that the tree(s) are not:

        1) In easements dedicated to ensure the protection of vegetation; or in critical areas, or critical area buffers;

        2) Required to be retained in a special regulation contained in Chapters 15

through 60 KZC;

3) Designated on an approved tree plan to be retained pursuant to KZC 95.35 and 95.50; or

4) The last two significant trees on their property. Trees that fit the criteria in KZC 95.35(4)(b) and (4)(c) for nuisance or hazard trees do not count toward the removal allowance.

b. The Department of Planning and Community Development shall establish and maintain a tree removal request form to allow property owners to request Department review of potentially exempt tree removal for compliance with applicable City regulations.

c. For every significant tree that is removed, the City encourages the planting of a tree that is appropriate to the site.

2. Emergency Tree Removal. Any tree on private property that poses an imminent threat to life or property may be removed without first obtaining a permit. The party removing the tree will contact the City within seven days of removal to provide evidence of threat for approval of exemption. If the Planning Official determines that the emergency tree removal was not warranted, he or she may require that the party obtain a permit and/or require that replacement trees and vegetation be replanted as mitigation.

3. Utility Management. Trees may be removed by the City or utility provider in situations involving immediate danger to life or property, or interruption of services provided by a utility.

4. Commercial Nurseries or Tree Farms. A nursery or tree farm owner may remove trees that are being grown to be sold as Christmas or landscape trees.

95.25 Alternative Compliance

All activities regulated by this chapter shall be performed in compliance with the applicable standards contained in this chapter, unless the applicant demonstrates that alternate measures or procedures will be equal or superior to the provisions of this chapter in accomplishing the purpose and intent of this chapter as described in KZC 95.05. Requests to use alternative measures and procedures shall be reviewed by the Planning Official, who may approve, approve with conditions, or deny the request. Examples include but are not limited to retention of specimen or landmark trees or low impact development techniques, including such programs as Green Building Design or Leadership in Energy and Environmental Design that demonstrate a significant reduction to stormwater runoff from the site.

95.30 City Forestry Account

1. Funding Sources. All civil penalties received under this chapter and all money received pursuant to KZC 95.35 shall be used for the purposes set forth in this section. In addition, the following sources may be used for the purposes set forth in this section:

a. Agreed upon restoration payments imposed under KZC 95.55 or settlements in lieu of penalties;

b. Sale of trees or wood from City property where the proceeds from such sale have not been dedicated to another purpose;

c. Donations and grants for tree purposes;

d. Sale of seedlings by the City; and

e. Other monies allocated by the City Council.

2. Funding Purposes. The City shall use money received pursuant to this section for the following purposes:

a. Acquiring, maintaining, and preserving wooded areas within the City;

b. Planting and maintaining trees within the City;

c. Identification and maintenance of landmark trees;

d. Establishment of a holding public tree nursery;

e. Urban forestry education; or

f. Other purposes relating to trees as determined by the City Council.

95.35 Tree Retention, Protection and Density

1. Introduction. The intent of this section is to successfully retain desirable trees on developing and re-developing sites and to maintain and enhance the tree canopy of Kirkland. To that end, the City requires a tree permit in conjunction with all development permits resulting in site disturbance and with any proposed tree removal on developed sites not exempted by KZC 95.20.

In order to make better decisions about tree retention, particularly during all stages of development, tree removal permits will require specific information about the existing trees before removal is allowed. Different levels of detail correspond to the scale of the project or activity. Specific tree plan review standards are provided in KZC 95.35(4) and include tree retention priority and incentives and variations to development standards in order to facilitate preservation of healthy, significant trees.

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. This section includes provisions that allow development standards to be modified in order to retain viable significant trees.

The requirement to meet a minimum tree density applies to new single-family and duplex developments and major redevelopments, and new residential subdivisions and short subdivisions. If such a site falls below the minimum density with existing trees, supplemental planting is required. A tree density for existing trees to be retained is calculated to see if new trees are required in order to meet the minimum density for the site. Supplemental tree location priority is set as well as minimum size of supplemental trees to meet the density.

The importance of effective protection of retained trees during construction is emphasized with specific protection standards in the last part of this section. These standards must be adhered to and included on demolition, grading and building plans as necessary.

2. Tree Plan Required.

a. Requirement Established. An applicant for a tree removal permit must submit a tree plan that complies with this section. A qualified professional may be required to prepare certain components of a tree plan at the applicant's

expense. If proposed development activities call for more than one tree plan level, the tree plan level with the more stringent requirements shall apply; provided, that the Planning Official may require a combination of tree plan components based on the nature of the proposed development activities. If proposed activity is not clearly identified in this chapter, the Planning Official shall determine the appropriate tree plan.

b. Tree Plan and Retention Requirements. The following sets forth the different tree plans required for development activities or removal requests requiring a tree removal permit. Applicants for development are encouraged to confer with City staff as early in the design process as possible so that the applicable tree planting and retention concepts can be incorporated into the design of the subject property. Each plan sets forth the required components and retention standards for each tree plan. The Planning Official may waive a component for a tree plan, if he or she determines that the information is not necessary.

1) Tree Plan I. Tree Plan I is required for a development permit or land surface modification resulting in site disturbance for one or two attached, detached, or stacked dwelling units.

a) Tree Plan I – Major and Minor.

i. Tree Plan I – Major shall be required for new development, redevelopment, or development in which the total square footage of the proposed improvements is more than 50 percent of the total square footage of the existing improvements on the subject property.

ii. Tree Plan I – Minor shall be required for all proposed development activities and site disturbance for which Tree Plan I – Major does not apply.

b) Tree Plan Requirements. The tree plan shall include the following:

i. Accurate location of significant trees and their driplines measured relative to visible site features (surveyed locations may be required);

ii. Size (DBH) and type or species of these trees; and

iii. General health of these trees.

iv. Approximate trunk location and measure dripline of significant trees that are on adjacent property with driplines extending over the subject property line.

v. For Tree Plan I – Minor, the above tree information shall be required only for trees potentially impacted by proposed development activity, and surveyed tree locations shall not be required.

vi. For Tree Plan I – Major, assessment by a qualified professional shall be required if any significant trees are in required yards or within 10 feet of any side property line on the subject property.

c) Additional Applicant Requirements.

i. If existing trees impacted by site disturbance are being retained, tree protection shall be shown on the grading or demolition plan and may require assistance of a qualified professional.

ii. The applicant shall provide a final plan showing retained trees and any required trees in order to meet tree density or minimum number of trees as outlined in subsections (2)(b)(1)(d) and (2)(b)(1)(e) of this section.

iii. The applicant shall enter into all required tree preservation and maintenance agreements pursuant to KZC 95.50.

iv. For lots from a short subdivision, subdivision or planned unit development with an approved Tree Plan III, the tree information shall be transferred over and the applicant must comply with the applicable Tree Plan III requirements.

d) Site Design and Retention Requirements.

i. For Tree Plan I – Major, the applicant shall retain and protect Type 1 trees, as defined in subsection (4)(a)(1) of this section, in all required yards to the maximum extent possible. To retain Type 1 trees in required yards, the applicant shall pursue, where feasible, applicable variations in the development standards of this code as outlined in subsections (4)(a)(2) and (4)(a)(3) of this section. The applicant shall be encouraged to retain viable trees in other areas on-site.

ii. For Tree Plan I – Minor, the applicant is encouraged to retain viable trees and pursue applicable variations to development.

e) Tree Density Requirements.

i. For Tree Plan I – Major, the minimum tree density applies and shall comply with the process set forth in subsection (5) of this section.

ii. For Tree Plan I – Minor, a minimum of two trees must be on the lot following the requirement set forth in subsection (2)(b)(4)(b)(iv) of this section.

2) Tree Plan II. A Tree Plan II is required for a development permit or land surface modification resulting in site disturbance and impact to a significant tree in required yards and areas for required landscaping for three or more detached, attached, or stacked dwelling units; or any use other than residential.

a) Tree Plan Requirements. The tree plan shall include the following:

i. A site map depicting accurate location of significant trees and their driplines measured relative to visible site features (a survey may be required) and approximate location of significant trees on adjacent property with driplines extending over the subject property; and

ii. A report by a qualified professional stating the size (DBH), species, and assessment of health and determination of viable trees in the areas of required landscaping;

iii. The above tree information shall be required only for trees potentially impacted by proposed development activity as determined by the Planning Official.

b) Additional Applicant Requirements.

i. Demolition and grading plans shall depict tree protection measures, as recommended by a qualified professional, if existing trees are to be retained and their dripline is within the area of disturbance.

ii. Landscape plans shall show all retained trees.

iii. The applicant shall enter into all required tree preservation and maintenance agreements pursuant to KZC 95.50.

c) Site Design and Retention Requirements. The applicant shall pursue applicable variations to development, as outlined in subsections (4)(a)(2) and (4)(a)(3) of this section, for the retention of Type 1 trees, as defined in subsection (4)(a)(1) of this section, where feasible in the required yards and landscaping areas. If removal of a Type 1 tree in required landscaping areas is proposed, the applicant shall provide reasons for the proposed removal that may require assistance from a qualified professional.

d) Tree Plan II sites shall not have a minimum tree density requirement but shall comply with the required landscaping pursuant to KZC 95.40. Preserved trees in required landscaping areas shall apply toward required landscaping requirements.

3) Tree Plan III. A Tree Plan III is required for new residential short plats or subdivisions and related land surface modification applications.

a) Tree Plan Requirements. The tree plan shall include the following:

i. Surveyed location of all significant trees.

ii. A tree inventory prepared by a qualified professional including a numbering system of existing significant trees (with corresponding tags on trees), measured driplines, size (DBH), species and tree status (removed or retained) based on criteria in subsection (2)(c) of this section for all significant trees. The inventory shall include approximate trunk location and measured dripline of significant trees that are on adjacent property with driplines extending over the subject property line.

iii. A report from a qualified professional detailing:

(A) An indication, for each tree, of whether it is proposed to be retained or removed, based on health, risk of failure and suitability of species;

(B) Limits of disturbance around viable trees;

(C) Special instruction for work within their critical root zone; and

(D) Location and type of protection measures for these trees.

iv. A site plan utilizing the information from the tree survey, inventory and report, showing:

(A) The proposed development activity;

(B) Location and limits of disturbance of viable trees to be retained according to the tree inventory and report; and

(C) Trees being removed for proposed development or trees being removed that are not viable.

b) Additional Applicant Requirements.

i. A description and location of tree protection measures during construction for trees to be retained must be shown on demolition and grading plans. Protection measures must be in accordance with subsection (6) of this section.

ii. Prior to permit approval, the applicant shall provide a plan showing tree density calculations pursuant to subsection (5) of this section, retained trees, trees to be removed, and any required supplemental trees to meet the minimum density. The plan must describe the details of site preparation, the installation of new trees and the maintenance measures necessary for the long-term survival and health of all trees on-site pursuant to KZC 95.45 and 95.50.

iii. The applicant shall submit a preservation and maintenance agreement pursuant to KZC 95.50, for approval prior to final plat.

c) Site Design and Retention Requirements. The Planning Official will determine tree types as outlined in subsection (4)(a)(1) of this section, and the applicant shall pursue applicable variations to development, as outlined in subsections (4)(a)(2) and (4)(a)(3) of this section for the retention of Type 1 trees throughout the life of the project.

d) Tree Density Requirements. The minimum tree density shall apply to the site and shall comply with the process set forth in subsection (5) of this section.

4) Tree Plan IV. Tree Plan IV is for tree removal on a property on which no development activity is proposed or in progress. Activity requiring a Tree Plan IV includes but is not limited to: hazard or nuisance tree removal not exempt under KZC 95.20(1); tree removal in areas dedicated to ensure protection of vegetation, critical areas and their buffers; removal of one or both of the last two significant trees on a developed site; and requests to remove hazard or nuisance trees on undeveloped property. The plan can be developed by the applicant but may require assistance of a qualified professional.

a) Tree Plan Requirements. The tree plan shall include the following:

i. A site plan showing the approximate location of significant trees, their size (DBH) and their species, along with the location of structures, driveways, access ways and easements.

ii. For required replacement trees, a planting plan showing location, size and species of the new trees in accordance to standards set forth in subsection (5)(c) of this section.

b) Additional Applicant Requirements.

i. An arborist report explaining how the tree(s) fit the criteria in

subsection (4)(b) or (4)(c) of this section if removal is based on nuisance or hazard and the nuisance or hazard condition is not obvious.

ii. For nuisance or hazard trees in critical areas or their buffers, the planting plan must propose action to mitigate the hazard or nuisance in accordance to standards set forth in subsection (4) of this section.

iii. Tree removal on undeveloped property shall be approved only for hazard or nuisance trees pursuant to the criteria in subsections (4)(c) and (4)(d) of this section. The tree removal exemptions in KZC 95.20 are not applicable to undeveloped property.

iv. If the removal request is for one or both of the last two trees, even if nuisance or hazard, a one-for-one replacement is required as set forth in subsection (5)(c)(2) of this section.

5) Tree Plan V. Tree Plan V is a Forest Management Plan for developed, significantly wooded sites of at least 35,000 square feet in size in which tree removal is requested that is not exempt under Section 95.20 of this Chapter. A Forest Management Plan must be developed by a qualified professional. The Tree Plan shall include the following:

a) A plan depicting the location of all significant trees (a tree survey is not required) with a numbering system of the trees (with corresponding tags on trees in the field). The plan shall include size (DBH), species, and condition of each tree;

b) Identification of trees to be removed, including reasons for their removal and a description of low impact removal techniques pursuant to subsection (4)(e) of this section;

c) A reforestation plan that includes location, size, species, and timing of installation;

d) A narrative report of prescribed, long-term maintenance activity for the site as outlined in subsection (4)(e)(8) of this section.

c. Qualified Professional Reports. Reports prepared by a qualified professional shall contain the following, unless waived by the Planning Official:

1) A complete description of each tree's health and viability. If a tree is not viable for retention, the reason(s) must be soundly based on health, high risk of failure due to structure, defects, unavoidable isolation (windfirmness), or suitability of species and for which no reasonable alternative action is possible (pruning, cabling, etc.). The impact of necessary tree removal to remaining trees, including those in a grove or on adjacent properties, must also be discussed.

2) The location of limits of disturbance around all trees potentially impacted by site disturbances and any special instructions for work within that protection area (hand-digging, tunneling, root pruning, maximum grade change).

3) For development applications, a discussion of timing and installation of tree protection measures that must include fencing and be in accordance with the tree protection standards as outlined in subsection (6) of this section.

4) The suggested location and species of supplemental trees to be used when required. The report shall include planting and maintenance specifications pursuant to KZC 95.45 and 95.50.

3. Tree Plan Review Procedure and Appeals.

a. When an applicant proposes a development activity or project that requires a Tree Plan Level I, II or III, the tree plan shall be reviewed as part of the applicable permit application or process.

b. Applicants for a Level IV or V tree plan must submit a completed permit application on a form provided by the City. Within 21 calendar days, the Planning Official shall review the application and either approve, approve with conditions or modifications, deny the application or request additional information. Any decision to deny the application shall be in writing along with the reasons for the denial and the appeal process.

c. With respect to Level IV and Level V Tree Plans, an applicant may appeal an adverse determination to the Hearing Examiner. A written notice of appeal shall be filed with the Planning Department within 14 calendar days following the postmark date of distribution of a Planning Official's decision. The office of the Hearing Examiner shall give notice of the hearing to the applicant at least 17 calendar days prior to the hearing. The applicant shall have the burden of proving that the Planning Official made an incorrect decision. Based on the Hearing Examiner's findings and conclusions, he or she may affirm, reverse or modify the decision being appealed.

4. Tree Plan Review Standards.

a. Site Design for Development. Tree retention shall be pursuant to this chapter; provided, that such tree retention will not reduce the applicant's development potential (lot coverage, floor area ratio, and density) allowed by the Kirkland Zoning Code. Tree plans shall comply with all tree retention requirements in the KZC, including but not limited to those in Chapter 85 KZC, Geologically Hazardous Areas, and Chapter 90 KZC, Drainage Basins.

1) Tree Retention Standards.

a) Based on the tree plan information submitted by the applicant and the Planning Official's evaluation of the trees and proposed development on subject property, the Planning Official will designate each tree as:

i. Type 1, a viable tree that meets at least one of the criteria set forth in subsection (4)(a)(1)(b) of this section;

ii. Type 2, a viable tree that is to be retained if feasible; or

iii. Type 3, a tree that is either (1) not viable or (2) is in an area where removal is unavoidable due to the anticipated development activity.

b) Tree retention efforts shall be directed to the following trees if they are determined to be healthy and windfirm by a qualified professional, and provided the trees can be safely retained when pursuing alternatives to development standards in subsections (4)(a)(2) and (4)(a)(3) of this section:

i. Landmark trees;

ii. Specimen trees;

iii. Tree groves and associated vegetation that are to be set aside as preserved groves pursuant to KZC 95.50(3);

iv. Trees on slopes of at least 10 percent; or

v. Trees that are a part of a grove that extends into adjacent property, such as in a public park, open space, sensitive area buffer or otherwise preserved group of trees on adjacent private property. If significant trees must be removed in these situations, an adequate buffer of trees may be required to be retained or planted on the edge of the remaining grove to help stabilize.

2) Incentives and Variations to Development Standards. In order to retain trees, the applicant should pursue provisions in Kirkland's codes that allow development standards to be modified. Examples include but are not limited to number of parking stalls, right-of-way improvements, lot size reduction under Chapter 22.28 KMC, lot line placement when subdividing property under KMC Title 22, Planned Unit Developments, and required landscaping, including buffers for lands use and parking/driving areas.

Requirements of the Kirkland Zoning Code may be modified by the Planning Official as outlined below when such modifications would further the purpose and intent of this chapter as set forth in KZC 95.05 and would involve Type 1 trees.

a) Common Recreational Open Space. Reductions or variations of the area, width, or composition of required common recreational open space, may be granted.

b) Parking Areas and Access. Variations in parking lot design and/or access driveway requirements may be granted when the Public Works and Planning Officials both determine the variations to be consistent with the intent of City policies and codes.

c) Required Yards. Initially, the applicant shall pursue options for placement of required yards as permitted by other sections of this code, such as selecting one front required yard in the RSX zone and adjusting side yards in any zone to meet the 15-foot total as needed for each structure on the site. The Planning Official may also reduce the front or side required yards provided that:

i. No required side yard shall be less than five feet; and

ii. The required front yard shall not be reduced by more than five feet in residential zones. There shall not be an additional five feet of reduction beyond the allowance provided for covered entry porches.

d) Stormwater. Requirements pertaining to stormwater may be varied if approved by the Public Works Official under KMC 15.52.060.

3) Additional Variations. In addition to the variations described above, the Planning Official is authorized to require site plan alterations to retain Type 1 trees. Such alterations include minor adjustments to the location of building footprints, adjustments to the location of driveways and access ways, or adjustment to the location of walkways, easements or utilities. The Planning

Official and the applicant shall work in good faith to find reasonable solutions.

b. Nuisance Tree Criteria. A nuisance tree must meet the following criteria:

1) Tree is causing obvious, physical damage to private or public structures, including but not limited to: sidewalk, curb, road, driveway, parking lot, building foundation, roof;

2) Tree has been damaged by past maintenance practices, that cannot be corrected with proper arboricultural practices; or

3) The problems associated with the tree must be such that they cannot be corrected by any other reasonable practice. Including but not limited to the following:

a) Pruning of the crown or roots of the tree and/or small modifications to the site including but not limited to a driveway, parking lot, patio or sidewalk to alleviate the problem.

b) Pruning, bracing, or cabling to reconstruct a healthy crown.

c. Hazard Tree Criteria. A hazard tree must meet the following criteria:

1) The tree must have a combination of structural defects and/or disease which makes it subject to a high probability of failure and is in proximity to moderate-high frequency of persons or property; and

2) The hazard condition of the tree cannot be lessened with reasonable and proper arboricultural practices nor can the target be removed.

d. Trees in Critical Areas or Critical Area Buffers. The intent of preserving vegetation in and near streams and wetlands and in geologically hazardous areas is to support the functions of healthy sensitive areas and sensitive area buffers (see Chapter 90 KZC) and/or avoid disturbance of geologically hazardous areas (see Chapter 85 KZC). The property owner must submit a Level IV Tree Plan to City Planning and Community Development Department to trim or remove any tree from a critical area or critical area buffer. If a tree is considered a nuisance or hazard in a critical area or its buffer, the priority action is to create a “snag” or wildlife tree with the subject tree. If creation of a snag is not feasible, then the felled tree shall be left in place unless the Planning Official permits its removal in writing. The removal of any tree will require the planting of a native tree of a minimum of six feet in height in close proximity to where the removed tree was located. Selection of native species and timing of installation shall be coordinated with the Planning Official.

e. Forest Management Plan. For properties proposing tree removal requiring a forest management plan, the following standards shall apply:

1) Trees to remain should be dominant or co-dominant in the stand, healthy and wind-firm.

2) No removal of trees from critical areas and their buffers, unless otherwise permitted by this chapter.

3) No removal of landmark or specimen trees, unless otherwise permitted by this chapter.

4) No removal of healthy trees that would cause trees on adjacent properties to become hazardous.

5) The reforestation plan ensures perpetuity of the wooded areas. The size of planted trees for reforestation shall be a minimum of three feet tall.

6) Logging operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, native shrubs, ground cover and stumps shall be retained where feasible. Where not feasible, appropriate erosion control measures to be approved by the City shall be implemented.

7) Removal of tree debris shall be done pursuant to Kirkland Fire Department standards.

8) Recommended maintenance prescription for retained trees with a specific timeline for such management.

5. Tree Density Requirement.

a. Minimum Tree Density Requirement Established. The required minimum tree density is 30 tree credits per acre for development requiring a Tree Plan I – Major and Tree Plan III. For individual lots in a short subdivision or subdivision with an approved Tree Plan III, the tree density shall be calculated based on the entire short plat or subdivision. The tree density may consist of existing trees pursuant to the priority established in subsection (4)(a)(1) of this section, or supplemental trees or a combination of existing and supplemental trees pursuant to subsection (5)(c) of this section. Existing trees transplanted to an area on the same site shall not count toward the required density unless approved by the Urban Forester based on transplant specifications provided by a qualified professional that will ensure a good probability for survival.

b. Tree Density Calculation. For the purpose of calculating required minimum tree density, City right-of-way, and areas to be dedicated as City right-of-way shall be excluded from the area used for calculation of tree density.

Tree density calculation for existing individual trees:

1) Diameter breast height (DBH) of the tree shall be measured in inches.

2) The tree credit value that corresponds with DBH shall be found in Table 95.35.1.

Table 95.35.1

Tree Density for Existing Significant Trees

(Credits per minimum diameter – DBH)

DBH	Tree Credits	DBH	Tree Credits	DBH	Tree Credits
3 – 5"	0.5				
6 – 10"	1	24"	8	38"	15
12"	2	26"	9	40"	16
14"	3	28"	10	42"	17

16"	4	30"	11	44"	18
18"	5	32"	12	46"	19
20"	6	34"	13	48"	20
22"	7	36"	14	50"	21

Example: a 7,200-square-foot lot would need five tree credits (7,200/43,560 = 0.165 X 30 = (4.9) or five). The density for the lot could be met with a 16-inch tree and one six-inch tree existing on-site.

c. Supplemental Trees Planted to Meet Minimum Density Requirement. For sites and activities requiring a minimum tree density and where the existing trees to be retained do not meet the minimum tree density requirement, supplemental trees shall be planted to achieve the required minimum tree density.

1) Tree Location. In designing a development and in meeting the required minimum tree density the trees shall be planted in the following order of priority:

a) On-Site. The preferred locations for new trees are:

i. In preserved groves, critical areas or their buffers.

ii. Adjacent to stormwater facilities as approved by Public Works under KMC 15.52.060.

iii. Entrance landscaping, traffic islands and other common areas in residential subdivisions.

iv. Site perimeter.

v. On individual residential building lots.

b) Off-Site. When room is unavailable for planting the required trees on-site, then they may be planted at another approved location in the City.

c) City Forestry Account. When the Planning Official determines on-site and off-site locations are unavailable, then the applicant shall pay an amount of money approximating the current market value of the supplemental trees into the City forestry account.

2) Minimum Size and Tree Density Value for Supplemental Trees. The required minimum size of the supplemental tree worth one tree credit shall be six feet tall for a conifer and two-inch caliper for deciduous or broad-leaf evergreen tree. Additional credits may be awarded for larger supplemental trees. The installation and maintenance shall be pursuant to KZC 95.45 and 95.50 respectively.

6. Tree Protection during Development Activity. Prior to development activity or initiating tree removal on the site, vegetated areas and individual trees to be preserved shall be protected from potentially damaging activities pursuant to the following standards:

a. Placing Materials near Trees. No person may conduct any activity within the protected area of any tree designated to remain, including, but not limited to, operating or parking equipment, placing solvents, storing building material or soil deposits, or dumping concrete washout or other chemicals. During construction, no person shall attach any object to any tree designated for protection.

b. Protective Barrier. Before development, land clearing, filling or any land alteration, the applicant shall:

1) Erect and maintain a readily visible temporary protective tree fencing along the limits of disturbance which completely surrounds the protected area of all retained trees or groups of trees. Fences shall be constructed of chain link and be at least four feet high, unless other type of fencing is authorized by the Planning Official.

2) Install highly visible signs spaced no further than 15 feet along the entirety of the protective tree fence. Said sign must be approved by the Planning Official and shall state at a minimum "Tree Protection Area, Entrance Prohibited" and provide the City phone number for code enforcement to report violations.

3) Prohibit excavation or compaction of earth or other potentially damaging activities within the barriers; provided, that the Planning Official may allow such activities approved by a qualified professional and under the supervision of a qualified professional retained and paid for by the applicant.

4) Maintain the protective barriers in place until the Planning Official authorizes their removal.

5) Ensure that any approved landscaping done in the protected zone subsequent to the removal of the barriers shall be accomplished with light machinery or hand labor.

6) In addition to the above, the Planning Official may require the following:

a) If equipment is authorized to operate within the critical root zone, cover the areas adjoining the critical root zone of a tree with mulch to a depth of at least six inches or with plywood or similar material in order to protect roots from damage caused by heavy equipment.

b) Minimize root damage by excavating a two-foot-deep trench, at edge of critical root zone, to cleanly sever the roots of trees to be retained.

c) Corrective pruning performed on protected trees in order to avoid damage from machinery or building activity.

d) Maintenance of trees throughout construction period by watering and fertilizing.

c. Grade.

1) The grade shall not be elevated or reduced within the critical root zone of trees to be preserved without the Planning Official's authorization based on recommendations from a qualified professional. The Planning Official may allow coverage of up to one half of the area of the tree's critical root zone with light soils (no clay) to the minimum depth necessary to carry out grading or landscaping plans, if it will not imperil the survival of the tree. Aeration devices may be required to ensure the tree's survival.

2) If the grade adjacent to a preserved tree is raised such that it could slough or erode into the tree's critical root zone, it shall be permanently stabilized to

prevent suffocation of the roots.

3) The applicant shall not install an impervious surface within the critical root zone of any tree to be retained without the authorization of the Planning Official. The Planning Official may require specific construction methods and/or use of aeration devices to ensure the tree's survival and to minimize the potential for root-induced damage to the impervious surface.

4) To the greatest extent practical, utility trenches shall be located outside of the critical root zone of trees to be retained. The Planning Official may require that utilities be tunneled under the roots of trees to be retained if the Planning Official determines that trenching would significantly reduce the chances of the tree's survival.

5) Trees and other vegetation to be retained shall be protected from erosion and sedimentation. Clearing operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, it is encouraged that shrubs, ground cover and stumps be maintained on the individual lots, where feasible.

d. Directional Felling. Directional felling of trees shall be used to avoid damage to trees designated for retention.

e. Additional Requirements. The Planning Official may require additional tree protection measures that are consistent with accepted urban forestry industry practices.

95.40 Required Landscaping

1. User Guide. Chapters 15 through 60 KZC containing the use zone charts assign a landscaping category to each use in each zone. This category is either "A," "B," "C," "D," or "E." If you do not know which landscaping category applies to the subject property, you should consult the appropriate use zone chart.

Requirements pertaining to each landscaping category are located throughout this chapter, except that Landscaping Category E is not subject to this section.

Landscape Categories A, B, C, D, and E may be subject to additional related requirements in the following other chapters:

a. Various use zone charts, in Chapters 15 through 60 KZC, establish additional or special buffering requirements for some uses in some zones.

b. Chapter 85 KZC, Geologically Hazardous Areas, addresses the retention of vegetation on steep slopes.

c. Chapter 90 KZC, Drainage Basins, addresses vegetation within sensitive areas and sensitive area buffers.

d. Chapter 110 KZC and Chapter 19.36 KMC address vegetation within rights-of-way, except for the I-405, SR-520, and Burlington Northern rights-of-way.

e. KZC 115.135, Sight Distance at Intersections, which may limit the placement of landscaping in some areas.

f. Chapter 22 KMC addresses trees in subdivisions.

2. Use of Significant Existing Vegetation.

   a. General. The applicant shall apply subsection KZC 95.35(4) to retain existing trees and vegetation in areas subject to the landscaping standards of this section. The Planning Official shall give substantial weight to the retained trees and vegetation when determining the applicant's compliance with this section.

   b. Supplement. The City may require the applicant to plant trees, shrubs, and groundcover according to the requirements of this section to supplement the existing vegetation in order to provide a buffer at least as effective as the required buffer.

   c. Protection Techniques. The applicant shall use the protection techniques described in KZC 95.35(6) to ensure the protection of significant existing vegetation.

3. Landscape Plan Required. In addition to the tree plan required pursuant to KZC 95.35(2), application materials shall clearly depict the quantity, location, species, and size of plant materials proposed to comply with the requirements of this section, and shall address the plant installation and maintenance requirements set forth in KZC 95.45 and 95.50. Plant materials shall be identified with both their scientific and common names. Any required irrigation system must also be shown.

4. Minimum Land Use Buffer Requirements. The applicant shall comply with the provisions specified in the following chart and with all other applicable provisions of this chapter. Land use buffer requirements may apply to the subject property, depending on what permitted use exists on the adjoining property or, if no permitted use exists, depending on the zone that the adjoining property is in.

LANDSCAPING CATEGORY ↓	ADJOINING PROPERTY ↓	***Public park or low density residential use or if no permitted use exists on the adjoining property then a low density zone.**	**Medium or high density residential use or if no permitted use exists on the adjoining property then a medium density or high density zone.**	**Institutional or office use or if no permitted use exists on the adjoining property then an institutional or office zone.**	**A commercial use or an industrial use or if no permitted use exists on the adjoining property then a commercial or industrial zone.**
A		Must comply with KZC 95.40 (6)(a) (Buffering Standard 1)	Must comply with KZC 95.40 (6)(a) (Buffering Standard 1)	Must comply with KZC 95.40 (6)(b) (Buffering Standard 2)	
B		Must comply with KZC 95.40 (6)(a) (Buffering Standard 1)	Must comply with KZC 95.40 (5), (6)(a) (Buffering Standard 1)		
C		Must comply with KZC 95.40 (6)(a) (Buffering Standard 1)	Must comply with KZC 95.40 (6)(b) (Buffering Standard 2)		
		Must comply			

D	with KZC 95.40 (6)(b) (Buffering Standard 2)			
E				
Footnotes:	*If the adjoining property is zoned Central Business District, Juanita Business District, North Rose Hill Business District, Rose Hill Business District, Totem Center or is located in TL 5, KZC 95.40(6) does not apply.			

5. Supplemental Plantings.

a. General. The applicant shall provide the supplemental landscaping specified in subsection (5)(b) of this section in any area of the subject property that:

1) Is not covered with a building, vehicle circulation area or other improvement; and

2) Is not a critical area, critical area buffer, or in an area to be planted with required landscaping; and

3) Is not committed to and being used for some specific purpose.

b. Standards. The applicant shall provide the following at a minimum:

1) Living plant material which will cover 80 percent of the area to be landscaped within two years. If the material to be used does not spread over time, the applicant shall re-plant the entire area involved immediately. Any area that will not be covered with living plant material must be covered with nonliving groundcover.

2) One tree for each 1,000 square feet of area to be landscaped. At the time of planting, deciduous trees must be at least two inches in caliper and coniferous trees must be at least five feet in height.

3) If a development requires approval through Process I, IIA, IIB or III as described in Chapters 145, 150, 152 and 155 KZC, respectively, the City may require additional vegetation to be planted along a building facade if:

a) The building facade is more than 25 feet high or more than 50 feet long; or

b) Additional landscaping is necessary to provide a visual break in the facade.

4) In RHBD varieties of rose shrubs or ground cover along with other plant materials shall be included in the on-site landscaping.

5) If development is subject to Design Review as described in Chapter 142, the City will review plant choice and specific plant location as part of the Design Review approval. The City may also require or permit modification to the required plant size as part of Design Review approval.

6. Land Use Buffering Standards. The chart in subsection (4) of this section establishes which buffering standard applies in a particular case. The following subsections establish the specific requirement for each standard:

a. For standard 1, the applicant shall provide a 15-foot-wide landscaped strip with a six-foot-high solid screening fence or wall. Except for public utilities, the fence or wall must be placed on the outside edge of the land use buffer or on the property line when adjacent to private property. For public utilities, the fence or wall may be placed either on the outside or inside edge of the landscaping strip. A fence or wall is not required when the land use buffer is adjacent and parallel to a public right-of-way that is improved for vehicular use. See KZC 115.40 for additional fence standards. The land use buffer must be planted as follows:

1) Trees planted at the rate of one tree per 20 linear feet of land use buffer, with deciduous trees of two and one-half inch caliper, minimum, and/or coniferous trees eight feet in height, minimum. At least 70 percent of trees shall be evergreen. The trees shall be distributed evenly throughout the buffer, spaced no more than 20 feet apart on center.

2) Large shrubs or a mix of shrubs planted to attain coverage of at least 60 percent of the land use buffer area within two years, planted at the following sizes and spacing, depending on type:

a) Low shrub – (mature size under three feet tall), one- or two-gallon pot or balled and burlapped equivalent);

b) Medium shrub – (mature size from three to six feet tall), two- or three-gallon pot or balled and burlapped equivalent);

c) Large shrub – (mature size over six feet tall), five-gallon pot or balled and burlapped equivalent).

3) Living ground covers planted from either four-inch pot with 12-inch spacing or one-gallon pot with 18-inch spacing to cover within two years 60 percent of the land use buffer not needed for viability of the shrubs or trees.

b. For standard 2, the applicant shall provide a five-foot-wide landscaped strip with a six-foot-high solid screening fence or wall. Except for public utilities, the fence or wall must be placed on the outside edge of the land use buffer or on the property line when adjacent to private property. For public utilities, the fence or wall may be placed either on the outside or inside edge of the landscaping strip. A fence or wall is not required when the land use buffer is adjacent and parallel to a public right-of-way that is improved for vehicular use. See KZC 115.40 for additional fence standards. The landscaped strip must be planted as follows:

1) One row of trees planted no more than 10 feet apart on center along the entire length of the buffer, with deciduous trees of two inch caliper, minimum, and/or coniferous trees at least six feet in height, minimum. At least 50 percent of the required trees shall be evergreen.

2) Living ground covers planted from either four-inch pot with 12-inch spacing or one-gallon pot with 18-inch spacing to cover within two years 60 percent of the land use buffer not needed for viability of the trees.

c. Plant Standards. All plant materials used shall meet the most recent American Association of Nurserymen Standards for nursery stock: ANSI Z60.1.

d. Location of the Land Use Buffer. The applicant shall provide the required buffer along the entire common border between the subject property and the adjoining

property.

e. Multiple Buffering Requirement. If the subject property borders more than one adjoining property along the same property line, the applicant shall provide a gradual transition between different land use buffers. This transition must occur totally within the area which has the less stringent buffering requirement. The specific design of the transition must be approved by the City.

f. Adjoining Property Containing Several Uses. If the adjoining property contains several permitted uses, the applicant may provide the least stringent land use buffer required for any of these uses.

g. Subject Property Containing Several Uses. If the subject property contains more than one use, the applicant shall comply with the land use buffering requirement that pertains to the use within the most stringent landscaping category that abuts the property to be buffered.

h. Subject Property Containing School. If the subject property is occupied by a school, land use buffers are not required along property lines adjacent to a street.

i. Encroachment into Land Use Buffer. Typical incidental extensions of structures such as chimneys, bay windows, greenhouse windows, cornices, eaves, awnings, and canopies may be permitted in land use buffers as set forth in KZC 115.115(3)(d); provided, that:

1) Buffer planting standards are met; and

2) Required plantings will be able to attain full size and form typical to their species.

j. Modification. The applicant may request a modification of the requirements of the buffering standards of subsection (6) of this section. The Planning Official may approve a modification if:

1) The owner of the adjoining property agrees to this in writing; and

2) The existing topography or other characteristics of the subject property or the adjoining property, or the distance of development from the neighboring property decreases or eliminates the need for buffering; or

3) The modification will be more beneficial to the adjoining property than the required buffer by causing less impairment of view or sunlight; or

4) The Planning Official determines that it is reasonable to anticipate that the adjoining property will be redeveloped in the foreseeable future to a use that would require no, or a less intensive, buffer; or

5) The location of pre-existing improvements on the adjoining site eliminates the need or benefit of the required landscape buffer.

k. Outdoor use, activity, and storage (KZC 115.105(2)) must comply with required land use buffers for the primary use, except that the following outdoor uses and activities, when located in commercial or industrial zones, are exempt from KZC 115.105(2)(c)(1) and (2)(c)(2) as stated below:

1) That portion of an outdoor use, activity, or storage area which abuts another outdoor use, activity, or storage area which is located on property zoned for commercial or industrial use.

2) Outdoor use, activity, and storage areas which are located adjacent to a fence or structure which is a minimum of six feet above finished grade; and do not extend outward from the fence or structure more than five feet; provided, that the total horizontal dimensions of these areas shall not exceed 50 percent of the length of the facade or fence (see Plate 11).

3) If there is an improved path or sidewalk in front of the outdoor storage area, the outdoor use, activity or storage area may extend beyond five feet if a clearly defined walking path at least three feet in width is maintained and there is adequate pedestrian access to and from the primary use. The total horizontal dimension of these areas shall not exceed 50 percent of the length of the facade of the structure or fence (see Plate 11).

4) Outdoor dining areas.

5) That portion of an outdoor display of vehicles for sale or lease which is adjacent to a public right-of-way that is improved for vehicular use; provided, that it meets the buffering standards for driving and parking areas in subsections (7)(b)(1)(a) and (7)(b)(1)(b) of this section; and provided further, that the exemptions of subsection (7)(b)(2) of this section do not apply unless it is fully enclosed within or under a building, or is on top of a building and is at least one story above finished grade.

6) Outdoor Christmas tree lots and fireworks stands if these uses will not exceed 30 days, and outdoor amusement rides, carnivals and circuses, and parking lot sales which are ancillary to the indoor sale of the same goods and services, if these uses will not exceed seven days.

7. Landscaping and Buffering Standards for Driving and Parking Areas.

a. Landscaping – General.

1) The following internal parking lot landscape standards apply to each parking lot or portion thereof containing more than eight parking stalls.

a) The parking lot must contain 25 square feet of landscaped area per parking stall planted pursuant to subsections (7)(a)(1)(b) and (c) of this section;

b) The applicant shall arrange the landscaping required in subsection (7)(a)(1)(a) of this section throughout the parking lot to provide landscape islands or peninsulas to separate groups of parking spaces (generally every eight stalls) from one another and each row of spaces from any adjacent driveway that runs perpendicular to the row. This island or peninsula must be surrounded by a six-inch-high vertical curb, be of similar dimensions as the adjacent parking stalls and planted pursuant to the standards in subsection (7)(a)(1)(c) of this section:

c) Landscaping shall be installed pursuant to the following standards:

1) At least one deciduous tree, two inches in caliper or a coniferous tree five feet in height.

2) Groundcover shall be selected and planted to achieve 60 percent coverage within two years.

d) Exception. The requirements of this subsection do not apply to any area that is fully enclosed within or under a building.

2) Rooftop Parking Landscaping. For a driving or parking area on the top level of a structure that is not within the CBD zone or within any zone that requires design regulation compliance, one planter that is 30 inches deep and five feet square must be provided for every eight stalls on the top level of the structure. Each planter must contain a small tree or large shrub suited to the size of the container and the specific site conditions, including desiccating winds, and is clustered with other planters near driving ramps or stairways to maximize visual effect.

3) If development is subject to Design Review as described in Chapter 142 KZC, the City will review the parking area design, plant choice and specific plant location as part of the Design Review approval. The City may also require or permit modification to the required landscaping and design of the parking area as part of Design Review approval.

b. Buffering for Driving and Parking Areas.

1) Perimeter Buffering – General. Except as specified in subsection (7)(b)(2) of this section, the applicant shall buffer all parking areas and driveways from abutting rights-of-way and from adjacent property with a five-foot-wide strip along the perimeter of the parking areas and driveways planted as follows (see Figure 95.40.A):

a) One row of trees, two inches in caliper and planted 30 feet on center along the entire length of the strip.

b) Living groundcover planted to attain coverage of at least 60 percent of the strip area within two years.

2) Exception. The requirements of subsection (7)(b)(1) of this section do not apply to any parking area that:

a) Is fully enclosed within or under a building; or

b) Is on top of a building and is at least one story above finished grade; or

c) Serves detached dwelling units exclusively; or

d) Is within any zone that requires design regulation compliance. See below for Design District requirements.

3) Design Districts. If subject to design review, each side of a parking lot that abuts a street, through-block pathway or public park must be screened from that street, through-block pathway or public park by using one or a combination of the following methods (see Figures 95.40.A, B, and C):

a) By providing a landscape strip at least five feet wide planted consistent with subsection (7)(b)(1) of this section, or in combination with the following. In the RHBD Regional Center a 10-foot perimeter landscape strip along NE 85th Street is required planted consistent with subsection

(7)(b)(1) of this section.

b) The hedge or wall must extend at least two feet, six inches, and not more than three feet above the ground directly below it.

c) The wall may be constructed of masonry or concrete, if consistent with the provisions of KZC 92.35(1)(g), in building material, color and detail, or of wood if the design and materials match the building on the subject property.

d) In JBD zones:

1) If the street is a pedestrian-oriented street, the wall may also include a continuous trellis or grillwork, at least five feet in height above the ground, placed on top of or in front of the wall and planted with climbing vines. The trellis or grillwork may be constructed of masonry, steel, cast iron and/or wood.

2) If the wall abuts a pedestrian-oriented street, the requirements of this subsection may be fulfilled by providing pedestrian weather protection along at least 80 percent of the frontage of the subject property.

e) If development is subject to Design Review as described in Chapter 142 KZC, the City will review plant choice and specific plant location as part of the Design Review approval. The City may also require or permit modification to the required plant size as part of Design Review approval.

4) Overlapping Requirements. If buffering is required under subsection (6) of this section, Land Use Buffering Standards, and by this subsection, the applicant shall utilize the more stringent buffering requirement.

Perimeter Parking Lot Landscaping

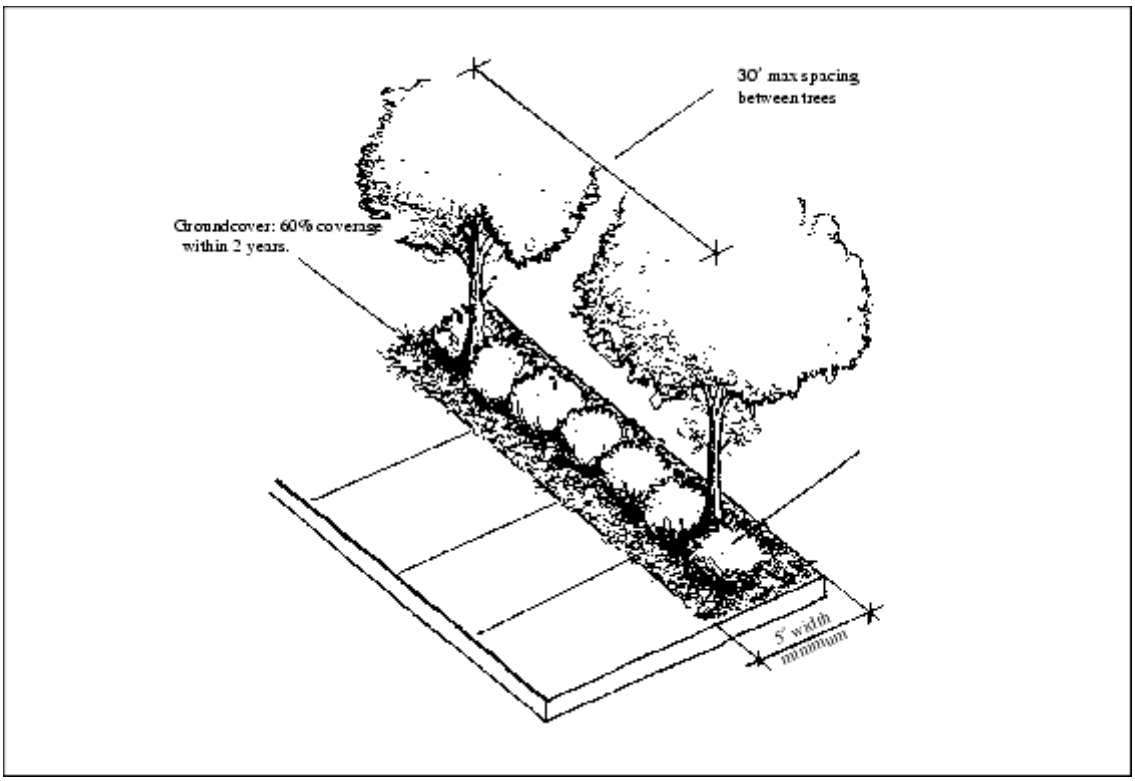

FIGURE 95.40.A

Perimeter Parking – Examples of Various Screen Wall Designs

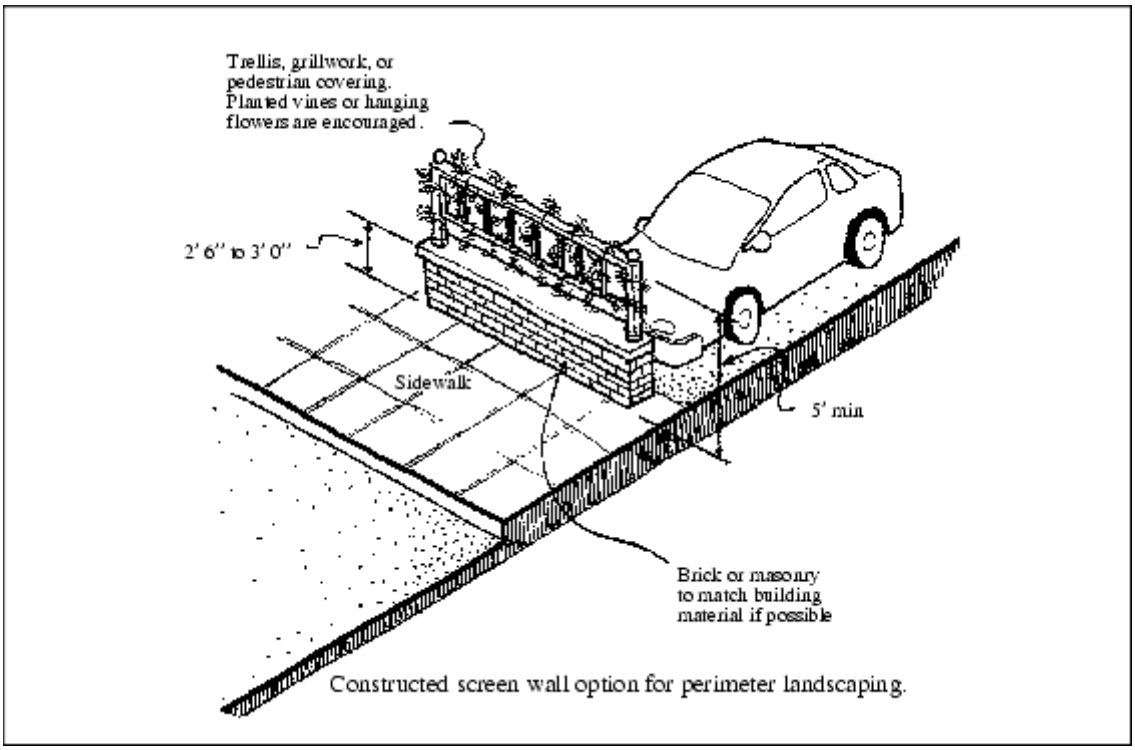

FIGURE 95.40.B

Perimeter Parking – Examples of Various Screen Wall Designs

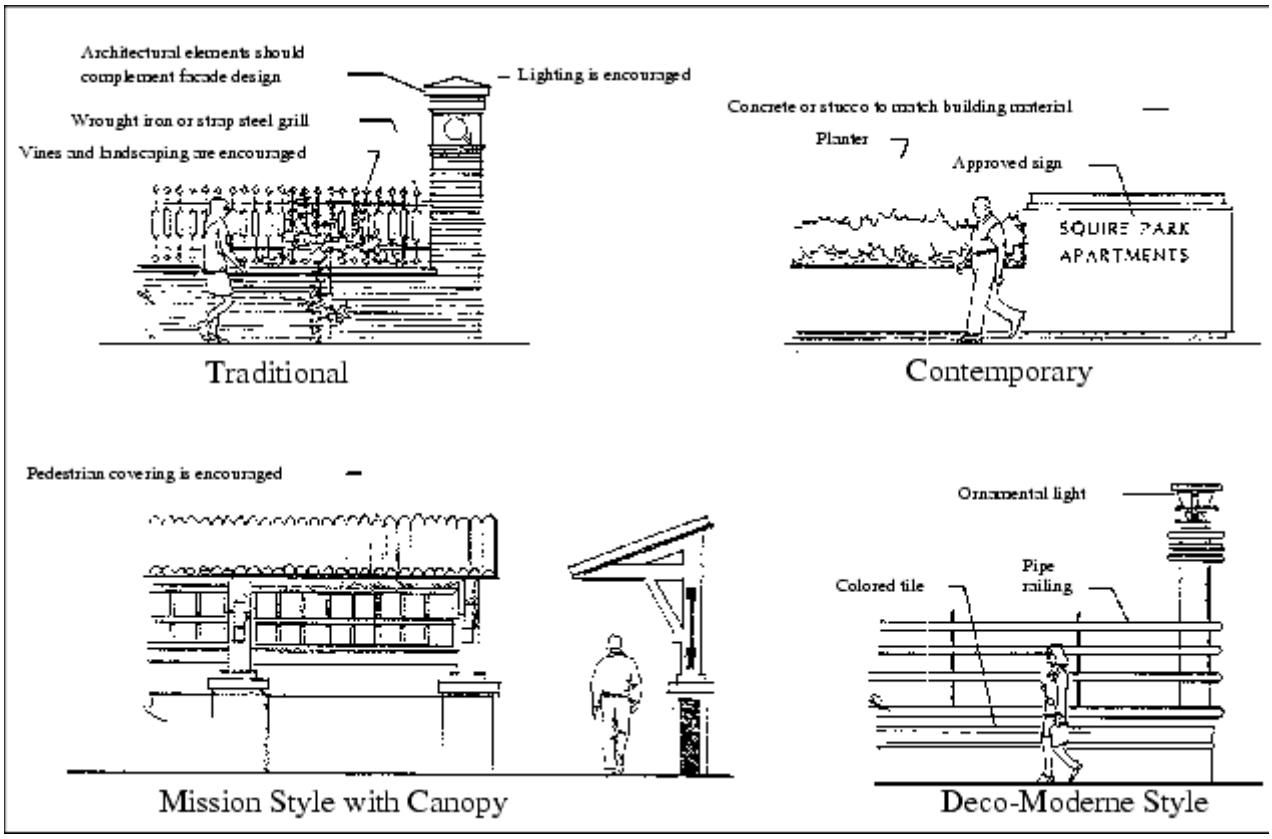

FIGURE 95.40.C

c. Modifications of Landscaping and Buffering Standards for Driving and Parking Areas.

1) Authority to Grant and Duration.

a) If the proposed development of the subject property requires approval through Design Review or Process I, IIA, IIB, or III, described in Chapters 142, 145, 150, 152, and 155 KZC, respectively, a request for a modification will be considered as part of that process under the provisions of this section. The City must find that the applicant meets the criteria listed in subsection (7)(c)(2) of this section. If granted under Design Review or Process I, IIA, IIB, or III, the modification is binding on the City for all development permits issued for that development under the building code within five years of the granting of the modification.

b) If subsection (7)(1)(a) of this section does not apply, the Planning Official may grant a modification in writing under the provisions of this section.

2) Modifications.

a) For a modification of subsection (7)(a) of this section, the landscape requirements may be modified if:

i. The modification will produce a landscaping design in the parking

area comparable or superior to that which would result from adherence to the adopted standard; or

ii. The modification will result in increased retention of significant existing vegetation; or

iii. The purpose of the modification is to accommodate low impact development techniques as approved by the Planning Official.

b) For a modification to subsection (7)(b) of this section, the buffering requirements for parking areas and driveways may be modified if:

i. The existing topography of or adjacent to the subject property decreases or eliminates the need for visual screening; or

ii. The modification will be of more benefit to the adjoining property by causing less impairment of view or sunlight; or

iii. The modification will provide a visual screen that is comparable or superior to the buffer required by subsection (7)(b) of this section; or

iv. The modification eliminates the portion of the buffer that would divide a shared parking area serving two or more adjacent uses, but provides the buffer around the perimeter of the shared parking area.

8. Nonconforming Landscaping and Buffers.

a. The landscaping requirements of subsections (5) and (7) of this section must be brought into conformance as much as is feasible, based on available land area, in either of the following situations:

1) An increase of at least 10 percent in gross floor area of any structure; or

2) An alteration to any structure, the cost of which exceeds 50 percent of the replacement cost of the structure.

b. Land use buffers must be brought into conformance with subsection (6) of this section in either of the following situations:

1) An increase in gross floor area of any structure (the requirement to provide conforming buffers applies only where new gross floor area impacts adjoining property); or

2) A change in use on the subject property and the new use requires larger buffers than the former use.

95.45 Installation Standards for Required Plantings

All required trees and landscaping shall be installed according to sound horticultural practices in a manner designed to encourage quick establishment and healthy plant growth. All required landscaping shall be installed in the ground and not in above-ground containers, except for landscaping required on the top floor of a structure. When an applicant proposes to locate a subterranean structure under required landscaping that appears to be at grade, the applicant will: (1) provide site-specific documentation prepared by a qualified expert to establish that the design will adequately support the long-term viability of the required landscaping; and (2) enter into an agreement with the City, in a form acceptable to the City Attorney, indemnifying the City from any damage resulting from development activity on the subject property which is related to the physical condition of the property. The applicant shall record this agreement with the King County Department of Elections and Records.

1. Street Trees. Street trees are not subject to the regulations of this chapter and are not counted toward any landscaping required by this chapter. Street trees are regulated by Chapter 110 KZC and Chapter 19.36 KMC.

2. Compliance. It is the applicant's responsibility to show that the proposed landscaping complies with the regulations of this chapter.

3. Timing. All landscaping shall be installed prior to the issuance of a certificate of occupancy, except that the installation of any required tree or landscaping may be deferred during the summer months to the next planting season, but never for more than six months. Deferred installation shall be secured with a performance bond pursuant to Chapter 175 KZC prior to the issuance of a certificate of occupancy.

4. Grading. Berms shall not exceed a slope of two horizontal feet to one vertical foot (2:1).

5. Soil Specifications. Soils in planting areas shall have adequate porosity to allow root growth. Soils which have been compacted to a density greater than one and three-tenths grams per cubic centimeters shall be loosened to increase aeration to a minimum depth of 24 inches or to the depth of the largest plant root ball, whichever is greater. Imported topsoils shall be tilled into existing soils to prevent a distinct soil interface from forming. After soil preparation is completed, motorized vehicles shall be kept off to prevent excessive compaction and underground pipe damage. The organic content of soils in any landscape area shall be as necessary to provide adequate nutrient and moisture-retention levels for the establishment of plantings. See subsection (8) of this section for mulch requirements.

6. Plant Selection.

   a. Plant selection shall be consistent with the Kirkland Plant List, which is produced by the City's Natural Resource Management Team and available in the Department of Planning and Community Development.

   b. Plants shall be selected and sited to produce a hardy and drought-resistant landscape area. Selection shall consider soil type and depth, the amount of maintenance required, spacing, exposure to sun and wind, the slope and contours of the site, and compatibility with existing native vegetation preserved on the site. Preservation of existing vegetation is strongly encouraged.

   c. Prohibited Materials. Plants listed as prohibited in the Kirkland Plant List are prohibited in required landscape areas. Additionally, there are other plants that may not be used if identified in the Kirkland Plant List as potentially damaging to sidewalks, roads, underground utilities, drainage improvements, foundations, or when not provided with enough growing space.

   d. All plants shall conform to American Association of Nurserymen (AAN) grades and standards as published in the "American Standard for Nursery Stock" manual.

   e. Plants shall meet the minimum size standards established in other sections of the KZC.

   f. Multiple-stemmed trees may be permitted as an option to single-stemmed trees for required landscaping provided that such multiple-stemmed trees are at least 10 feet in height and that they are approved by the Planning Official prior to installation.

7. Fertilization. All fertilizer applications to turf or trees and shrubs shall follow Washington State University, National Arborist Association or other accepted agronomic or horticultural standards.

8. Irrigation. The intent of this standard is to ensure that plants will survive the critical establishment period when they are most vulnerable due to lack of watering. All required plantings must provide an irrigation system, using either Option 1, 2, or 3 or a combination of those options. For each option irrigation shall be designed to conserve water by using the best practical management techniques available. These techniques may include, but not be limited to: drip irrigation to minimize evaporation loss, moisture sensors to prevent irrigation during rainy periods, automatic controllers to insure proper duration of watering, sprinkler head selection and spacing designed to minimize overspray, and separate zones for turf and shrubs and for full sun exposure and shady areas to meet watering needs of different sections of the landscape. Exceptions, as approved by the Planning Official, to the irrigation requirement may be approved xeriscape (i.e., low water usage plantings), plantings approved for low impact development techniques, established indigenous plant material, or landscapes where natural appearance is acceptable or desirable to the City. However, those exceptions will require temporary irrigation (Option 2 and/or 3) until established.

   a. Option 1. A permanent built-in irrigation system with an automatic controller designed and certified by a licensed landscape architect as part of the landscape plan.

   b. Option 2. An irrigation system designed and certified by a licensed landscape architect as part of the landscape plan, which provides sufficient water to ensure that the plants will become established. The system does not have to be permanent if the plants chosen can survive adequately on their own, once established.

   c. Option 3. Irrigation by hand. If the applicant chooses this option, an inspection will be required one year after final inspection to ensure that the landscaping has become established.

9. Drainage. All landscapes shall have adequate drainage, either through natural percolation or through an installed drainage system. A percolation rate of one-half inch of water per hour is acceptable.

10. Mulch.

   a. Required plantings, except turf or areas of established ground cover, shall be covered with two inches or more of organic mulch to minimize evaporation and runoff. Mulch shall consist of materials such as yard waste, sawdust, and/or manure that are fully composted.

   b. All mulches used in planter beds shall be kept at least six inches away from the trunks of shrubs and trees.

11. Protection. All required landscaped areas, particularly trees and shrubs, must be protected from potential damage by adjacent uses and development, including parking and storage areas. Protective devices such as bollards, wheel stops, trunk guards, root guards, etc., may be required in some situations.

12. Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers. Plants intended to mitigate for the loss of natural resource values are subject to the following requirements in addition to the other requirements of KZC 95.45. Where

these requirements conflict with other requirements of this chapter, these requirements take precedence. Refer to Chapters 85 and 90 KZC for additional requirements for these areas.

a. Plant Source. Plant materials must be native and selected from the Kirkland Plant List. Seed source must be as local as possible, and plants must be nursery propagated unless transplanted from on-site areas approved for disturbance. These requirements must be included in the Mitigation Plan specifications.

b. Installation. Plant materials must be supported only when necessary due to extreme winds at the planting site. Where support is necessary, stakes, guy wires, or other measures must be removed as soon as the plant can support itself, usually after the first growing season. All fertilizer applications to turf or trees and shrubs shall follow Washington State University, National Arborist Association or other accepted agronomic or horticultural standards.

c. Fertilizer Applications. Fertilizers shall be applied in such a manner as to prevent its entry into waterways and wetlands and minimize its entry into storm drains. No applications shall be made within 50 feet of a waterway or wetland, or a required buffer as established by the City codes (such as Chapter 90 KZC) or Kirkland Shoreline Master Program (SMP, KMC Title 24), whichever is greater, unless specifically authorized in an approved mitigation plan or otherwise authorized in writing by the Planning Official.

95.50 Tree and Landscape Maintenance Requirements

The following maintenance requirements apply to all trees and other vegetation required to be planted or preserved by the City:

1. Responsibility for Regular Maintenance. Required trees and vegetation, fences, walls, and other landscape elements shall be considered as elements of the project in the same manner as parking, building materials, and other site details. The applicant, landowner, or successors in interest shall be responsible for the regular maintenance of required landscaping elements. Plants that die must be replaced in kind.

2. Maintenance Duration. Maintenance shall be ensured in the following manner except as set forth in subsections (3) and (4) of this section:

   a. All required landscaping shall be maintained throughout the life of the development. Prior to issuance of a certificate of occupancy, the proponent shall provide a final as-built landscape plan and an agreement to maintain and replace all landscaping that is required by the City.

   b. Any existing tree or other existing vegetation designated for preservation on a Tree Plan I – Major, a Tree Plan II, or a Tree Plan III shall be maintained for a period of five years following issuance of the certificate of occupancy for the individual lot or development. After five years, all trees on the property are subject to KZC 95.20 unless:

      1) The tree and associated vegetation are in a grove that is protected pursuant to subsection (3) of this section; or

      2) The tree or vegetation is considered to be a public benefit related to approval of a planned unit development; or

      3) The tree or vegetation was retained to partially or fully meet requirements of

KZC 95.40, Required Landscaping.

3. Maintenance of Preserved Grove. Any applicant who has a grove of trees identified for preservation on an approved tree plan pursuant to KZC 95.35(4)(a)(1)(b) shall provide prior to occupancy the legal instrument acceptable to the City to ensure preservation of the grove and associated vegetation in perpetuity, except that the agreement may be extinguished if the Planning Official determines that preservation is no longer appropriate.

4. Maintenance of Critical Area and Critical Area Buffers. In critical areas and their buffers, native vegetation is not to be removed without City approval pursuant to KZC 95.35(4)(e). However, it is the responsibility of the property owner to maintain critical areas and their buffers by removing non-native, invasive, and noxious plants in a manner that will not harm critical areas or their buffers. See also subsection (6) of this section and Chapters 85 and 90 KZC for additional requirements for trees and other vegetation within critical areas and critical area buffers.

5. Non-Native Invasive and Noxious Plants. It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected.

6. Pesticides, Herbicides, and Fertilizer. The use of plant material requiring excessive pesticide or herbicide applications to be kept healthy and attractive is discouraged. Pesticide, herbicide, and fertilizer applications shall be made in a manner that will prevent their unintended entry into waterways, wetlands, and storm drains. No application shall be made within 50 feet of a waterway or wetland or a required buffer as established by City codes, whichever is greater, unless done so by a state certified applicator with approval of the Planning Official, and is specifically authorized in an approved mitigation plan or otherwise authorized in writing by the Planning Official.

7. Landscape Plans and Utility Plans. Landscape plans and utility plans shall be coordinated. In general, the placement of trees and large shrubs should adjust to the location of required utility routes both above and below ground. Location of plants shall be based on the plant's mature size both above and below ground. See the Kirkland Plant List for additional standards.

8. Tree Pruning. Topping or pruning to the extent defined by tree removal in KZC 95.10, is not allowed. If a required tree smaller than six inches in diameter is topped, it must be replaced pursuant to the standards in KZC 95.55(8). If a tree six inches or larger in diameter is topped, the owner must have a qualified professional develop and carry out a five-year pruning schedule.

95.52 Prohibited Vegetation

Plants listed as prohibited in the Kirkland Plant List shall not be planted in the City.

For landscaping not required under this chapter, this prohibition shall become effective on February 14, 2008. The City may require removal of prohibited vegetation if installed after this date. Residents and property-owners are encouraged to remove pre-existing prohibited vegetation whenever practicable.

95.55 Enforcement and Penalties

1. Intent. These enforcement and penalty provisions have several purposes. First, they are intended to discourage damage or removal of significant trees above and beyond what is permitted under this chapter. Second, these enforcement and

penalty provisions are intended to provide complete and effective restoration of areas in which violations of this chapter occur. Finally, these regulations are intended to provide a clear and efficient process for addressing violations of this chapter.

The City may utilize one or more of several remedies when responding to violations of this chapter. In almost all cases where a violation has occurred, the City will issue a civil citation that describes the nature of the violation, the actions necessary to remedy the violation, and the amount of any civil penalty, among other things. If the acts that constitute a violation appear to be ongoing, the City may also issue a notice of cease and desist. Failure to adhere to a notice to cease and desist will result in imposition of additional civil penalties. If there is a pending development or building permit, the City may also issue a stop work order or withhold issuance of permit approval or a certificate of occupancy. Finally, additional fines may be imposed if a violator does not follow through in a timely manner with restoration work or other compliance issues.

2. General Requirements. Enforcement shall be conducted in accordance with procedures set forth in Chapter 170 KZC. Special enforcement provisions related to tree conservation are set forth below. To the extent there is a conflict between the provisions of this section and Chapter 170 KZC, this section shall control.

3. Authority. It shall be the duty of the Planning Official to administer the provisions of this chapter. The Planning Official shall have authority to enforce and carry out the provisions of this chapter.

4. Cease and Desist. The Planning Official may issue a notice to cease and desist using the procedure set forth in KZC 170.30 if the Planning Official finds that a violation of this code has occurred. Continued illegal tree activity following issuance of a cease and desist from the City for the tree activity shall result in fines of $1,000 per day of continued activity.

5. Stop Work Order. If a violation of this chapter or an approved tree plan occurs on property on which work is taking place pursuant to a City of Kirkland development or building permit, the Building Official may suspend some or all of the work as appropriate through issuance of a stop work order. The Building Official shall remove the stop work order when the City determines that the violation has been corrected or when the City has reached an agreement with the violator regarding rectification of the violation. Any stop work order issued under this section may be appealed using the procedures set forth in Chapter 21.06 KMC.

6. Civil Citation. The City's Code Enforcement Officer shall notify a person who violates this chapter by issuance of a civil citation. The civil citation shall be in writing, and issued by certified mail with return receipt requested, or by personal service. The civil citation shall contain the following:

   a. The name and address of the property owner or other person to whom the civil citation is directed;

   b. The street address or description sufficient for identification of the land upon which the violation has occurred or is occurring;

   c. A description of the violation and a reference to the provisions of this chapter that have been violated;

   d. A statement of the restoration action required to be taken to correct the violation as determined by the Planning Official;

   e. A statement of the civil penalty incurred for each violation;

f. A statement that the person to whom the civil citation is issued must correct the violation through restoration described in subsection (8) of this section and may pay the civil penalty or may appeal the civil citation as provided in this section.

Note: Section 95.55 continues on page 636.23.

7. Civil Penalty.

a. A person who fails to comply with the requirements of this chapter or the terms of a permit issued hereunder, who undertakes an activity regulated by this chapter without obtaining a permit, or fails to comply with a cease and desist or stop work order issued under this chapter shall also be subject to a civil penalty as set forth in Table 95.55.1. Each unlawfully removed or damaged tree shall constitute a separate violation.

b. Any person who aids or abets in the violation shall be considered to have committed a violation for purposes of the civil penalty.

c. The amount of the penalty shall be assessed in accordance with Table 95.55.1. The Planning Official may elect not to seek penalties if he or she determines that the circumstances do not warrant imposition of civil penalties in addition to restoration.

Table 95.55.1 – Penalties

Types of Violations	Allowable Fines per Violation
1. Removal of tree(s) approved to be removed, but prior to final tree plan approval or issuance of a City tree removal permit	$100.00 per tree
2. Removal or damage of tree(s) that are or would be shown to be retained on an approved tree plan or any other violation of approved tree protection plan	$1,000 per tree
3. Removal of tree(s) without applying for or obtaining a required City permit	$1,000 per tree

8. Tree Restoration.

a. Violators of this chapter or of a permit issued thereunder shall be responsible for restoring unlawfully damaged areas in conformance with a plan, approved by the Planning Official, which provides for repair of any environmental and property damage, and restoration of the site; and which results in a site condition that, to the greatest extent practical, equals the site condition that would have existed in the absence of the violation(s). In cases where the violator intentionally or knowingly violated this chapter or has committed previous violations of this chapter, restoration costs may be based on the City-appraised tree value of the subject trees in which the violation occurred, utilizing the industry standard trunk formula method in the current edition of Guide for Plant Appraisal. If diameter of removed tree is unknown, determination of the diameter size shall be made by the Planning Official by comparing size of stump and species to similar trees in similar growing conditions. The amount of costs above the approved restoration plan will be paid into the City forestry account.

b. Restoration Plan Standards. The restoration plan shall be in accordance to the following standards:

1) The number of trees required to be planted is equal to the number of tree credits of illegally removed trees according to Table 95.35.1.

2) The minimum size for a tree planted for restoration is 12-foot-tall conifer and three-inch caliper deciduous or broadleaf evergreen tree. The City may approve smaller restoration tree sizes at a higher restoration ratio, provided the site has capacity for the additional trees and the results of restoration at a higher restoration ratio is as good or better than at the normal ratio. The smallest allowable alternatives to the normal restoration requirements shall be two eight-foot conifers for one 12-foot conifer or two two-inch caliper deciduous for one three-inch caliper deciduous tree.

3) In the event the violators cannot restore the unlawfully removed or damaged trees, the violators shall make payment to the City forestry account. Unless otherwise determined to base the restoration costs on appraised value, the amount paid will be the City's unit cost for a restoration tree multiplied by the number of outstanding tree credits. The City's unit cost is based on the current market cost of purchase, installation and three-year maintenance for a minimum-sized tree for restoration.

4) The restoration plan shall include a maintenance plan and an agreement or security to ensure survival and maintenance of restoration trees for a three-year period unless the violation was on a site with an approved tree plan in which case, the maintenance period is five years.

9. Failure to Restore or Pay Fines.

a. Prohibition of Further Approvals. The City shall not approve any application for a subdivision or any other development permit or approval, or issue a certificate of occupancy for property on which a violation of this chapter has occurred until the violation is cured by restoration or other means accepted by the Planning Official and by payment of any penalty imposed for the violation.

b. Fines. A property owner or occupant who fails to restore or otherwise cure property on which a violation of this chapter has occurred shall be assessed a fine of $100.00 per day for each day that restoration is incomplete. Prior to assessing fines under this subsection, the City shall issue a written notice to the property owner or that restoration has not been completed. The notice shall include the following information: (1) a description of the nature of the violation; (2) a description of what actions are required to bring the property into compliance; and (3) a date by which compliance shall be required (the "compliance date"). The compliance date shall be no less than 30 days from the date the notice is served on the property owner or occupant. If the property owner or occupant does not, in the determination of the City, bring the property into compliance by the compliance date, then the City may issue an order imposing $100.00 per day fines at any time after the compliance date. The fines shall continue to accrue until the violation has been certified to be corrected by the Planning Department. The property owner or occupant may appeal the order imposing fines to the hearing examiner using the procedures set forth in subsection 10 of this section.

10. Appeal to Hearing Examiner.

a. A person to whom a civil citation or order imposing fines is directed may appeal the civil citation, including the determination that a violation exists or the amount of any monetary penalty imposed, to the Hearing Examiner.

b. A person may appeal the civil citation or order imposing fines by filing a written notice of appeal with the Department of Planning and Community Development

within 14 calendar days of the date of service of the civil citation or order imposing fines.

c. Fines that accrue on a daily basis shall not be imposed while an appeal is pending unless the Hearing Examiner determines that the appeal is frivolous or imposed solely for the purpose of delay.

d. If both a civil citation and an order to cease and desist have been issued in the same case, and both the civil citation and the order to cease and desist have been appealed, the appeals shall be consolidated for hearing.

e. The office of the Hearing Examiner shall give notice of the hearing to the appellants at least 17 calendar days prior to the hearing.

f. The Hearing Examiner shall conduct a hearing on the appeal pursuant to the rules of procedure provided for in the Administrative Procedures Act (Chapter 34.05 RCW) and in accordance with any rules for hearings promulgated by the Hearing Examiner. The City and the appellant may participate as parties in the hearing and each may call witnesses. The City shall have the burden of proof by a preponderance of the evidence that a violation has occurred.

11. Hearing Examiner Decision.

a. The Hearing Examiner shall determine whether the City has proven by a preponderance of the evidence that a violation has occurred and shall affirm, vacate, suspend, or modify the amount of any monetary penalty imposed by the civil citation, with or without written conditions.

b. In the event that the Hearing Examiner determines that a violation has occurred, the Hearing Examiner shall also consider the following in making his or her decision: (1) whether the appeal is frivolous or intended to delay compliance; (2) whether the appellant exercised reasonable and timely effort to comply with applicable development regulations; and (3) any other relevant factors.

c. The Hearing Examiner shall mail a copy of his or her decision to the appellant, by certified mail, postage prepaid, return receipt requested.

d. The decision of the Hearing Examiner may be reviewed in King County Superior Court using the standards set forth in RCW 36.70C.130. The land use petition must be filed within 21 calendar days of the issuance of the final land use decision by the Hearing Examiner (see Chapter 36.70C RCW for more information).

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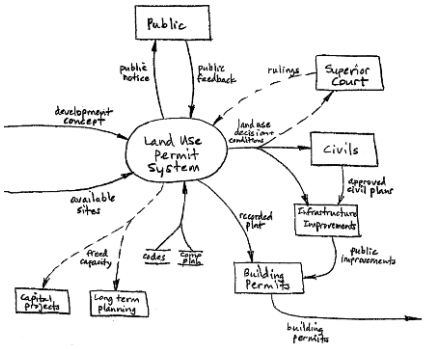

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September 2, 2008

Integrated Development Plan

IDP Design

1. Customer draws up an *integrated development plan* (IDP) on a plat that includes:
   - Existing and proposed property lines, easements, and rights of way
   - Lot dimensions, areas, numbers, and required yard setbacks
   - Existing topography to 2' contours, tied to Kirkland vertical datum
   - Existing structures to be retained or removed
   - Numbered locations, species and drip lines of viable trees on or overhanging the property
   - Any critical areas
   - Where he or she plans to:
     a. Access each lot
     b. Serve the lots (water, sanitary sewer, storm sewer, dry wells, and power)
     c. Improve the frontage (curb, gutter, sidewalk, street trees)
     d. Site the homes (crosshatch a building and impervious envelope for each lot)
     e. Retain (and hence protect) or remove ("x out") the viable trees

Pre Submittal Conference

2. Customer submits the pre-submittal conference (PRE) application
   a. This application includes an IDP if the customer chooses the *pre-submittal* option.
3. Planning, Public Works, Fire (and Building and Forestry if *pre-submittal*):
   a. Review the preliminary plat (and IDP if *pre-submittal*)
   b. Conduct site visits
4. Staff discusses the proposal with the Customer and his or her experts in a PRE
   a. Like today; plus
   b. Discuss and reach agreement on tree retention approach if *pre-submittal*
5. Staff scans and attaches the PRE notes to the *Advantage* PRE case
   a. Same for the IDP if *pre-submittal*

Plat Submittal

6. Customer finishes his or her preliminary plat application based on:
    a. The PRE
    b. IDP development (or referencing the IDP if *pre-submittal*)
7. Customer submits his or her preliminary plat application
    a. Includes an IDP if the customer chooses the *accelerated* option
    b. The planner of the day screens for counter completeness based on the intake checklist
8. Staff performs first-review on the plat application
    - The team from the PRE reviews the preliminary plat application (and IDP if *accelerated*)
    - Forestry is included in the routing unless an *pre-submittal* IDP was approved before
9. Planning sends a consolidated comment letter to the Customer for any required corrections

Plat Pre-Revision

10. Customer incorporates the corrections and writes a short narrative explaining how each comment was addressed.
11. Customer submits his or her preliminary plat pre-revision (and IDP pre-revision if *accelerated* or an IDP post-revision if *pre-submittal* and needing revision to align with the plat)
    a. The planner of the day screens the narrative for full responsiveness to the first-review comments (referencing *Advantage* notes as needed)
    b. ***Pre-submittal* or *Accelerated*: Customer would now typically submit an LSM application and any building applications**[1]
        - In accordance with the preliminary plat pre-revision and IDP configuration
        - Same staff team reviews the LSM
            1. Except Planning now reviews for Forestry
            2. Planning routes to and adds a Forestry activity in *Advantage* if any IDP conflicts are found
12. Staff performs second-review on the plat
13. Planning issues an approval letter if compliant (and approves the IDP)[2]
    a. The IDP reduces to a traditional Tree Plan III if *progressive*
    b. Steps 9-12 repeat if additional correction cycles are required

Grading (LSM) and Demolition

14. Staff reviews the LSM application (and any building application if *accelerated* or *pre-submittal*)
    a. First and second reviews accordingly
    b. Planning reviews for Forestry to verify consistency with the IDP

---

[1] The Customer may submit his or her LSM and Building applications with the first plat submittal
[2] The Customer may elect to bond for improvements and record the plat at this time

        - If *progressive*, Forestry reviews the IDP and expands the area of disturbance as needed to install the LSM improvements and any demolition as an IDP post-revision
15. Staff reviews and issues demolition permits as needed, consistent with the IDP
16. Building issues the LSM permit
    - Verifying plausible building sites
    - Site work can begin after the LSM pre-con including tree fencing/removal, TESC, foundation grading and frontage improvement per the LSM, consistent with the IDP

Building Permits

17. Staff accepts building permit submittal(s) and conducts first and second reviews
    a. *Accelerated* or *Express*:
        - Planning verifies consistency with the IDP
        - Any IDP deviations that propose additional viable tree removal are approved by the Planning Director as IDP post-revisions
        - Impact fees may be paid at the time of building permit submittal
    b. *Progressive*:
        - Forestry verifies consistency with the IDP and expands the area of disturbance as necessary to construct the home per the building permit as an IDP post-revision
        - Building approves foundation grading
18. Building approves submitted building permits
19. Customer completes the LSM improvements and/or bonds for any unfinished work
20. Staff records the plat
    a. The County Assessor issues new parcel numbers
21. Building issues submitted building permits
    a. Under the new parcel numbers
    b. Impact fees are paid
        - Unless paid at submittal for *accelerated* or *pre-submittal*
22. Building construction begins

Recommendations

Six recommendations add new options to expedite review and combine field operations when appropriate, increase pacing staff efficiency, better coordinate the delivery of comments and conditions to lead reviewers, and add urban forester capacity.

The first priority is to provide new options for the team to work with developers who can establish what they want to build from the outset with an integrated development plan. Recommendations 1 and 2 provide this.

The next order of business is to enable our planners to operate more efficiently. Recommendations 3 and 4 accomplish this.

Next we make the task of assembling departmental comments and conditions easier and more consistent for the planners by coordinating review timelines as we have done for SFR building permits. Recommendation 5 brings Latimore Dashboard© functionality to this process.

Lastly, a limited urban forester capacity impacts each step of the residential approval process. Recommendation 6 elevates the capacity of this key thread through the Kirkland process.

1. Integrated Development Plans

As recommended in the SFR assessment report and developed collaboratively with staff since, an integrated development plan would allow the applicant and review team to agree on and manage a basic site configuration from as early as pre-submittal conference through building permits.

This has particular benefit for tree retention, the improvement most requested by applicants.

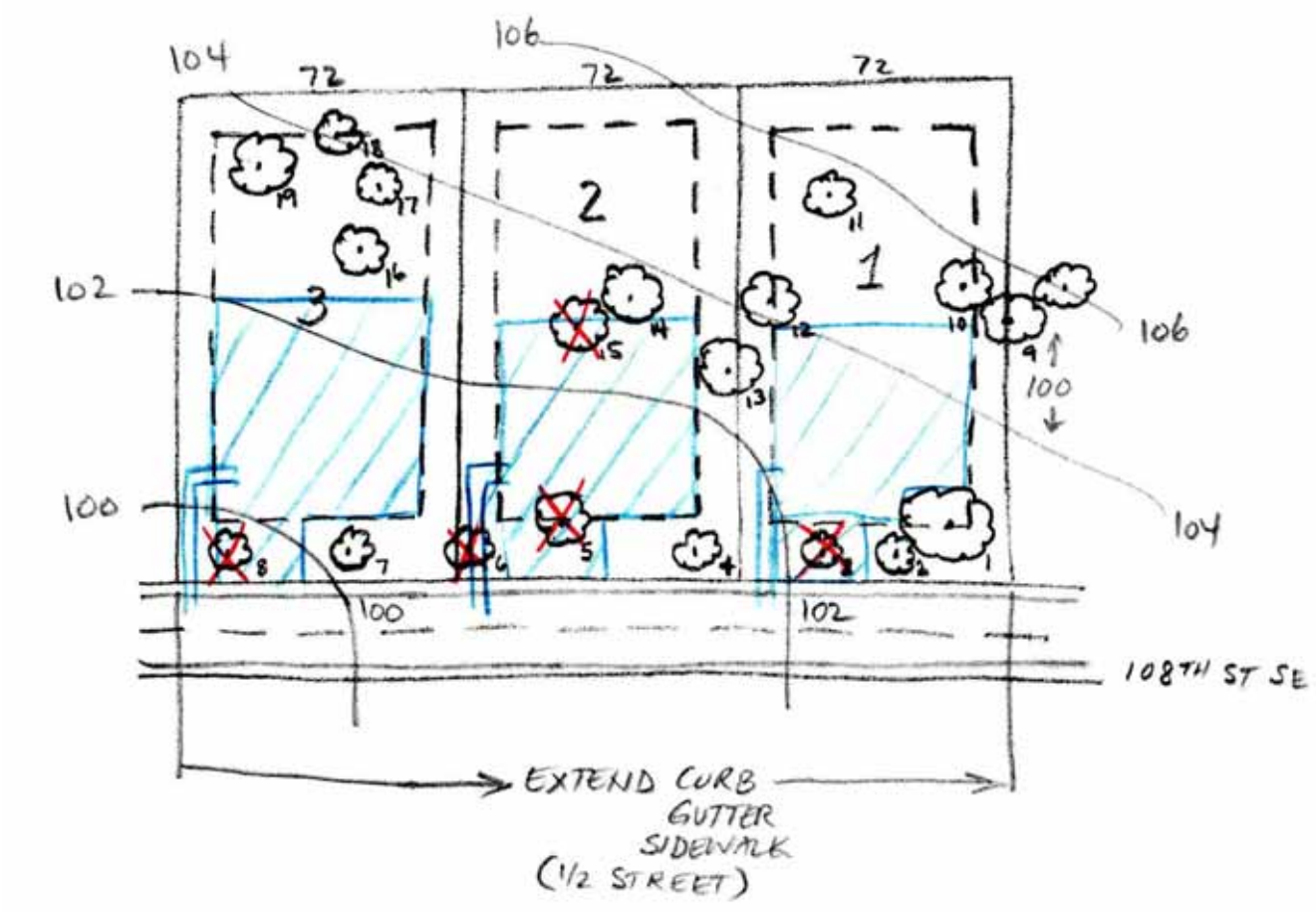


Figure 20 - IDP Concept

The concept is that an applicant would bring to staff a preliminary drawing that shows the proposed lot configuration, frontage improvement areas, utility service routings, topography, and existing trees (Fig. 20). The applicant and review team would use this information to reach agreement on how to reasonably access and service the lots, and would use this as a basis for indicating trees that would need to be removed to install these services.

The applicant could elect to go further at this point, as described in Recommendation #2, and specify building footprint locations. The applicant and review team would then use these footprints (crosshatched in Fig. 20) to identify any additional trees that would need to be removed to accomplish home construction in these locations. Alternative layouts could be discussed as well.

With agreement on the Integrated Development Plan (IDP), the applicant and review team have created the predictability the applicants are seeking and have a tool for managing site trees throughout the process.

It also provides applicants with three new options, based on how they use the IDP.

2. New Service Options for Subdivisions

Recommended is a suite of three new service options for residential subdivision/short plat applicants. The three options maximize speed for applicants seeking shortest development timelines, maximize predictability for applicants seeking to establish these requirements from the very beginning at pre-submittal, or maximize flexibility for applicants wishing to make their configuration decisions incrementally (Fig. 21).

Details of the three options and how they differ at each step of development review are attached in Appendix A.

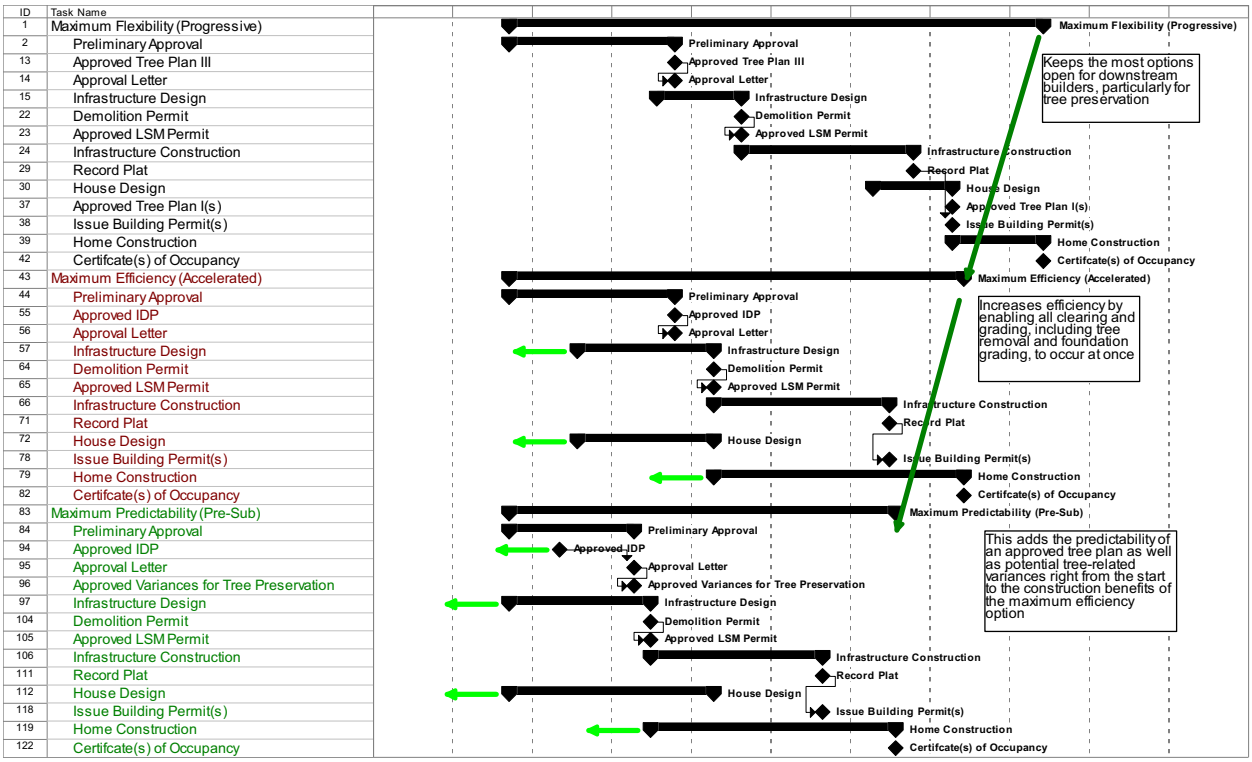


Figure 21 - Three New Residential Subdivision Process Options

Accelerated Option

In the new *accelerated* option, the applicant adds the building footprints to the proposed IDP at the time of subdivision/short-plat application submittal. Staff reviews this configuration in parallel with approval letter review and establishes the result as the IDP for the project.

Thereafter, the applicant can submit their LSM plans and building permit plans. The building permit applications may be submitted prior to plat recording. Both the LSM and building permits are checked for consistency with the IDP during their respective reviews. Since the IDP depicts building envelopes, the planner can quickly confirm tree preservation consistency with the IDP without having to consult the urban forester. This frees forester capacity to establish

IDPs, accelerate timelines on other reviews, and improve forestry procedures. This contributes to Recommendation #6. The forester would be engaged by the planner if inconsistencies are found during review.

This option also improves construction efficiency. An LSM under the accelerated option can authorize clearing and grading for the building footprint as authorized in the IDP. Therefore, the developer can capture the economies of scale lost in today's process to clear in one operation, log in one operation, and grade in one operation.

Once exercised to log a building footprint, post-revisions to the IDP to authorize any additional logging could require director approval to ensure the process is being used correctly.

Pre-Submittal Option

The new *pre-submittal* option adds a further enhancement to the *accelerated* process. It moves the IDP earlier to the pre-submittal phase. This bolsters predictability one step further in that it establishes the tree preservation and utility service design criteria from the outset, streamlining this aspect of approval letter review in addition to the LSM and building permits.

This is the also most effective time to consider variances to enhance tree preservation. KZC Chapter 95 allows administrative variances of certain lot dimensional requirements to align setback and other undisturbed areas with existing high quality trees. But, this opportunity isn't exercised often because the design has usually evolved past where such revisions are welcomed. In the *pre-submittal* option, this may see greater application on projects.

This and the *accelerated* option may particularly appeal to a developer planning to construct their own homes.

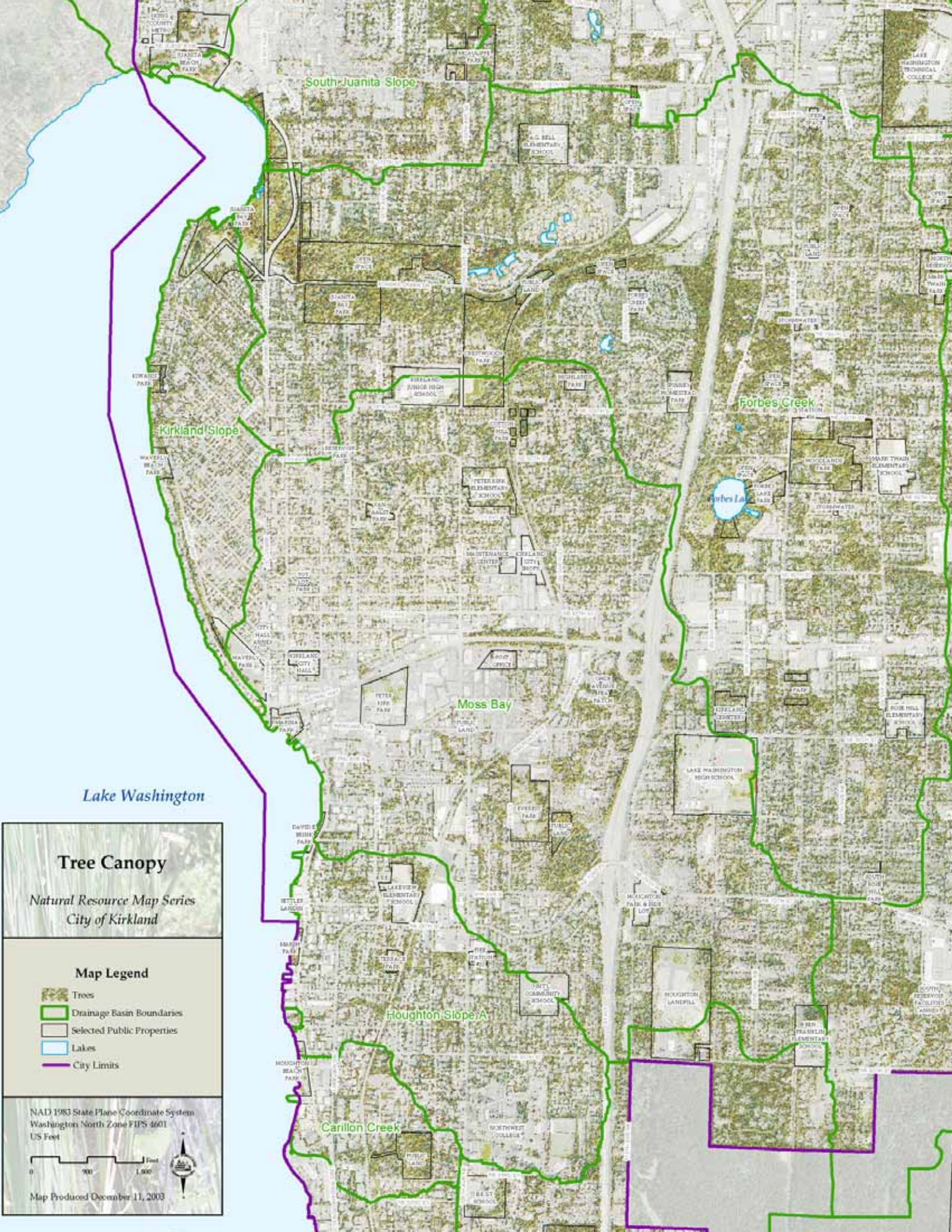
Progressive Option

The *progressive* option is similar to the traditional residential subdivision process in the City.

This option retains the flexibility to relocate and adjust building footprints until individual building permit applications, and driveways and utility runs until LSM application. An IDP is still established at the time of the approval letter. But, it just reduces to the content of the Tree Plan III of today with no agreed areas of disturbance until LSM approval (and these are just the minimum disturbances for the LSM installations). And, no site clearing or grading is approved for the building footprints until justified by building permits.

This may appeal to developers planning to sell individual lots to builders wanting maximum design flexibility at the building stage.

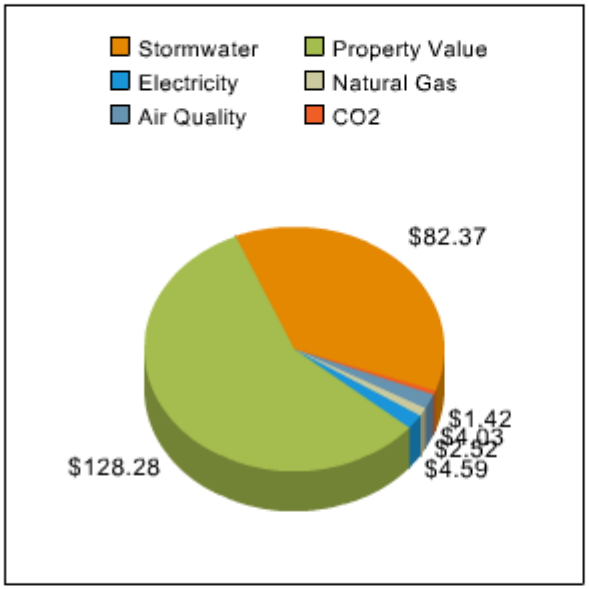
IDP post-revisions are used to maintain configuration control throughout the process, and authorize tree removal as needed in each step.


South Juanita Slope
Kirkland Slope
Forbes Creek
Moss Bay
Houghton Slope A
Carillon Creek
Lake Washington
Tree Canopy
Natural Resource Map Series
City of Kirkland
Map Legend
Trees
Drainage Basin Boundaries
Selected Public Properties
Lakes
City Limits
NAD 1983 State Plane Coordinate System
Washington North Zone FIPS 4601
US Feet
0
900
1,800
Feet
Map Produced December 11, 2003

National Tree Benefit Calculator

Beta

Overall Benefits | Stormwater | Property Value | Energy | Air Quality | CO2 | About the model



Breakdown of your tree's benefits
Click on one of the tabs above for more detail

This 24 inch Douglas fir provides overall benefits of: $223 every year.

While some functional benefits of trees are well documented, others are difficult to quantify (e.g., human social and communal health). Trees' specific geography, climate, and interactions with humans and infrastructure is highly variable and makes precise calculations that much more difficult. Given these complexities, the results presented here should be considered initial approximations—a general accounting of the benefits produced by urban street-side plantings.

Benefits of trees do not account for the costs associated with trees' long-term care and maintenance.

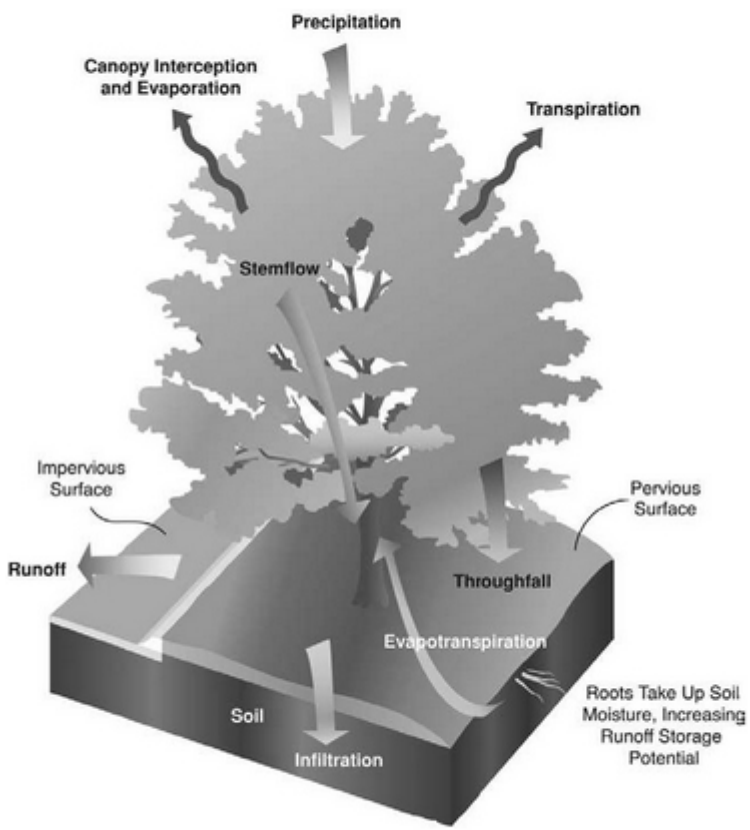
If this tree is cared for and grows to 29 inches, it will provide $256 in annual benefits.

Douglas fir
Pseudotsuga menziesii

ATTACHMENT 5
ZON08-00016

National Tree Benefit Calculator

Beta



Your 24 inch Douglas fir will intercept 2,964 gallons of stormwater runoff this year.

Urban stormwater runoff (or "non-point source pollution") washes chemicals (oil, gasoline, salts, etc.) and litter from surfaces such as roadways and parking lots into streams, wetlands, rivers and oceans. The more impervious the surface (e.g., concrete, asphalt, rooftops), the more quickly pollutants are washed into our community waterways. Drinking water, aquatic life and the health of our entire ecosystem can be adversely effected by this process.

Trees act as mini-reservoirs, controlling runoff at the source. Trees reduce runoff by:

- Intercepting and holding rain on leaves, branches and bark
- Increasing infiltration and storage of rainwater through the tree's root system
- Reducing soil erosion by slowing rainfall before it strikes the soil

For more information visit: The Center for Urban Forest Research

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ZON08-00016

National Tree Benefit Calculator

Beta

Located in front of a single family home, this 24 inch Douglas fir will raise the property value by $128 this year.

Trees in front of single family homes have a greater property value benefit than those in front of multi-family homes, parks or commercial properties. Real estate agents have long known that trees can increase the "curb appeal" of properties thereby increasing sale prices. Research has verified this by showing that home buyers are willing to pay more for properties with ample versus few or no trees.

This model uses a tree's Leaf Surface Area (LSA) to determine increases in property values. That's a researcher's way of saying that a home with more trees (and more LSA) tends to have a higher value than one with fewer trees (and lower LSA). The values shown are annual and accumulate incrementally over time because each tree typically adds more leaf surface area each growing season. The amount of that increase depends on the type of tree – some add more, some less.

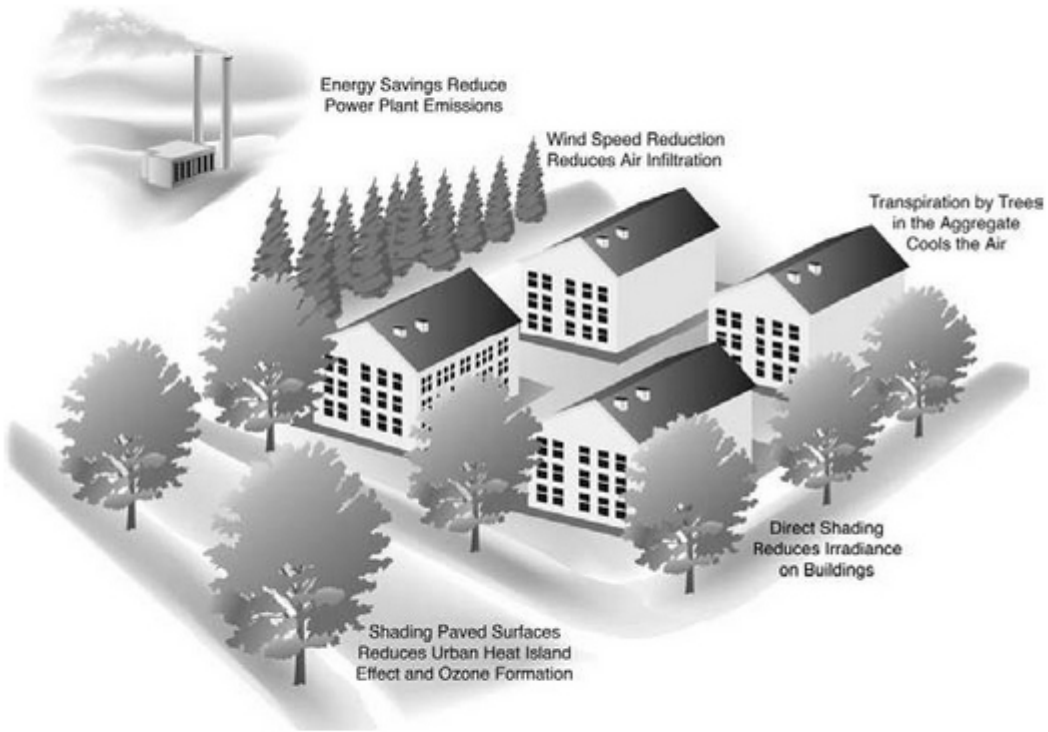
The 24 inch Douglas fir you selected will add 301 square feet of LSA this year. In subsequent years it will add more, and the property value will increase accordingly.

For more information visit: The Center for Urban Forest Research

ATTACHMENT 5
ZON08-00016

National Tree Benefit Calculator

Beta



Your 24 inch Douglas fir will conserve 90 Kilowatt / hours of electricity for cooling and reduce consumption of oil or natural gas by 2 therm(s).

Trees modify climate and conserve building energy use in three principal ways (see figure at left):

- Shading reduces the amount of heat absorbed and stored by buildings.
- Evapotranspiration converts liquid water to water vapor and cools the air by using solar energy that would otherwise result in heating of the air.
- Tree canopies slow down winds thereby reducing the amount of heat lost from a home, especially where conductivity is high (e.g., glass windows).

Strategically placed trees can increase home energy efficiency. In summer, trees shading east and west walls keep buildings cooler. In winter, allowing the sun to strike the southern side of a building can warm interior spaces. If southern walls are shaded by dense evergreen trees there may be a resultant increase in winter heating costs.

For more information visit: The Center for Urban Forest Research

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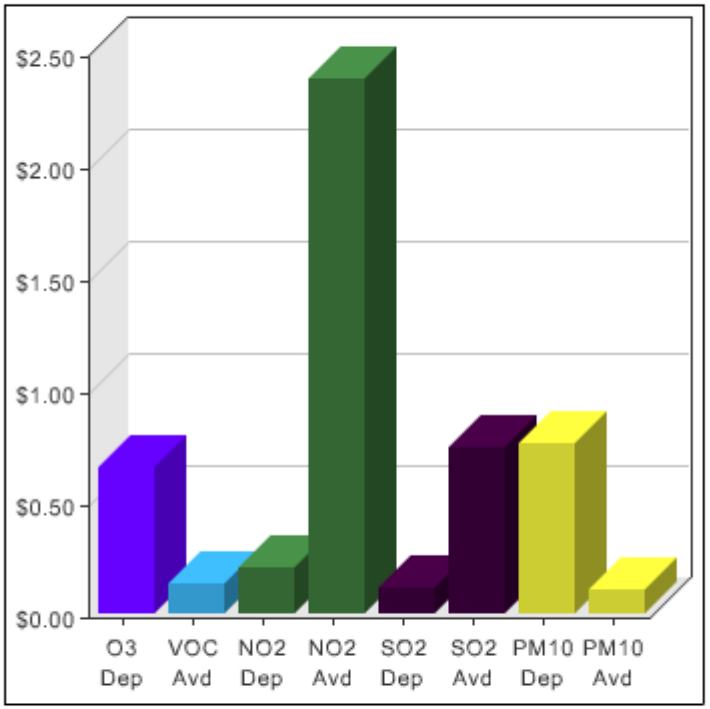
National Tree Benefit Calculator

Beta



"Dep" stands for deposition. This is your tree absorbing or intercepting pollutants. "Avd" stands for avoided. This is your tree lessening the need for creation of these pollutants in the first place by reducing energy production needs.

Air quality benefits of your 24 inch Douglas fir shown in the graph at left.

Air pollution is a serious health threat that causes asthma, coughing, headaches, respiratory and heart disease, and cancer. Over 150 million people live in areas where ozone levels violate federal air quality standards; more than 100 million people are impacted when dust and other particulate levels are considered "unhealthy." We now know that the urban forest can mitigate the health effects of pollution by:

- Absorbing pollutants like ozone, nitrogen dioxide and sulfur dioxide through leaves
- Intercepting particulate matter like dust, ash and smoke
- Releasing oxygen through photosynthesis
- Lowering air temperatures which reduces the production of ozone
- Reducing energy use and subsequent pollutant emissions from power plants

It should be noted that trees themselves emit biogenic volatile organic compounds (BVOCs) which can contribute to ground-level ozone production. This may negate the positive impact the tree has on ozone mitigation for some high emitting species (e.g. Willow Oak or Sweetgum). However, the sum total of the tree's environmental benefits always trumps this negative.

For more information visit: The Center for Urban Forest Research

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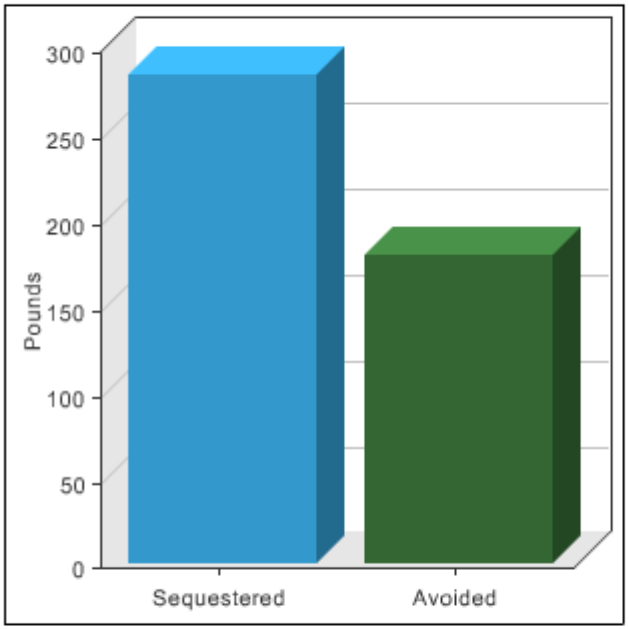
National Tree Benefit Calculator

Beta

Overall Benefits | Stormwater | Property Value | Energy | Air Quality | CO2 | About the model



This year your 24 inch Douglas fir tree will reduce atmospheric carbon by 466 pounds.

How significant is this number? Most car owners of an "average" car (mid-sized sedan) drive 12,000 miles generating about 11,000 pounds of CO2 every year. A flight from New York to Los Angeles adds 1,400 pounds of CO2 per passenger. Trees can have an impact by reducing atmospheric carbon in two primary ways (see figure at left):

- They sequester ("lock up") CO2 in their roots, trunks, stems and leaves while they grow, and in wood products after they are harvested.
- Trees near buildings can reduce heating and air conditioning demands, thereby reducing emissions associated with power production.

Combating climate change will take a worldwide, multifaceted approach, but by planting a tree in a strategic location, driving fewer miles, or replacing business trips with conference calls, it's easy to see how we can each reduce our individual carbon "footprints."

For more information visit: The Center for Urban Forest Research

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National Tree Benefit Calculator

Beta

The Tree Benefit Calculator allows anyone to calculate a first-order approximation of the benefits individual street-side trees provide. This tool is based on i-Tree's street tree assessment tool called STRATUM. With minimal inputs of location, species and tree size, users will get an understanding of the environmental and economic value trees provide on an annual basis.

The Tree Benefit Calculator is intended to be simple and accessible. As such, this tool should be considered a starting point for understanding trees' value in the community rather than a scientific accounting of precise values. For more detailed information on urban and community forest assessments, visit the i-Tree website.

Credits:

- The National Tree Benefit Calculator was conceived and developed by Casey Trees and Davey Tree Expert Co.
- This tool is powered by i-Tree; the data generating the results comes from the i-Tree Tools CD ROM: http://www.itreetools.org/
- Significant text and graphical content was originally published by the USDA Forest Service's Center for Urban Forest Research through their Tree Guide series of publications. Credit should be given to authors of these publications.
- Facts about personal carbon production based on driving and flying courtesy of Conservation International
- For questions about this tool, contact Mike Alonzo (Casey Trees) or Scott Maco (Davey Tree Expert Co.)

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APA also spoke to three urban forestry experts to see if these definitions were accurate reflections of the state of the art. All agreed that these holistic definitions were indeed reflective of current practice and understanding.

But we needed to expand our definition because this PAS Report is not just about urban forestry. Other books and reports addressing urban forestry generally appear in our references and resources. This report is specifically about the intersection of urban and community forestry with the process of community planning, and about where and how planning can advance the goals and benefits of urban forestry. In that context, we drafted a definition of urban forestry that addresses it as a planned outcome of community visioning and goal setting. This report, then, defines urban and community forestry as "a planned and programmatic approach to the development and maintenance of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal-setting process."

The foremost logical question that flows from this definition is how a community can quantify and document the benefits it claims for urban forestry.

The economic benefits of a healthy urban and community forest are often discounted or ignored in development decisions. These "ecosystem services" are extremely valuable and need to be considered in any evaluation of benefits.

THE BENEFITS OF AN URBAN FORESTRY PROGRAM

In the 1960s and 1970s, Dutch elm disease decimated urban forests in the eastern and midwestern U.S., changing the look of urban and suburban communities forever. From this crisis, the profession of urban forestry was born. Over the last three decades, the profession has evolved, as researchers and practitioners learn more about the structure and function of trees and their unique role in providing environmental, economic, and social benefits to urban areas. The following sections show how urban forestry provides each of these benefits in differing circumstances: as infrastructure, as part of design and development, and as efficient and productive providers of economic development.

The Environmental Benefits of Urban Forests

Providing "green infrastructure." Infrastructure, a city's physical "capital assets" (e.g., sewer, utility, and transportation systems), can be divided into gray and green elements. Gray elements are composed of buildings, roads, and utilities, all of which are vital to a community. Gray elements are also impervious, forcing stormwater to run off roofs, parking lots, and streets into stormwater sewer systems. Wastewater picks up surface pollutants that must be removed before the water enters rivers and lakes. In contrast, green elements are composed of trees, wetlands, shrubs, grass, and other vegetation. They interact with other natural systems of air, water, and soil. Green elements are porous, allowing stormwater to soak into soil, which naturally filters pollutants before entering rivers.

Benedict and McMahon (2006) offer this definition of green infrastructure: "An interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife." An urban forest can certainly be part of such a system.

The economic benefits of a healthy urban and community forest are often discounted or ignored in development decisions. These "ecosystem services" are extremely valuable and need to be considered in any evaluation of benefits. (See the sidebar on the following page for a definition of ecosystem services and a useful reference.)

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ECOSYSTEM SERVICES

Ecosystem services are an emerging area of economic and scientific inquiry related to healthy forests. Forest ecosystems provide numerous benefits to society that have traditionally been regarded as free social goods—benefits like wildlife habitat, biodiversity, carbon storage, and scenic values, among others. Undervaluing these services in economic decisions makes the forests supporting them more vulnerable to development and conversion to other uses, often significantly increasing real economic costs for environmental protection after the damage has been done. Valuing the benefits of the urban forest thus contributes to an understanding of ecosystem services. The USDA Forest Service provides valuable background information on this topic on its website at www.fs.fed.us/ecosystemservices/.

Treating stormwater runoff. Trees and soils function together to reduce stormwater runoff. Trees reduce stormwater flow by intercepting rainwater on leaves, branches, and trunks. Some of the intercepted water evaporates back into the atmosphere, and some soaks into the ground reducing the total amount of runoff that must be managed in urban areas. Trees also reduce the volume of water that a containment facility must store. For example, in the metropolitan Washington, D.C., region, the existing 46 percent tree canopy reduces the need for stormwater retention structures by 949 million cubic feet, valued at $4.7 billion per 20-year construction cycle, based on a $5/cubic foot construction cost (American Forests 2002). Many other cities have turned to green infrastructure as a tool for managing stormwater. For example, the Milwaukee Metropolitan Sewerage District, which serves 28 communities, is pursuing a conservation plan to identify and acquire easements on properties at risk for development that can provide flood prevention benefits. Bellevue, Washington, combines the use of parks with stormwater management (Erickson 2006) and for two decades has worked actively to protect riparian open space (Sherrard 1996).

American Forests' studies estimate that impervious surfaces have increased by 20 percent over the past two decades in urban areas at a cost to taxpayers of more than $100 billion (American Forests 2000).

Trees and other vegetation act as a nonengineered stormwater management system by slowing stormwater runoff and filtering pollutants out of water before it enters waterways.

When stormwater hits impervious surfaces in urban areas, it increases the water temperature and also picks up various pollutants, such as excess lawn fertilizers, salts, bio-toxins, and oils on roadways. This nonpoint pollution translates into water quality problems when large volumes of heated stormwater flow into receiving waters, posing threats to temperature-sensitive species, such as anadromous fish (i.e., fish that migrate from salt water to spawn in fresh water—salmon, for instance), trout, and small invertebrates, as well as providing conditions for algal blooms (i.e., increases of algae in a water body that cause increases in bacteria, which, in turn, use up oxygen and result in the death of plants and animals) and nutrient imbalances.

Exactly what role trees can play locally in improving stormwater management is an issue that requires local study because of wide variations in

topography, hydrology, development patterns, and other factors. The principles, however, are consistent everywhere. Pervious surfaces containing trees, with their extensive root matter, along with shrubs, grass, and other vegetative land cover, act as a sponge for precipitation, holding a great deal more of it than bare soil and far more than impervious surfaces. Moreover, trees hold some rainwater in their leaves and branches, resulting in some evaporation of water that never reaches the soil. The percentage varies from 12 to 48 percent in the U.S., depending on local climate and the species involved, but the impact where tree canopy exists is clearly significant (Kohrnak 2000). One needs to look at all the green infrastructure, including wetlands, for the total effect, but the end result is that some stormwater that would end up in creeks and streams instead percolates through the soil to regenerate groundwater. This slow percolation process cleans the water and helps cities meet their total management daily load standards. The total reduction in runoff varies with the density of forest canopy, but Duryea, Binelli, and Gholz (2000) note one study from Dayton, Ohio, that found a 7 percent reduction in runoff with the existing forest there and a potential 12 percent reduction with a slight increase in canopy cover.

The urban forest provides indirect benefits by reducing the urban heat island effect, a phenomenon of warmer air occurring in city centers, compared to lower ambient temperatures in the surrounding countryside.

The EPA regulates water quality, including nonpoint-source pollutants, such as those from stormwater runoff. As cities recognize the high costs of controlling stormwater with gray infrastructure, such as stormwater sewer systems, they are looking for innovative ways to implement effective controls inexpensively. In 2003, new federal Clean Water Act regulations issued under Municipal Stormwater-Phase II permits required communities with populations of 50,000 to 100,000 to create stormwater management plans to improve water quality. Phase I (cities with populations greater than 100,000) and Phase II permits provide cities with opportunities to incorporate urban forestry and green infrastructure into specific best management practices.

Shading and cooling the urban heat island. Between 1979 and 2003, excessive heat exposure—temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks—caused 8,015 deaths in the United States (Centers for Disease Control and Prevention 2006). Trees provide enormous cooling benefits, principally through direct and indirect cooling. First, because they absorb sunlight and provide shade, trees prevent sunlight from reaching surfaces such as concrete, asphalt, and brick, which radiate heat. Buildings require less energy to be cooled, so air conditioning costs are reduced. Also, trees release water vapor through tiny openings in their leaves called stomata. This process, known as evapotranspiration, uses the released water vapor to absorb heat directly from the air and cool it. Trees are also stressed by the urban heat island that radiates heat from buildings 24 hours a day, reducing an urban tree's ability to recover from the heat.

The urban forest provides indirect benefits by reducing the urban heat island effect, a phenomenon of warmer air occurring in city centers, compared to lower ambient temperatures in the surrounding countryside. This occurs in cities where the predominance of gray infrastructure and its impervious surfaces absorb sunlight and convert it to heat. Temperatures in the city centers have been measured at five to nine degrees Fahrenheit (F) warmer than in the surrounding countryside. Groupings of trees have a greater cooling effect than single trees, as evidenced by cooler temperatures measured in urban parks. On a citywide scale, the National Lawrence Berkeley Laboratory measured the additional urban energy use caused by the urban heat island effect. In summer, the costs in Washington, D.C., were $40,000 per hour; in Los Angeles, the energy costs soared to $150,000 per hour (Petit, Bassert, and Kollin 1995, 9).

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McPherson et al. (1994) quantified the energy conservation benefits of trees from direct shading on one- and two-story residential buildings. Using its formulas for measuring cooling benefits, American Forests found that Frederick, Maryland, residents receive almost $1 million per year on average in cooling effects from existing trees (Kollin 1994). If those trees were placed around houses to strategically maximize shade, the savings would be an additional $2 million per year.

Trees are efficient air-cleaning machines. Trees remove many pollutants from the atmosphere, including nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), carbon monoxide (CO), and particulate matter of 10 microns or less (PM_{10}).

Others have found that urban forests can simultaneously improve both cooling and air quality if they are planted in ways that consider air flow and air quality patterns. The technique to do such mapping is not even new, although the analytical tools have improved greatly over time. Spirn (1984) describes how Stuttgart, Germany, which, like some Rust Belt cities in the U.S., faced frequent air inversions that exacerbated air pollution problems from industry and traffic, discovered that clean, cool air flowed nightly down from ravines from hillsides above the city. By restricting development and preserving tree cover on those hillsides, as well as implementing pollution control measures for industry, Stuttgart was able to engineer what might be called citywide air conditioning to improve both air quality and the quality of life for urban residents. The Stuttgart experiment has been replicated elsewhere in Europe and has become a global model in this regard.

Reducing air pollution. "Air temperature is directly related to air pollution. Polluted days may increase by 10 percent for each five degree F increase. In Los Angeles, for example, ozone levels are not likely to exceed the current National Ambient Air Quality Standard (NAAQS) when temperatures are below 74 degrees F. Above that threshold, however, peak ozone levels increase. At 94 degrees F and above they reach unacceptable levels" (Akbari et al. 1992, 21).

Air pollution in cities and suburbs is a serious concern as described in the section on health benefits below. Burning fossil fuels has introduced a steady flow of deadly pollutants into our atmosphere, yet very few urban areas can meet national clean air standards. Trees are efficient air-cleaning machines. Trees remove many pollutants from the atmosphere, including nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), carbon monoxide (CO), and particulate matter of 10 microns or less (PM_{10}).

David Nowak of the U.S. Forest Service conducted research in 55 U.S. cities and developed a methodology to assess the air pollution removal capacity of urban forests with respect to the five named pollutants (American Forests 2004). Economists multiply the number of tons of pollutants by an "externality" cost; that is, a cost that society would have to pay in areas such as health care if trees did not remove these pollutants. (See Table 1-1.) Dollar values for pollutants are based on the externality costs set by the Public Service Commission in each state.

TABLE 1-1. TREES AND AIR QUALITY AROUND THE COUNTRY

City	Pounds of pollutants removed annually by trees	Annual value of trees with respect to air pollution
Washington, D.C.	878,000	$2.1 million
Atlanta, Georgia, Metro Area	19,000,000	$47 million
Portland, Oregon, Metro Area	2,000,000	$4.8 million
Denver, Colorado, Metro Area	1,100,000	$2.6 million

Storing and sequestering carbon. In addition to combating the urban heat island effect and improving air quality, trees are able to absorb atmospheric carbon, which reduces greenhouse gases thought to contribute to global warming. The carbon-related function of trees is measured in two ways: storage (the total amount currently stored in tree biomass) and sequestration (the rate of absorption per year). Tree age greatly affects the ability to store and sequester carbon. Older trees store more total carbon in their wood, and younger trees sequester more carbon as measured annually.

Carbon trading has begun to attract attention in the U.S. as it has in markets overseas. While carbon reporting is currently voluntary in the U.S., the increasing concern over global warming may change this to a mandatory requirement. The ability of trees to store and sequester carbon may play a role in that market, providing cities with a greater economic incentive to do better urban forestry planning.

Trees located within urban forested parcels, along meadow edges and stream banks, and within corridors contribute to the diverse cover, food, and nesting needs for a wide variety of wildlife.

Providing wildlife habitat. Trees located within urban forested parcels, along meadow edges and stream banks, and within corridors contribute to the diverse cover, food, and nesting needs for a wide variety of wildlife. A U.S. Fish and Wildlife Service survey reported that more than half of all adult Americans participate in urban wildlife-related activities, such as feeding, observing, and photographing wild animals. Most of these activities occurred close to home (Ebenreck 1989). Wildlife and their habitat bring nature into our cities and provide a welcome respite for people who live in urban areas. Butterflies, songbirds, and other flying species are well adapted to urban areas. Citizens enhance their backyards to attract wildlife through programs such as the National Wildlife Federation's Backyard Wildlife Habitat Program.

At a larger scale, municipalities also recognize the multiple values of urban open space, many of which create wildlife habitat in parks and on other public land. In addition to urban parks, cities have enhanced wildlife habitat and promoted wildlife-watching in cemeteries, golf courses, floodplain zones, and riparian corridors, such as within Rock Creek Park in downtown Washington, D.C.

Linear urban infrastructure, such as highways, railroads, and utility corridors, also serves as an important source of wildlife habitat. These linear travel routes, especially ones left unmowed and planted with wildflowers and other native vegetation, provide feeding, nesting, and dispersion routes for wild animals.

State conservation agencies conduct urban wildlife inventories to identify critical habitats and then take steps to preserve them. The Missouri Department of Conservation, for instance, purchases small wilderness tracts in urban areas and then leases them to local municipalities to manage. In Tucson, Arizona, critical roadrunner and javelina habitats are identified and conserved to safeguard their movements within and outside of the city.

The Social Benefits of Urban Forests

Health benefits. According to a survey by the U.S. Center for Disease Control (CDC: www.cdc.gov/nccdphp/dnpa/obesity/), "Since the mid-seventies, the prevalence of overweight and obesity has increased sharply for both adults and children. Data from two National Health and Nutrition Examination surveys show that among adults aged 20–74 years, the prevalence of obesity increased from 15 percent (in the 1976–1980 survey) to 32.9 percent (in the 2003–2004 survey)."

Louv (2005) examines generational views of recreation and open space. He believes the escalating obesity epidemic in the U.S., especially child obesity, is tied to the declining interest in outdoor recreation and the lack of access to open space. He testified before the U.S. House Interior Appropriations Subcommittee in May 2007 that public land managers and Congress must

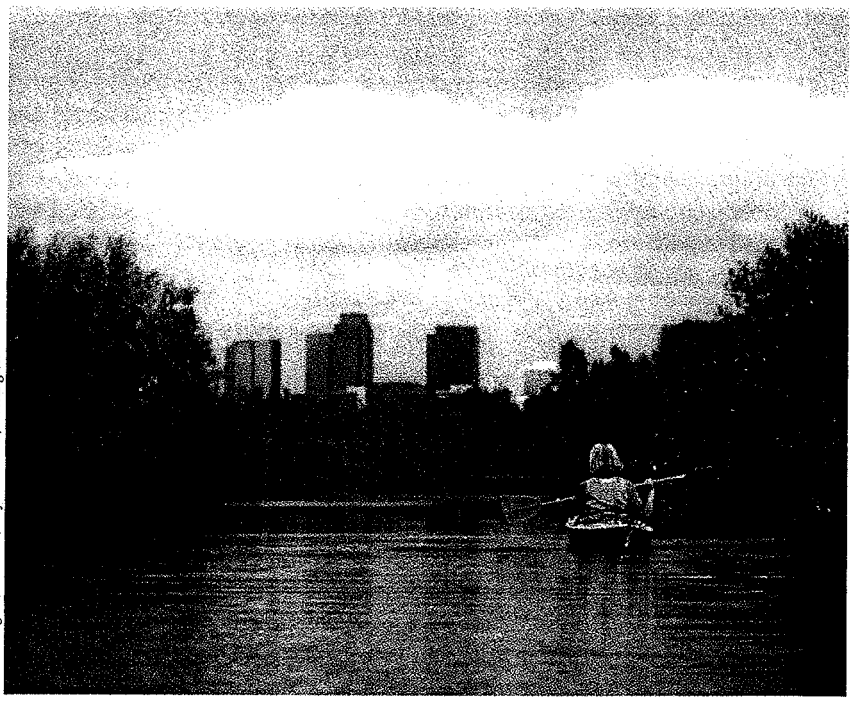
recognize the direct link between the two and address this problem as a public health issue. State programs such as Connecticut's "No Child Left Inside" and Texas's "Life Is Better Outside" have already made the connection between obesity and lack of recreation by boosting family attendance at underused state parks.

A sedentary lifestyle increases the risk of overall early mortality (two- to three-fold), cardiovascular disease (three- to five-fold), and some types of cancer, including colon and breast cancer (Dannenberg 2005). Furthermore, obesity-related health care costs exceed $100 billion per year, which is more than smoking-related costs.

Another health-environmental connection is sun exposure and skin cancer. According to the American Cancer Society, melanoma has doubled in the U.S. since 1973 with more than 1 million cases each year (www.melanomacenter.org/basics/statistics.html). Trees help protect against harmful sun exposure in playgrounds and other outdoor urban settings with reflective surfaces. Trees reduce exposure by about half, so that it takes twice as long to burn in the shade as in the sun (Heisler, Grant, and Gao 2002). Recognizing this problem, the Arkansas Forestry Commission's Urban and Community Forestry Program created "Shade Trees on Playgrounds" (STOP; see www.forestry.state.ar.us/community/stop.html) and is planting trees to prevent skin cancer in children.

Asthma rates have also increased, especially among children. In 2003, the American Lung Association reported that 8.6 million U.S. children have asthma, a 37 percent increase over the rate of occurrence in 2001 (Dannenberg 2005). Asthma has been linked to air pollution as observed from the 1996 Summer Olympic Games in Atlanta. During the games, peak morning traffic decreased 23 percent and peak ozone levels also decreased 28 percent. During the same time period, asthma-related emergency room visits by children decreased 42 percent, even though children's emergency visits for non-asthma causes did not change during that period. As discussed previously, trees act as air filters, absorbing air pollutants. An acre of trees absorbs 2.6 tons of carbon dioxide, which is equivalent to the emissions spewed by a car driven 26,000 miles annually.

Preserving and enhancing urban forest and open space serves dual purposes: providing recreation opportunities for health and well-being, and increasing nature's ability to filter urban air pollutants.



Mercer Slough Nature Park, City of Bellevue, Washington

In addition to the communitywide health benefits of trees, a person's immediate landscape or even just a view of it can greatly influence patient recovery time after surgery. Roger Ulrich documented the reduction in pain medication and reduced recovery time of gall bladder patients when looking at a landscaped view from their hospital room compared to looking at a blank wall (Ebenreck 1989).

Environmental justice. Environmental justice seeks to protect ethnically and economically disadvantaged people from unfair environmental impacts (Arnold 2007). Often this segment of the population lives in the bleakest parts of a city, where green space is lacking and areas are dominated by tall concrete buildings. Even though urban forest activists have attempted to engage these communities in greening their neighborhoods, Madeline Williams, Executive Director of the National Association of Black Environmentalists, believes that residents have been apathetic about such efforts. She attributes this attitude to their struggle with day-to-day economic and social problems, which then contribute to social and psychological barriers, which then preclude interest in improving their environment.

Efforts to cut costs for subsidized housing by eliminating trees and landscaping may exacerbate the social ills of disadvantaged urban communities, resulting in greater overall costs.

A study conducted by Kuo and Sullivan (2001), however, demonstrated that minority populations do indeed respond favorably to urban forests. They compared the social behavior of inner-city low-income residents living in the same high-rise building complex. One part of the high-rise complex was planted with trees and other vegetation, while another part remained barren of landscaping. Residents living in the attractive outdoor setting met and socialized with their neighbors. Residents who formed social ties felt safer and less stressed, and experienced less violence. They were also less likely to abuse their children. In contrast, residents without a treed environment knew few neighbors, had few visitors, and relied on social services more often than on their neighbors or friends. As this study shows, efforts to cut costs for subsidized housing by eliminating trees and landscaping may exacerbate the social ills of disadvantaged urban communities, resulting in greater overall costs.

Perhaps the most successful efforts to improve one's environment come from within the community itself. Elena Conte grew up in the South Bronx in the shadow of heavy industry. With asthma rates in this African-American and Latino community ranked the second highest in the nation, local residents got together and created Greening for Breathing, a local nonprofit organization. Their mission: to plant trees strategically for air pollution mitigation and to create a green buffer zone to protect the community from nearby heavy industry. Through a partnership with the New York City Parks Department, the residents turned their vision into a plan. They are transforming their neighborhood through planting, community stewardship, and technology.

Because environmental justice issues are often closely correlated with community development, it is worth noting that other studies have shown that tree planting and related participatory environmental projects (even including voluntary cleanup) can help to increase community capacity and build social structure (Westphal 2003).

The Economic Benefits of Urban Forestry

Even though many residential neighborhoods are well canopied with trees, many people don't realize the economic value that urban forests contribute to real estate—both commercial and residential.

Wolf (1999), for instance, documents that shoppers are willing to pay more for parking and often stay longer in shops in downtown business districts that have many large, well-maintained trees. She also found that customers who shop at venues with tree-lined landscapes believe the quality of the

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merchandise sold there to be higher and are willing to pay, on average, 12 percent more for goods and services.

In addition, the quality of landscaping along approach routes to business districts has been found to positively influence consumer perceptions, according to Wolf. She found that in tree-lined areas, property values may be up to 6 percent greater than in similar areas without trees.

An ARBOR National Mortgage survey (1994) found that, of 1,350 real estate agents responding, 85 percent believed that a home with trees would be as much as 20 percent more salable than a home without trees. C.P. Morgan, a developer in Indiana, found that his wooded lots sell for an average of 20 percent more than similarly sized nonwooded lots (Petit, Bassert, and Kollin 1995). A few nice trees can add $10,000 to $15,000 to a base lot price of $60,000.

The Trust for Public Land (TPL) has calculated the various values that urban parks bring to a community. The organization's methodology and calculator are discussed on its website: www.tpl.org/tier3_cd.cfm?content_item_id=20878&folder_id=3208. The first published case study of the methodology is of the Philadelphia's parks and recreation system (Harnik 2008). Economic factors that help determine a park's value include clean air and water, property values adjacent to a park, user happiness and healthfulness, total community value, and neighborhood social capital (i.e., the time and money people contributed to an urban park). TPL is currently developing a calculator so that municipal managers can determine the value of their urban parks and thus prove their budget worthiness.

Homes surrounded by trees are more desirable—increasing sales values and strengthening community character.

Measuring Green Infrastructure

Traditionally, cities have conducted urban forest inventories to determine the number of publicly owned trees and to track their maintenance needs. While these data can be very useful to the tree management department, they do not alone provide city leaders with the information they need to build budgets or manage municipal environmental needs using green infrastructure. Using a geographic information system (GIS), however, a community can calculate the benefits of all the trees in the city, not just those growing in public spaces. The trees can be viewed as citywide assets when they are given a spatial location rather than a street address.

Urban planners can develop a digital GIS representation of green infrastructure—a green data layer. GIS technology not only allows planners to determine existing tree cover, but, using specific GIS applications, also al-

American Forests

This high-resolution, satellite imagery is more than just a pretty picture. Its multispectral qualities provide the basis for classifying imagery into land cover and calculating the land cover's ecosystem services.

lows them to calculate its ecosystem benefits and economic value. This, in turn, gives them the means to establish levels of priority and importance for both preservation and acquisition of various elements of tree cover within an open space plan or comprehensive plan element.

Collecting, storing, and using object-oriented gray infrastructure data are the standard business practices in most municipal planning, engineering, and GIS departments today. Adding a tree cover data layer to this information makes good sense. With this data, the location of a tree, light pole, or sidewalk can all be stored in the database and displayed on a map by any department at any time. By storing green and gray infrastructure data in one database using a GIS, all department heads and citywide decision makers can view the same data and identify opportunities and conflicts before making decisions on specific actions.

The first step in creating a green data layer for use in GIS is to acquire land cover data from satellites or specially equipped airplanes. The data are acquired during the growing season, when the leaves are on the trees.

Two types of satellite imagery are useful for determining tree cover in cities. The Landsat satellite has been circling the earth since 1972 and therefore can provide a good view of the historic changes that have occurred. Landsat data are used to evaluate change over time in tree cover. As of 2000, more recent satellites carry high-resolution sensors that capture detail on individual trees. At this scale, a digital green data layer is useful for ongoing land-use planning and project-specific decision making.

Aerial imagery also offers a community an excellent opportunity to map tree cover and separate the landscape into gray and green objects. Landsat data are best used to understand trends and to support general public policies. In contrast, high-resolution satellite data are used to create a digital representation of a city's green infrastructure. This green data layer integrates well with other GIS data layers and is most useful for daily land-use planning and management.

ATTACHMENT 6
ZON08-00016

Specialists classify the images into different land cover types—trees, grass, open space, or impervious surfaces, such as parking lots, buildings, and roads. This analysis produces a digital green data layer and is used with gray infrastructure and other data sets commonly used in GIS for local planning. The data are now ready for analysis.

American Forests created a GIS software application called CITYgreen (see sidebar) to automate the complex calculations needed to quantify the effects urban forests have on stormwater, air and water quality, and carbon sequestration. This peer-reviewed software calculates the dollar value of green infrastructure by applying scientific and engineering models to the digital GIS green data layer. In addition, the software allows planners to create different development scenarios and compare the environmental and economic impacts of each. Planners can use the tools and data to incorporate green infrastructure into land-use planning. In doing so, policy makers build their capacity to better plan and manage their cities.

A person hired or appointed to manage a city's urban forestry program may be a forester, but is just as likely to have a four-year degree in arboriculture, horticulture, landscape architecture, or another natural resource specialty.

WHO IS INVOLVED IN URBAN FORESTRY?

The success of an urban forestry program does not hinge only on the talents and work ethic of a small group of professionals trained in this field. It also rides on the commitment of allied professionals, appointed and elected public officials, and the citizens and local businesses who represent the community. In a successful program, all of these people are involved at different levels, and all bring something vital and necessary to the process.

The First Tier: Forestry and Parks Professionals

Arboriculture deals primarily with the management of individual trees and tree species. Commercial arborists provide tree care and management services on private and public property, utility arborists deal with tree management issues along utility rights-of-way, including line clearances within municipalities, and municipal arborists are those employed or contracted by municipalities to manage tree programs. Arborists, as the International Society of Arboriculture (ISA) definition in the sidebar on page 14 indicates, are basically trained in the art and science of tree management, which includes pruning, planting, and other functions aimed at maintaining tree health. ISA manages the certification program for professional arborists.

Foresters, on the other hand, have typically earned at least a four-year baccalaureate degree in forestry and are trained to analyze and understand whole ecosystems (Helms 1998). Often licensed by states or otherwise credentialed by professional organizations such as the Society of American Foresters, their skills lie in managing forests at a systemic level. Foresters with advanced degrees are also likely to be engaged with urban forestry as researchers and scientists.

A person hired or appointed to manage a city's urban forestry program may be a forester, but is just as likely to have a four-year degree in arboriculture, horticulture, landscape architecture, or another natural resource specialty. Titles of those managing urban forestry programs have included urban forester, city forester, municipal arborist, and city arborist, among others, reflecting an overlap in the experience, training, and skills of individual professionals who lead municipal urban forestry programs. Overall, says Jim Skiera (2007), the executive director of ISA, the differences between foresters and arborists are "a matter of macro and micro."

In addition to arborists and urban foresters, another group of professionals working largely in local government has evolved to manage public parks and open spaces. Parks and recreation has thus become recognized as another profession in its own right, with its own university academic programs and certification standards. APA's City Parks Forum (www.planning.

Appendix A

THE VALUE AND BENEFIT OF URBAN TREES

Urban and community forests can strongly influence the physical/biological environment and mitigate many impacts of urban development by moderating climate, conserving energy, using carbon dioxide and water, improving air quality, controlling rainfall runoff and flooding, lowering noise levels, harboring wildlife, and enhancing attractiveness of cities.

Trees contribute to the value of real estate.

- According to recent U.S. Forest Service research, trees increase the appraised property values by as much as 5 to 20%. Property value grows with the height of the trees. Studies show that tenants rent more quickly and stay longer in buildings that have trees around them. Further studies reveal houses with trees and landscaping that obtained an "excellent" rating for the landscape could expect a sales price of 4 to 5% higher—depending on the size of the lot than equivalent houses with a "good" or "poor" rating. Homes with landscapes rated "fair" or "poor" could expect a sales price 8 to 10% below equivalent homes with good landscape appeal. This same study also noted that properties with large trees and excellent landscaping sell faster than properties with fair or poorly rated landscaping.

- A recent survey by a mortgage company revealed that:
  - 84% of the real-estate agents feel a house on lot with trees would be as much as 20% more salable than a house on a lot without trees.
  - 62% of respondents said the existence of healthy shade trees strongly influences a potential buyer's impression of a block or neighborhood.
  - 60% thought healthy shade trees have a big effect on a potential buyer's first impression of a property.
  - 56% felt healthy shade trees are a strong factor in a home's salability.

- Trees save money: The USDA Forest Service states in An Introductory Guide to Urban and Community Forestry Programs, that properly placed trees cut energy costs (20 to 50%) per lot. When planted on the north side, they create windbreaks, which reduce drafts and cut heating costs. When planted on the south and west side, they provide shade, which blocks the sun's direct rays and lower cooling costs.

- Trees have a monetary value in and of themselves. The average base value of a tree in real estate:

Diameter of trunk at 4.5 feet	Average base value
10"	$ 1,729
14"	$ 3,388
26"	$11,682
30"	$15,554

Appendix A

THE VALUE AND BENEFIT OF URBAN TREES

Trees offer comfort.

A study conducted by Texas A&M University of patients in a Pennsylvania hospital showed views of trees reduced the amount of care patients required, reduced the amount of pain medications required, and reduced hospital/convalescent stays (up to 8%). There has been an increased awareness in the restorative value of plants in hospitals, homes for the aged, and senior center. In such places, many "healing gardens" are being constructed for clients, staff, and visitors.

Trees are good for business.

- Trees promote retail sales: In a 1999 national survey conducted by social scientists at the University of Washington, sited by the DNR in their TreeLink newsletter, consumers rated tree lined areas:
  - 15% higher in amenity and comfort, interaction with merchants, quality of product, and maintenance and upkeep.
  - Customers were also willing to pay up to 12% higher for the same goods sold in stores on tree-lined streets.
  - People also linger, shop longer, and return more often on a tree-lined street.

- Corporate America is now including landscape considerations in its philosophy. When asked why they have emphasized landscaping, business owners cite the numerous positive aspects of trees and plants. Landscaping in the work environment:
  - Increases employee productivity, morale, and pride in workplace
  - Helps recruit new employees
  - Attracts customers or new business tenants
  - Can be used as an employee benefit
  - Has a role in creating a corporate image
  - Has value as a marketing tool.

Trees improve water quality

Trees reduce the impact of rain, which results in less runoff and erosion. They use the rain, which results in less flow into our storm water systems. There are statistically accurate models used across America today that show the width of planting strips adjacent to roads and the size of the trees have a measurable reduction in the size and expense of surface water management infrastructure.

Appendix A

THE VALUE AND BENEFIT OF URBAN TREES

Trees create an enjoyable environment

- Trees soften and complement architectural lines and building detail by:
  - Screening objectionable views
  - Providing privacy control
  - Acting as space articulators
  - Gradual unfolding of view.

- Trees offer weather protection:
  - Wind control through deflection, obstruction, filtration or guidance
  - Sun control through radiation, filtration, obstruction, or radiant heat absorption in summer and allowing sunlight to strike buildings in winter
  - Precipitation and humidity moderation
  - Temperature moderation by changing ground and air temperatures

- Trees offer aesthetic benefits such as pleasant fragrances, and visual beauty through shapes, patterns, backgrounds, focal points, and complementing or enhancing architecture, which can create a serene setting. They can create a buffer from the harshness of an urban landscape.

Trees can aid in traffic control.

Trees can be used to mark "gateways" into the city and identify entrances and exit areas such as of businesses, parks, and schools. They can be used to guide bicycles, vehicles, and pedestrians.

Trees have historical value.

Trees have been associated with historical events or are themselves historical due their size or age. (Kirkland is listed in the Washington Big Tree Program with 1 species of the biggest and /or oldest trees in Washington State.)

Trees pay their own way.

Trees more than pay for the cost of maintenance and care because they are on the job 24 hours a day, 365 days a year providing benefits. Trees are Nature's air conditioner, providing shade and a natural sunscreen for people and plants. This will become more valuable if global warming continues. Just how much is their unceasing effort worth? The American Forestry Association did a recent study and came up with the following figures indicating the dollar value of an urban tree with a fifty-year life span. A single tree would provide this much dollar-value benefit for one year:

Appendix A

THE VALUE AND BENEFIT OF URBAN TREES

Air conditioning	$73
Controlling erosion & stormwater	$75
Wildlife shelter	$75
Controlling air pollution	$50
Total	**$273 per year**

If you compound this amount for fifty years at 5 percent, the grand total is **$57, 151** of measurable benefit per tree.

The majority of this information was excerpted from:

- The Guide for Plant Appraisal, 9th *Edition*, by the Council of Tree and Landscape Appraisers, published by the International Society of Arboriculture Press, Savoy, IL, May 2000.
- Tree Link, Publication of the Washington State Department of Natural Resources.

TREE REGULATION AMENDMENT PROJECT QUESTIONNAIRE AUGUST 2009

In November 2005, the City Council adopted Chapter 95 of the Kirkland Zoning Code (KZC) which established new regulations, standards and procedures for trees and required landscaping. The code went into effect in 2006. At the time of the adoption of the new tree regulations, the City Council requested that a future status report be prepared and brought back for Council review. Based on the Council's direction last fall, the City is now in the process of updating the tree regulations, with the primary goal of making them simpler and easier to understand. The following questionnaire will help the Planning Commission and Houghton Community Council in their discussions.

Additional information on the project can be found on the City's website:

http://www.ci.kirkland.wa.us/depart/Planning.htm

GENERAL

1. The City's tree canopy goal is 40% coverage of the entire City. Do you feel that the goal of 40% is the right amount?

SHOULD BE A LOT LOWER	SHOULD BE A LITTLE LOWER	RIGHT AMOUNT	SHOULD BE A LITTLE HIGHER	SHOULD BE A LOT HIGHER
1	2	3	4	5

2. Should the City's priority in meeting the tree canopy goal be protecting existing mature trees?

YES		UNCERTAIN		NO
1	2	3	4	5

3. Would you like to be notified if tree removal is occurring in your neighborhood? **Yes or No**

   If yes, indicate how you would like to be notified by checking one or more boxes below:

   ☐ **Notice of Tree Removal Posted on Property**

   ☐ **Email**

   ☐ **Postcard**

4. Have you been concerned about previous tree removals in your neighborhood? **Yes or No**

   If yes, what were your concerns? _____

DRAFT

5. Should trees be as highly protected as other environmental resources such as streams and wetlands?

YES		UNCERTAIN		NO
1	2	3	4	5

6. Should trees on public property (e.g., trees in parks or along streets) be held to higher protection and replanting standards than trees on private property?

YES		UNCERTAIN		NO
1	2	3	4	5

7. Should property owners have the right to remove trees on their property without needing to get a permit?

YES		UNCERTAIN		NO
1	2	3	4	5

8. Should the City fund and maintain an ongoing tree management program to include tracking the retention and replacement of trees, maintaining a tree inventory, and conducting periodic tree canopy analysis to measure our progress?

YES		UNCERTAIN		NO
1	2	3	4	5

DEVELOPMENT RELATED QUESTIONS

9. Have you submitted a tree plan for development review within the City? **Y/N**

10. The pre-2006 tree regulations required 25% of trees in a short plat be retained and had no specific tree retention requirements for subsequent single-family building permits. Do you feel that the current regulations do a better job of retaining viable trees in the long term and provide enough flexibility from development regulations?

YES		UNCERTAIN		NO
1	2	3	4	5

If you disagree with the above statement, list three ways in which the City can improve its tree regulations:

a. _____

b. _____

c. _____

DRAFT

11. At what stage of the development process can trees be realistically identified for retention?

- ☐ **Pre submittal/information gathering stage**
- ☐ **Short Plat Application**
- ☐ **Grading Permit Application**
- ☐ **Building Permit Application**

TREE REMOVAL NOT ASSOCIATED WITH DEVELOPMENT

11. If you own property within the City of Kirkland, how many trees do you have on your properties that are approximately 6" diameter measured 4.5 feet from the ground? _____

12. Do you plan on removing trees in the near future? **Y/N**

    a. If so, what are your reasons? _____

13. Do you plan on planting trees in the near future? **Y/N**

    a. If so, what are your reasons? _____

14. When driving home, you notice in your neighborhood that the last two mature trees on a single-family lot are being removed. Should the City require new trees be planted to replace the trees being removed? **Y/N**

    If yes, how many new trees should be planted? _____

15. Please provide us with any other comments and/or suggestions regarding this project:

    _____

DRAFT

From: Margaret Bull [mailto:ladywisteria@verizon.net]
Sent: Tuesday, July 14, 2009 7:20 AM
To: Jon Regala
Subject: tree meeting

Hi Jon,

It turns out that I don't have a car tonight and I don't want to take the bus to your meeting. I'll try to look the info over online and send in comments. I might go to the Houghton Community Council meeting when it reviews this topic since it will affect my neighborhood too.

Most people are upset that they have to ask permission to remove trees that the city put on their property or in the island cul de sac or at least required the developer to put them in. What annoys them more is that the city doesn't take care of these trees and expects the neighbors to keep them pruned. Some of the trees were bad choices for the locations they were planted in. We have two Doug firs in our center island and two coast pines, one of which is leaning over severely partly do to the fact that its roots were cut a couple of years ago when the new tarmac was put in. Considering the size of the island I'm sure Doug firs were not the best choice at all especially two that are fairly close together.

We were lucky that the city actually did pay to have a large maple removed from our front yard along the curb edge since its roots were strangling the utilities. We only found this out when the neighbor did a remodel. If it hadn't been removed who knows what might have happened?
I just can't understand why neighborhood trees are planted right under power lines and on top of utilities. Quite awhile ago the city was working on an urban forest plan. I know this because a guy from the city came around and stuck probes into every tree in the neighborhood along the curbs and recorded what type of tree they were on a handheld device. That's how I know I have a sweet gum. Pruning the four trees on the island will cost the people in the cul de sac $ 400 and pruning the sweet gum will cost me and my neighbor another two hundred. We spent the money to have them pruned a couple of years ago as well. I don't want to remove them because I love trees but it would have been nice if something that doesn't grow so huge was planted around our cul de sac. Putting two Doug firs right next to each other especially when their roots are surrounded by tarmac seems ridiculous to me! Sweet gums aren't all that practical either. They lose their leaves late and can be severely damaged by bad weather. Ours was covered in ice many years ago and the branches were broken off or misshapen. It has taken years for them to recover a more normal shape with the branches growing upwards.

I haven't looked at the regulations and most people don't really know what they are but I just thought I'd mention what causes concern for my neighborhood.

Margaret Bull

From: Nancy Jewett [mailto:nancyjewett@yahoo.com]
Sent: Sunday, July 12, 2009 7:47 PM
To: Deborah Powers
Subject: tree plan

Hi,
I received a postcard alerting me to planned changes. I have briefly reviewed the suggested revisions and have a few comments. We are currently involved in a 6 lot short plan. We are a family developing some long held property - not professionals. As lead, my experience so far has raised these questions/comments.
1. Good idea to bring the tree plan into the title process. We wondered after all the trouble to save the trees and orient the lots and building sites that the purchaser could just cut them down.
2. When trees grow into a view that was previously possible it changes the value of the property. I suggest you take the tree plan into the property assessment process as well.
3. Trees have a finite life span - what accommodations are made for 'old age/ death'. I am referring to both assistance from the city and the issue of fines.
4. Good idea to simplify the language of the tree plan. Our arborist had to try to relate various descriptors/numbering/significance weighting and still had to redo some areas. Inefficiency wastes $$$:)

There are probably more ideas that I want to comment on but can't remember at this time.

Overall it seems to be a good idea to preserve the city's trees systematically.

Nancy Jewett

From: Ostrander [mailto:familyost@comcast.net]
Sent: Saturday, June 13, 2009 3:19 PM
To: Jon Regala
Cc: Mary-Alyce Burleigh; Tom Hodgson; Joan McBride; Rick Ostrander
Subject: Clarify 12 month period and financial contract suggestion for tree removal

Hello Mr. Regala, and City Council members who we've spoken to about trees, and Mr. Hodgson from the Tree Focus group;

1. My husband and I have interpreted your tree regulations for private homeowners differently where it states two trees may be removed "within a 12 month period."

If I have trees removed in August 2009, can I have 2 more taken in March of 2010, as "within a 12 month calendar year?"
Or would we have to wait until after August 2010 to remove trees again? If it is the latter, I would ask why would you have that as a complicating detail for permit checking, and not
have homeowners work their permits from January 1 to Dec.31 of whatever year they are in? It would seem a plus for staff to not have to individually check months and days beside years.
And what possible difference can it make to the city other than being an additional regulatory hurdle for homeowners to jump through?

2. Which brings me to a second question, what consideration can you could give homeowners on large lots? Since we cannot safely do our own tree removal, it is advantageous to hire someone. It is financially better to have them come less often, than more, so if I could contract with the City to remove 6 trees and then not cut any more for three years, I have met the 2 trees per year agreement, but not had to go through 3 events of permits, arrangements for removal, and subsequent landscape chaos, etc. And even in the case of Question #1, above, if the public could remove 2 trees in late December and bring back the removal company in early January, that shows some consideration of your regulations on our landscape budgets.

We live on Bridlewood Circle acreage with over 100 trees. Many are now older Firs, Cedars and Spruce with shallow root systems that are becoming more vulnerable to the vagaries of intense rain followed by high winds. Our insurance company also recommends we follow a fire safety suggestion for cutting back dry wood and these trees supply endless needles and combustibles to the property. The amount of downed, dry branches continues to accumulate in the nearby Bridle Trails Park which is a hazard we have little control over, but we can organize our property for fire resistance, with your help. And our neighborhood is on a rise of land from the lake, and so more vulnerable to wind force, and this is complicated with clay soil that does not encourage deep rooting, and may make water pooling under a root system more likely. It has been some years since we've removed any trees, but there are some under consideration for landscape and safety reasons.

We'd appreciate hearing your response, and or adding these questions to the public discussion.

Sincerely,
Peggy Ostrander
#9 Bridlewood Circle, Kirkland

From: Linda Hoke [mailto:linda.in.kirkland@comcast.net]
Sent: Friday, June 12, 2009 8:31 PM
To: Jon Regala
Subject: Kirkland tree regulations

It seems to me, a former Master Gardener, that a significant number of trees in Kirkland and other jurisdictions are planted under utility wires which cause all kinds of problems as they grow taller.

Does the city have any power to regulate the variety and predicted height of such trees, to avoid having to trim and mangle them later?

I realize the trees which eventually need trimming occur on both private and city property.

As an example of poor planning, look at the ornamental pear trees planted on the north side of 116th Street, east of 100th Avenue. They've grown well, and are beautiful, but some are growing into utility lines. Those trees were planted by the city. That just doesn't make sense.

Trees that have to be cut back to fit under utility lines never regain their inherent beauty, become eyesores rather than community benefits, and sometimes die due to improper pruning. It seems the City has some responsibility for setting more practical planting standards, to avoid expensive and destructive tree trimming years later.

I applaud retention of viable trees, and enhancing the tree canopy in Kirkland, but I also believe the City needs a practical plan for planting trees under or near utility lines.

Linda Hoke
12626 93rd Place NE
Kirkland, WA 98034