



CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
425.587.3600- www.kirklandwa.gov

MEMORANDUM

To: Planning Commission

From: Deb Powers, Urban Forester
Constantine Chrisafis, Planning Intern
Allison Zike, Planner
Kelly Wilkinson, Development Review Arborist
Adam Weinstein, AICP, Deputy Planning Director

Date: August 9, 2018

Subject: Internship Project Findings Related to Tree Code Efficacy,
Kirkland Zoning Code Chapter 95
File Number CAM18-00408

Staff Recommendation

The Planning Commission should consider these findings as potential code changes, incentives, changes to procedures and opportunities for public education are developed with the 2018 Kirkland Zoning Code (KZC) Chapter 95 code amendment project.

Background

In April 2018, the City Manager's Office awarded funding for a Planning and Building Department Innovation Internship project proposal to study the efficacy of citywide tree codes. This is the first opportunity since the City adopted its comprehensive tree regulations in 2006 to conduct field observations of this kind. The project involved comparing recorded trees on a site prior to development to present day conditions, long after initial tree protection efforts were made and the required 5-year Maintenance Agreements expired. The overarching objective of the project is to better understand how the City's tree regulations play out on actual development sites.

Findings from this project may be used by the Planning and Building Department, Planning Commission, Houghton Community Council, and the City Council to understand broader trends in tree protection. Field observations may suggest warranted policy/regulatory changes, show any tree code loopholes that are consistently being exploited, or indicate if codes are not effective or result in an unnecessary regulatory burden. Project findings can also be used in conjunction with current tree canopy data to understand where to focus efforts on increasing tree canopy cover.

Innovation Internship Project

In May 2018, staff discussed the scope, selected specific data that would be collected by the intern (Attachment 1) and planned a step-by-step approach for the project. The project largely revolved around KZC Chapter 95 processes and standards to provide for

the protection, preservation, replacement and proper maintenance of significant trees located on developed properties.

The intent and purpose of KZC 95 is to mitigate the consequences of land development through tree preservation and tree replacement, with the goal of enhancing Kirkland's urban forest to achieve an overall healthy, sustainable 40 percent tree canopy cover citywide over time.

This project looked at short plats developed under both phased and integrated development reviews. The Integrated Development Plan (IDP) review process requires tree retention/removal decisions early in development design, whereas phased reviews allow tree removal with each short plat, subdivision, demolition, grading and building permit as they are submitted/approved. The July 12, 2018 Planning Commission meeting [memo](#) discusses the IDP review process in more detail (page 2). The data sets gathered by the intern would help ascertain if existing regulations effectively promote good site planning, building, and development practices that work to avoid unnecessary removal or destruction of trees, that avoid unnecessary disturbance to native vegetation, and provide landscaping to buffer the effects of built and paved areas.

With almost 400 short plat permit applications and a multitude of resulting single family homes developed in accordance with KZC Chapter 95 regulations, staff limited case studies to short plats between the years 2008-2013, well after initial adoption of the code, while still allowing enough time to elapse to study post-development conditions. Following training on the City's permit database and reviewing archived permits, the intern collected site data from applications/permits required at these development stages:

- Prior to development – based on assessor records, data sometimes established in pre-submittal meetings/applications and with documented tree removal conducted prior to development permit application submittal;
- Short plat permits – documented number of trees and their condition based on arborist reports, surveys and approved retention requirements;
- Land Surface Modification (clearing/grading) permits – tree removal associated with site grading for roads and utilities; and
- Building permits – tree removal and retention required with building permits, development standards and zoning regulations.

To ensure that collected data would be useful, staff considered how current conditions in the field would relate to the following issues: Are the regulations effective, and are there any that are being exploited with tree removal before, during and after development? Are the regulations effective in retaining larger trees in addition to requiring new trees to be planted? Is there a relationship between lot size and tree retention/replanting?

Analysis

The project documented the removed and retained trees on 159 lots created from 54 short plats. Ten weeks were spent collecting and analyzing data, using the multi-step methodology described below.

Methodology

Initial data was collected from subdivision and short plat permit applications. The data included noting zoning designations/neighborhoods, if unique requirements were involved (Holmes Point Overlay), and whether the short plat utilized an integrated development or phased review plan. Important dates were noted such as permit submittal, final inspection and the King County recording date. Data collected from records also included the number of lots that were created, the total number of viable trees surveyed on the site when the application was submitted, and any prior tree removal permits and parcel numbers/addresses.

Proceeding into the field, existing trees on the property were counted and categorized by size using trunk diameter at 4.5 feet from grade, or diameter at breast height (DBH). Staff established the following tree size groups: new plantings, small trees, medium trees, and large trees. New plantings are trees under 6 inches DBH that were required to be planted with development. Small trees are those currently larger than 6 inches up to 12 inches DBH. Medium trees are defined as greater than 12 inches DBH up to the large tree category, which are trees over 22 inches DBH. The small, medium and large trees were original to the site prior to development and were required to be retained.

Returning to the office, the data collected in the field was recorded and analyzed to understand any emerging trends and to identify sites to return to for further analysis. Three key trends related to tree planting and protection were identified as part of this project:

Excessive Planting of Arborvitae

Arborvitae (*Thuja occidentalis*), sometimes called "pyramidalis," is a very columnar, slow-growing cedar tree that is frequently planted on development sites to meet tree credit requirements. About 30% of the total number of short plats revealed an excess of arborvitae. On most of those sites, little other vegetation is present (i.e., no trees that existed prior to development and few new plants/landscaping), resulting in limited species diversity on post-development sites. The benefit of greater species diversity is a healthy, resilient and sustainable urban forest. Low species diversity can lead to substantial impacts or widespread loss from pests or disease such as Dutch elm disease.

Arborvitae has a high mortality rate when newly planted, which was commonly noted in the field particularly when used in excess on development sites. The prevalence of Arborvitae could be attributed to its low cost compared to planting other trees and its common availability. The City's tree code doesn't distinguish smaller scaled, slow-growing or very narrow/upright forms from other replacement trees, allowing what has become a code "loophole" contrary to the intent of the code. and are discouraged or prohibited.

Poor Location of New Trees

Of the over 1,000 trees required to be planted with development, about 150 of those were observed to be dying or dead when field observations were conducted. Many of the dying or dead trees were planted in inappropriate locations such as next to a fence,

very close to foundations or in very close proximity to other trees/vegetation. A contributing factor to this condition is that the code does not prescribe where supplemental trees must be planted so that during final inspections, Planners are typically counting the number of trees on site, not examining tree locations. This could prove to be a problem in the long run in terms of establishing a healthy canopy.

Preservation of Mature Trees

By modifying the environment, trees improve air and water quality and contribute to human health and community character. The practice of clearing and removing trees on development sites and planting new, small trees results in an excessively even-aged tree population and poorly distributed mature trees. By protecting mature trees in addition to planting new trees, the significantly higher proportion of environmental benefits that larger trees provide are optimized and a healthier, more resilient and sustainable urban forest results. The current tree code does an adequate job at preserving mature trees with a large DBH. Out of 159 total lots examined, 32 properties retained large trees that existed prior to development. The intern noted that on many sites, it was very evident how modifications to development standards were made to protect mature trees.

Next Steps

This information can be used to shape Chapter 95 as we undertake revisions. Further examination could yield additional information such as common locations where successful tree retention occurs, including in setbacks, groves, or protected natural areas. Additional findings may suggest potential policy/regulatory changes based on the specific variables.

The August 9, 2018 Planning Commission meeting will provide the opportunity to discuss follow-up steps/meetings, including resolution of unresolved items, and any direction on the Chapter 95 update resulting from the intern project.

Attachments:

1. Data Collection Sheet

cc: Allison Zike
Kelly Wilkinson
File Number CAM18-00408

SHORT PLAT DATA										EARLY TREE REMOVAL DATA						CURRENT CONDITIONS DATA												
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application	Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # new plantings (less than 6")	# Small Trees	# Medium Trees	# Big Trees	
2008																												
SPL08-0003	RSX 7.2	no	South Rose Hill	2	no	1/29/2008	3/5/2008	7/16/2013	24	7	no								2547200200									
																			2547200200	Lot 1	13019 NE 74TH ST	BSF13-04638	4	4	0	0	0	
																			2547200190	Lot 2	13013 NE 74TH ST	BSF13-04637	11	2	8	0	1	
SPL08-0004	RSX 7.2	no	North Rose Hill	7	no	1/31/2008	2/20/2008	7/9/2013	104	68	no								3888100190									
																			3888100190	Lot 1	13001 NE 96TH PL	BSF12-03307	34	32 (26 Arbour)	0	1	1	
																			3888100197	Lot 2	13002 NE 96TH PL	BSF14-01563	20	10 (10 Arbour)	4	5	1	
																			3888100198	Lot 3	13006 NE 96TH PL	BSF14-01535	15	10 (10 Arbour)	4	0	1	
																			3888100199	Lot 4	13009 NE 96TH PL	BSF14-03594	25	22 (18 Arbour)	3	0	0	
																			3888100209	Lot 5	13010 NE 96TH PL	BSF14-01499	5	2	2	0	0	
																			3888100214	Lot 6	13014 NE 96TH PL	BSF14-01493	5	2	1	2	0	
																			3888100215	Lot 7	13017 NE 96TH PL	BSF14-01502	4	2	2	0	0	
SPL08-0008	RSX 7.2	no	South Rose Hill	2	no	4/28/2008	5/19/2008	7/8/2016	10	9	yes	TRE07-00018	1/9/2007	2					425059016									
																			425059018	Lot 1	8321 132ND AVE NE	BSF16-01544	5	3	0	1	1	
																			425059016	Lot 2	8319 132ND AVE NE	BSF16-02225	0	0	0	0	0	
SPL08-0010	RSX 7.2	no	South Rose Hill	2	no	6/16/2008	7/2/2008	5/21/2013	13	12	no								6400700360									
																			6400700363	Lot 1	7017 122ND AVE NE	BSF13-02782	3	3	0	0	0	
																			6400700360	Lot 2	7007 122ND AVE NE	BSF13-02432	6	5	0	1	0	
SPL08-0016	RSX 7.2	no	North Rose Hill	4	no	11/20/2008	1/29/2009	1/8/2014	60	50	no								1233100703									
																			1233100703	Lot 1	8742 126TH AVE NE	BSF14-00152	6	0	1	2	3	
																			1233100710	Lot 2	8744 126TH AVE NE	BSF14-00115	7	0	5	1	1	
																			1233100711	Lot 3	8746 126TH AVE NE	BSF14-00221	5	2	2	0	0	
																			1233100712	Lot 4	8748 126TH AVE NE	BSF14-00263	8	3	5	0	0	
2009																												
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application	Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # insignificant trees (newly planted trees)	# Small Trees	# Medium Trees	# Big Trees	
SPL09-00002	RS 8.5	no	Highlands	2	no	6/19/2009	7/13/2009	7/19/2013	4	2	yes	TRE06-00058	9/25/2006	2	Evergreen		Evergreen		1236300296									
																			1236300296	Lot 1	9412 112TH AVE NE	BSF13-05004	4	3	1	0	0	
																			1236300301	Lot 2	9418 112TH AVE NE	BSF13-00886	3	2	1	0	0	
SPL09-00004	RS 7.2	no	Market	2	no	12/3/2009	1/8/2010	8/29/2012	15	14	no								856000055	Lot 1	631 11TH AVE W	BSF17-04488	6	0	5	1	0	
																			856000057	Lot 2	1012 WAVERLY WAY	BSF12-01129	4	0	3	1	0	
2010																												
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application	Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # insignificant trees (newly planted trees)	# Small Trees	# Medium Trees	# Big Trees	
SPL10-00008	RS 8.5	no	Everest	4	no	11/30/2010	12/28/2010	2/11/2016	47	45	no								0120000250									
																			0120000250	Lot 1	333 8TH ST S	BSF16-00796	20	19 (11dead arbor)	1	0	0	
																			0120000251	Lot 2	714 4TH LN S	BSF16-03216	9	6	3	0	0	
																			0120000252	Lot 3	710 4TH LN S	BSF16-03217	19	14 (12 arbor)	5	0	0	
																			0120000253	Lot 4	706 4TH LN S	BSF16-04822	12	6	3	2	1	
SPL10-00001	RS 8.5	no	Market	2	no	1/4/2010	2/16/2010	7/14/2014	11	9	yes	TRE08-00333	10/9/2008	2					1245500805									
																			1245500804	Lot A	814 16TH AVE W	N/A						
																			1245500805	Lot B	818 16TH AVE W	N/A						
SPL10-00007	RS 6.3	no	Nokirk	2	no	10/27/2010	12/13/2010	1/18/2012	4	4	no								1245002765									
																			1245002765	Lot 1	116 12TH AVE	BLD11-00327	11	6	5	0	0	
																			1245002766	Lot 2	120 12TH AVE	N/A	6	4	2	0	0	
SPL10-00004	RSX 7.2	no	South Juanita	2	no	7/12/2010	9/1/2010	2/21/2013	36	18	no								2926059165									
																			2926059165	Lot A	11104 NE 116TH ST	BSF18-00071	9		3	1	3	
																			2926059219	Lot B	11616 111TH AVE NE	BLD12-00180						
2011																												
SUB/SPL File #	Zone	HPO (Y/N)	Neighborhood	# Lots	IDP (Y/N)	Apply Date	Complete Date	Send to King County for Recording Date	Total # Significant Trees at SUB Application	Total # Viable Trees at SUB Application	Tree removal notification prior to application (Y/N)	TRE Permit File #	Date of TRE Application	# Trees Removed (1/2)	Tree 1 Evergreen/Deciduous	Tree 1 Size (DBH)	Tree 2 Evergreen/Deciduous	Tree 2 Size (DBH)	Parcel Number	Parcel Name	Address	Permit Number (Leave dash in)	Total # Trees - Current Conditions	Total # insignificant trees (newly planted trees)	# Small Trees	# Medium Trees	# Big Trees	
SPL11-00008	RSA 6	no	Finn Hill	5	no	5/31/2011	7/19/2011	9/21/2012	25	15	no								2426049066									
																			2426049066	Lot 1	7806 NE 143RD ST	BSF12-04794	5	0	4	1	0	
																			2426049196	Lot 2	7812 NE 143RD ST	BSF12-03991	3	0	3	0	0	
																			2426049197	Lot 3	7804 NE 143RD ST	BSF12-03943	3	2	0	0	1	
																			2426049198	Lot 4	7815 NE 144TH ST	BSF12-04795	3	2	1	0	0	
																			2426049199	Lot 5	7819 NE 144TH ST	BSF12-03944	2	0	2	0	0	
SPL11-00011	RSA 6	no	Kingsgate	3	no	10/26/2011	2/8/2012	9/18/2012	5	5	no								866000010									
																			866000010	Lot 1	13506 132ND AVE NE	N/A	12	7	4	1	1	
																			866000090	Lot 2	13223 NE 135TH CT	BSF12-00374	8	1	7	0	0	
																			866000100	Lot 3	13227 NE 135TH CT	BSF16-01915	11	11	0	0	0	
SPL11-00005	RS 7.2	no	Nokirk	4	no	2/14/2011	3/30/2011	3/20/2013	58	46	no								1245002255									

