

Annual Report on Tree Canopy



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Introduction

On October 8, 2014, the Snohomish County Council adopted Amended Ordinance No. 14-073, Modifying General Development Standards for Landscaping Including Tree Canopy Requirements. The effective date of this ordinance was October 27, 2014. Included in Amended Ordinance No. 14-073 was a requirement for the Department of Planning and Development Services (PDS) to prepare an annual report on tree canopy (SCC 30.25.014). The report is required to be submitted by January 31 of each year. This is the first of such reports prepared by PDS. The information contained in this report covers the period from October 27, 2014 to February 4, 2015.

Background

In 2009, the County Council adopted regulations to protect significant trees (defined as 10 inches and larger at breast height) within residential zones in unincorporated urban growth areas (UGAs) in Snohomish County. These regulations were part of a broad set of urban residential design standards (URDS). The URDS are intended to create more livable neighborhoods and address concerns about compatibility of new infill development with existing single family dwellings. A central part of URDS was the retention and planting of trees for both compatibility and quality of life.

At the time the new tree retention regulations were adopted, Snohomish County was in the early stages of the Great Recession. Over the next three years, very little residential subdivision and short subdivision activity occurred within unincorporated urban growth areas where the regulations applied. As a result, the regulations had not been adequately tested to determine if there were any unintended consequences.

As the market began to rebound in 2013, developers began to design projects under the tree retention regulations adopted in 2009. Their experiences identified a number of issues, including:

- Concerns about survivability of newly planted trees
- Costs to complete a survey of significant trees
- Availability of off-site replanting areas within the immediate vicinity of the proposed project (allowed by code when there was insufficient area on-site for replacement trees)
- Bypassing heavily forested sites due to the cost of the tree retention regulations

In addition, PDS staff hypothesized, that under the tree retention/replacement regulations full build-out density of urban residential sites as prescribed by the Growth Management Act (GMA) Comprehensive Plan might not be feasible on some heavily forested lots. This was noted as a potential conflict with the GMA goals and Puget Sound Regional Council's Vision 2040 which encourage development within UGAs to preserve rural and resource lands.

In response to these concerns, the County Council discussed potential solutions in the spring and summer of 2013. This in turn led to PDS moving forward with a code project in late 2013. The PDS code project sought to balance the need to protect the environment with achieving densities in the comprehensive plan. PDS proposed amending the code to focus around the concept of preserving and expanding tree canopy rather than retaining and replacing individual trees. Following Planning Commission review, stakeholder outreach, and County Council hearings, the code amendments were adopted in October 2014.

The adopted tree canopy regulations set a minimum amount of tree canopy to be provided for each development on a sliding scale depending on the type of residential construction (detached versus attached) and the number of lots or units. Under this approach, a higher canopy percentage is required for single family than multiple family developments to account for a desire to increase density along transit corridors and to accommodate future population growth in an efficient manner. The application of these tree canopy percentages applies to sites which have existing canopy and those that do not. This is an important distinction to the former regulations which only applied to sites with significant trees. This provides an opportunity to expand the urban tree canopy, particularly since these sites already had a requirement to landscape 10 percent of the total gross site area, which could be utilized as space to plant trees.

Retaining significant trees is a big part of the tree canopy approach. Under the adopted regulations, incentives exist to assist developers with the retention of both individual significant trees and stands of significant trees. The tree canopy regulations maintain the previous requirements that significant trees in critical areas and perimeter landscaping be retained. The adopted regulations address species mix, in particular encouraging more native trees to be replanted, to minimize disease and improve survivability. Finally, the regulations encourage planting the right tree in the right place to ensure long term survivability.

Existing Tree Canopy

As a lead up to work on the tree canopy code amendments, PDS staff analyzed satellite imagery to determine the amount of existing tree canopy in unincorporated urban growth areas. In general, this analysis determined there was approximately 30 percent tree canopy. The data used to arrive at this figure is provided by the federal government approximately every five years. Future reports will include a 5-year comparison of tree canopy.

Report Requirements

SCC 30.25.014 lays out the annual report requirements.

30.25.014 Annual Report on Tree Canopy

The director shall provide council with an annual report on the implementation of the tree canopy requirements in SCC 30.25.016 by January 31 of every year. The report shall include, at a minimum, the following:

- (1) The number of applications exempted from tree canopy requirements by each of the exemptions in SCC 30.25.016(1).
- (2) The number of applications to which the tree canopy requirements are applied, subtotaled by type of application.
- (3) The number of applications using the Tree Survey method and the number using the Aerial Estimation method for estimating existing tree canopy.
- (4) For each application to which the tree canopy requirements are applied:
 - (a) The tree canopy required by Table 30.25.016(3) prior to any adjustments.
 - (b) Any adjustments to the required tree canopy, the specific type of incentive or other adjustment, and the specific code authority for the adjustment.
 - (c) The required tree canopy after all adjustments.
 - (d) The use and effect of applying any other incentives for tree retention.
 - (e) The result of the calculation of existing canopy.
 - (f) The canopy of trees retained.
 - (g) The number of new trees planted.

- (h) The result of the calculation of 20-year canopy.
- (5) For every allowable type of adjustment, the total number of applications that used it and the total reduction in required tree canopy resulting from it.

Findings

The following tables present findings using the metrics listed in SCC 30.25.014 as well as some not listed in county code. Future reports may include additional findings beyond those required by county code. Due to the short reporting period the findings are limited. In the future the annual report should include a near full year of data thus providing more robust results.

**Table 1
Number of applications exempted from tree canopy requirements
(By exemption)**

Exemption	Number of Applications
Removal of any hazardous, dead or diseased trees, and as necessary to remedy an immediate threat to person or property as determined by a letter from a qualified arborist	Data Not Available
Construction of a single-family dwelling, duplex, accessory or non-accessory storage structure on an individual lot created prior to April 21, 2009, or created by a subdivision or short subdivision for which a complete application was submitted prior to April 21, 2009	Data Not Available
Construction or maintenance of public or private road network elements, and public or private utilities including utility easements not related to development subject to chapters 30.23A, 30.34A, 30.41G or 30.42E SCC	Data Not Available
Construction or maintenance of public parks and trails when located within an urban residential zone	Data Not Available
Pruning and maintenance of trees	Data Not Available
Total	

Comments

SCC 30.25.016(1) contains the list of exempted activities under the tree canopy requirements. Since PDS does not issue a permit for pruning and maintenance of trees or for the removal of hazardous, dead, or diseased trees, data on the number of applications exempted from these activities is not available. As a result SCC 30.25.014 may need to be modified to exclude these activities from the annual report. For the remaining three exempted activities the limited time period since adoption did not allow for the collection of this information. To the extent data is available, future reports will include the number of applications exempted for the other three activities in Table 1.

Table 2
Number of applications
(By type of application)

Application Type	Number of Applications
Subdivision (10 or more lots)	5
Short Subdivision (4 to 9 lots)	2
Short Subdivision (less than 4 lots)	1
Single Family Detached Units (10 or more units)	2
Single Family Detached Units (less than 10 units)	0
Cottage Housing (10 or more units)	0
Cottage Housing (less than 10 units)	0
Townhouse (10 or more units units)	1
Townhouse (less than 10 units)	0
Multiple Family (10 or more units)	0
Multiple Family (less than 10 units)	0
Urban Center (residential and mixed use only)	0
Total	11

Comments

The majority of applications submitted since adoption of the regulations were for subdivisions or short subdivisions. There were two applications for single family detached units and one townhouse development.

Table 3
Number of Applications Using the Tree Survey and Aerial Estimation Methods

Tree Canopy Estimation Method	Number of Applications
Tree Survey	5
Aerial Estimation	3
No Retention/New Canopy Only	3
Total	11

Comments

Applicants have two methods for calculating existing tree canopy; Tree Survey or Aerial Estimation. Under the tree survey, the average canopy is calculated for each tree retained. Under the aerial estimation, a recent air photo is used to determine the extent of the canopy. PDS staff developed and provides to applicants a Tree Canopy Calculation Sheet to document which method they chose. Of the five applicants using the Tree Survey, all five chose to use significant tree bonuses pursuant to SCC 30.25.016(5).

**Table 4
Miscellaneous Metrics**

Metric	Number of Applications	Amount
Number of development applications that were previously not subject to the tree retention and replacement regulations	0	
Number of applications that retained tree canopy beyond the tree canopy requirements of SCC Table 30.25.016(3) by 0.5% or more	7	
Number of applications that opted-in to the tree canopy requirements (SCC 30.25.013)	8	
Amount of tree canopy planted on sites that were previously not subject to the tree retention and replacement regulations		0
Amount of cumulative unincorporated urban tree canopy over time as compared to Landsat analysis completed every five years		Not measured*
Amount of cumulative unincorporated urban significant trees retained as percentage of the overall tree canopy		Not measured*
Amount of existing tree canopy retained outside of critical areas and buffers and perimeter landscaping		Not measured*
Amount of tree canopy retained beyond the tree canopy requirements of SCC Table 30.25.016(3)		198,650 square feet

*Items identified as not measured will be included in future reports following additional GIS analysis that was unable to be completed under the initial reports deadline.

**Table 6
Tree Canopy by Development Application**

Application	Tree Canopy Required	Adjustments to the Required Tree Canopy	Type of Incentive or Adjustment	Code Authority	Required Tree Canopy After Adjustment	Required Tree Canopy Area After Adjustment	Use and Effect of Applying any other incentives for tree retention	The Result of the Calculation of Existing Canopy	Calculated canopy of trees retained	The number of new trees planted	20 year canopy area calculation	Total Tree Canopy Proposed
Koon SP	20%	0	N/A	N/A	20%	4,959	N/A	N/A	0	26	5,320	21.4%
North Lane	30%	0	N/A	N/A	30%	41,487	Significant tree bonus applied to 7 trees	+739 sf bonus canopy area	4,434	132	58,000	44.67%
Devon Hill	20%	0	N/A	N/A	20%	55,526	N/A	N/A	8,276	123	47,280	20.01%
Sylte Short Plat	25%	0	N/A	N/A	25%	10,969	Significant tree bonus applied to 10 trees	+1,472 sf bonus canopy area	7,359	8	3,840	25.5%
Watson Short Plat	25%	0	N/A	N/A	25%	19,873	Significant tree bonus applied to 19 trees	+2,809 sf bonus canopy area	8,608	25	11,340	25.1%
Glennwick Grove Phases 1 and 2	30%	0	N/A	N/A	30%	244,832	N/A	N/A	405,108	211	80,905	59.51%
North Creek Ridge	30%	0	N/A	N/A	30%	176,230	Significant tree bonus applied to 2 trees; Significant tree cluster bonus applied to 7 trees	+2,904 sf bonus canopy area	10,507	452	16,975	31.3%
Manor Cottages	15%	0	N/A	N/A	20%	9,045	N/A	N/A	0	76	12,575	20.9%
Mayfield Estates	30%	0	N/A	N/A	30%	145,909	N/A	N/A	64,904	288	81,065	30.01%
Cowenfeld SDU	20%	0	N/A	N/A	20%	35,045	N/A	N/A	0	88	36,165	20.64%
Marisol	30%	0	N/A	N/A	30%	93,856	Significant tree cluster bonus applied to 5 trees	+2,073 sf bonus canopy area	4,146	245	94,122	30.4%

Comments

None of the 11 applications requested a reduction under SCC 30.25.016(8), and since all applications submitted had existing canopy on site, none had the option of reducing canopy requirements using SCC 30.25.016(9). Out of the canopy bonuses offered under SCC 30.25.016(5), only (a)¹ and (c)² were used. Canopy bonuses were applied to a total of 50 trees for a total of 9,997 square feet in bonus canopy (or 0.9%) out of the actual 1,107,289 square feet of canopy protected which totals 1,117,286 square feet, or 25.65 acres, after bonuses were applied.

A total of 1,164 new trees are proposed to be planted among the 11 applications, and all 11 applications are planting new trees. All but three applications came in at least 0.5% above the required canopy with one application coming in at 29.51% above the required canopy due to slopes and streams on the site. The applicant could have chosen to only plant street trees and required site buffers, but additional tree canopy is proposed to be planted in site open spaces, adding to the overall 20-year canopy. Additional analytical data can be found in the Snohomish County Tree Canopy Calculation Database and the Snohomish County Tree Canopy Monitoring by Year workbook.

Other Findings

One applicant using the Aerial Estimation proposed to retain 49% canopy and opted to plant additional canopy that was not accounted for in the Tree Canopy Calculation Sheet. This site will have over 50% canopy in 20 years with the additional plantings. The same applicant could have chosen to use the open space recreation exemption, but did not. This project was submitted under the previous significant tree regulations but chose to opt-in under SCC 30.25.013, (which allows them to use the new tree canopy requirements while remaining vested to all other regulations), and it could be that the site redesign would have been too costly to convert the proposed recreation space into new lots.

The initial data also shows that a minor revision to the Tree Canopy Calculation Sheet may be needed. One applicant used Aerial Estimation to survey overall existing trees on site, but did not choose to retain any trees. In all, three applicants provided the entire existing canopy on the site via the Tree Survey or Aerial Estimation, and eight applicants only provided retained canopy areas on the calculation sheet. For analytical purposes it is useful to have the existing canopy measured for each site, but this may result in a rather long calculation sheet under the Tree Survey if the site is heavily forested. Changes to the worksheet can be made administratively and will not require a significant amount of time or resources within PDS.

Anecdotally, PDS staff has heard from select applicants that the tree canopy regulations are resulting in significant project cost savings. This is both from the cost of completing a tree survey and a reduction in the number of trees required to be planted. Though not a metric required to be monitored under SCC 30.25.014, it may be worth tracking, particularly in light of Goal 3 of the General Policy Plan which states that "Land use policies and regulations should contribute as little as possible to the cost of housing."

Another issue relates to SCC 30.25.015(8) which requires the planting of street trees. Initial findings as well as beta-testing completed in 2014 suggest that street trees provide an effective means to increase the urban tree canopy. In some cases depending on the tree species as much as 10 percent

¹ (a) Individual significant trees retained on site shall be counted at 125 percent of their actual canopy area.

² (c) For clusters of stands of five or more significant trees, each tree shall be counted at 200 percent of its actual canopy area.

of a sites tree canopy at 20-years maturity could be attributed to street trees. Street trees provide additional benefits including shade, protection for pedestrians, visual relief/buffering and wildlife habitat. Another perspective is that the increased presence of street trees may impact vehicular safety and liability in the public right-of-way. This is an emerging issue and more research is required to determine the impacts of street trees on vehicular safety. The next annual report will include a more thorough discussion on this issue.

Innovative Design Elements to Preserve or Create Tree Canopy

Future annual reports will highlight any innovative design elements incorporated into development applications which preserve existing tree canopy or create new tree canopy. Examples may include the arrangement of lots/units to preserve an existing stand of trees or planting trees to enhance a critical area. This section could also highlight where a developer chose to go beyond the requirements SCC 30.25.016.

One example is where an applicant used creative site design to retain trees within required Critical Area Protection Areas (CAPAs) and required buffers, and placing open space, recreation and drainage adjacent to retained canopy areas. With the exception of a vine maple on the corner of each lot, the applicant placed the majority of the remaining new canopy as street trees and within open space common areas where they will be protected in perpetuity.

Recommendations

Due to the limited amount of data presented in this report, recommendations on changes are premature at this time. Future reports may include recommendations on changes to the tree canopy regulations. Recommendations could also include proposals for revisions to administrative procedures, checklists, and bulletins. The annual report may also discuss any proposed policy amendments to the General Policy Plan (GPP) and may review an option for expansion of tree canopy regulations to non-residential uses.