



**Snohomish County**

**Planning and Development  
Services**

3000 Rockefeller Ave., M/S 604  
Everett, WA 98201-4046  
(425) 388-3311  
www.snoco.org

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**MEMORANDUM**

**To:** Megan Dunn, Chair, Snohomish County Council  
Jared Mead, Vice-Chair, Snohomish County Council  
Nate Nehring, Snohomish County Council  
Sam Low, Snohomish County Council  
Stephanie Wright, Snohomish County Council

**Dave Somers**  
*County Executive*

**From:** Mike McCrary, Director

**Subject:** Transmittal of the 2021 Tree Canopy Report

**Date:** February 8, 2021

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**In Brief:** Planning and Development Services (PDS) is transmitting the annual Tree Canopy Report, as required by SCC 30.25.014. This is the sixth annual report transmitted to the County Council.

**Request of the Committee:** This is an informational item only. No specific action is being requested., PDS would be glad to provide a briefing at the County Council's request.

**Background Information:** On October 8, 2014, the County Council adopted Amended Ordinance No. 14-073, modifying general development standards for landscaping, including tree canopy requirements in unincorporated urban growth areas. Included in this ordinance was a requirement for PDS to prepare an annual report on tree canopy (SCC 30.25.014). The report is required to be submitted by January 31<sup>st</sup> of each year. The information contained in this report covers information from 2021 and from all prior reports.

**Committee's Next Steps:** No specific action is required.

**Subsequent Next Steps:** PDS will continue to collect data for inclusion in next year's report.

**Lead Staff:** Hilary McGowan, Planner PDS

**Attachment:** 2021 Tree Canopy Report for January 1, 2021 through December 31, 2021

**Cc:** Ken Klein, Executive Director  
Mike McCrary, PDS Director  
David Killingstad, PDS Manager  
Michael Dobesh, PDS Manager  
Ryan Countryman, Senior Legislative Analyst

# 2021 Tree Canopy Monitoring Report

January 1, 2021 – December 31, 2021



Report Published January 31, 2022

Snohomish County

# Executive Summary

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The 2021 Tree Canopy Monitoring Report details the amount of tree canopy preserved and planted for new residential permits in urban unincorporated Snohomish County. This monitoring report is required under [Snohomish County Code 30.25.016](#).

To find past reports and learn more about tree canopy monitoring in Snohomish County, please visit <https://snohomishcountywa.gov/2737/Tree-Canopy-in-Landscaping>.

The purpose of the report is to summarize the outcomes from the updated tree canopy regulations on an annual basis to assess their effectiveness and to determine whether any adjustments or refinements should be considered.

Newly planted canopy calculations are measured by the estimated square footage size of a 20-year mature tree. The numbers below highlight the total amount of proposed and required 20-year tree canopy coverage. In 2021, every proposed landscape plan that was approved, met, or exceeded the minimum 20-year tree canopy coverage required in SCC 30.25.016(3).

**1,147,599 sq. ft.**

Total 20-Year Canopy Area  
(New & Retained)

**3,306**

New Trees  
Planted

**1,126,694 sq. ft.**

Total 20-Year Canopy Area  
Required (New & Retained)

**33%**

Retained  
Canopy

**13,345,275 sq. ft.**

Total 20-Year Canopy Area  
(New & Retained) from 2014-2021

**67%**

Newly Planted  
Canopy



# Introduction

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On October 8, 2014, the Snohomish County Council passed Amended [Ordinance No. 14-073](#), relating to new regulations for tree canopy coverage. These new regulations, effective October 27, 2014, modified development standards for urban residential landscaping to preserve tree canopy in addition to individual significant trees. These regulations are located in [Chapter 30.25](#) of the Snohomish County Code (SCC). The code still requires that significant trees be retained in all Critical Area Protection Areas (CAPA) and buffers, and in perimeter landscaping buffers. Significant trees and existing tree canopy are also incentivized to be retained outside of CAPA and perimeter landscaping buffers per SCC 30.25.016(5).

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 the effectiveness of the county's tree canopy regulations. The report is required to be submitted to the County Council by January 31 of each year.

Per SCC 30.25.014, PDS is required to provide data on the following five topics for the applications it approved within the reporting period:

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 (applicable when the retention of existing canopy is to be used – in whole or in part – to meet the requirements).
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 are made.
  - 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.

# METHODOLOGY

Because of the nature of monitoring and reporting, the methodology for data collection included in the report has evolved over the past five years. Table 1 contains a summary of how report methodologies have changed since the first tree canopy monitoring report was prepared in 2015. A more detailed discussion of the methodology changes follows the table.

**Table 1. Tree Canopy Monitoring Report Data Collection Methods 2015-2021.**

Report Year	Data Collection Method
<b>2015 &amp; 2016</b>	Included data for proposed landscaping plans for <i>all</i> residential land use applications within the urban growth area that were either submitted or approved in the prior year.
<b>2017 &amp; 2018</b>	Included only data from landscape plans for <i>approved</i> development activities that were subject to tree canopy regulations in SCC 30.25.016. Data collection time frames varied and generally included the previous year's approved landscape plans (but also included more than a 12-month timeframe)
<b>CY 2018 &amp; CY 2019</b>	These reports follow the same methodology as the 2017 and 2018 reports, apart from limiting the time frame to the 12 months. The timeframe for data collection is now a calendar-year (CY), and the report titles reflect this change.
<b>2020 &amp; 2021</b>	This report follows the same methodology established as the previous three years. The 2020 and 2021 reports have removed the calendar-year based title heading for further clarity.

Due to limited data availability, the first two reports (2015 & 2016) included landscape plans for all residential land use development applications proposed within the urban growth areas (UGAs) which were either submitted or approved in the prior year.

The methodology was substantially revised for the 2017 report, which transitioned to only include approved landscaping plans. This was changed because it is not uncommon for an application to be revised between the time of submittal and final approval. Including only those applications in the monitoring report which received final approval improved the accuracy of the monitoring report. As a result, the 2017 report included only landscaping plans that were approved from the effective date of Amended Ordinance No. 14-073 (November 1, 2014) through November 30, 2016. In total, the 2017 report included 61 landscaping plans. The 2018 report followed the same methodology and included a total of 58 landscaping plans, which were approved between December 1, 2016 through December 31, 2017.

In the 2018 report, PDS staff recommended transitioning to a calendar year (CY) reporting timeframe. This change created a standardized 12-month reporting period so that the information in each year's report could be more consistently compared over time. The CY 2018 report was the first report to adopt this recommendation.

This 2021 report uses the same methodology as the past three reports and includes information from 44 approved landscape plans within approved residential development activity applications. These landscape plans were approved between January 1, 2021, and December 31, 2021. Due to the revised methodology, information from reports prior to the CY 2018 report will be used sparingly to avoid false comparisons. These reports summarized data only from landscaping plans that were submitted prior to approval, so including them in this report would potentially double-count tree canopy.

## Background

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The genesis for the updated 2014 tree canopy regulations was feedback from developers who, in designing projects under the 2009 tree retention regulations, identified a number of issues, including:

- Concerns about survivability of newly planted trees when planted in inappropriate locations or dense clusters to meet the requirements;
- Costs to complete a survey of significant trees on forested parcels;
- Unavailability of off-site replanting areas within the immediate vicinity of many projects (allowed by code when there was insufficient area on-site for replacement trees); and
- Developers bypassing heavily forested sites due to the cost of complying with the 2009 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 parcels. 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 2014, PDS proposed amending the code to focus on the concept of preserving and expanding tree canopy rather than just on retaining and replacing individual trees. The staff proposal included incentives for retaining significant trees. Following Planning Commission review, extensive stakeholder outreach and participation, and several public hearings, the County Council adopted the code amendments in October 2014.

The code amendments were passed under Ordinance 14-073, which amended Title 30 SCC and updated the county's landscaping standards. The ordinance's goal was to maintain canopy coverage through retention and replacement of existing tree canopy, while providing flexible options for developers to obtain urban densities as prescribed in the Snohomish County Comprehensive Plan.

## Tree Canopy Coverage Analysis Background

In order to establish base line percentages for tree canopy coverage in UGAs, the county relied on a high-level GIS analysis of the National Land Cover Data provided by the US Geologic Service (USGS). This data was analyzed in 2013 utilizing USGS Land Cover Data from 2011. Every five years USGS releases updated land cover data.

The analysis in 2013 determined the unincorporated UGAs of Snohomish County contained an estimated 30% canopy coverage between public and private lands. The ordinance sought to maintain 30% tree canopy coverage in unincorporated UGAs of Snohomish County. Although, the code does not require further analysis of USGS Best Available Land Cover Data post 2013, and canopy coverage is measured individually by permits.

For the 2020 Tree Canopy Report, PDS Staff took the opportunity to update the tree canopy coverage beyond the individual projects approved within unincorporated urban Snohomish County. While this was not a required element of the monitoring report, PDS staff wanted a better understanding of how tree canopy coverage was changing in the county. It should be noted that both the original and updated analysis of satellite imagery covered the entire urban unincorporated areas, although Snohomish County's tree canopy regulations only apply to new urban residential development.

The 2020 Tree Canopy Monitoring Report included an updated tree canopy coverage analysis that used canopy coverage data from the USGS National Land Cover Database and the National Oceanic and Atmospheric Administration (NOAA) National Agriculture Imagery Program that was then analyzed by Snohomish County's Surface Water Management (SWM) division. Three maps and datasets were produced: 2011 USGS data, 2016 USGS data, and the 2015 NOAA/SWM data.

To learn more about the analysis and results of updated tree canopy maps and datasets, you can find the '2020 Annual Report on Tree Canopy' at: <https://snohomishcountywa.gov/2737/Tree-Canopy-in-Landscaping>

## 2021 Updated Tree Canopy Coverage Analysis

The 2020 Tree Canopy Monitoring Report utilized 2015 Snohomish County imagery that included an infra-red (IR) band which allowed for a more accurate analysis of tree canopy coverage. The county has partnered with other cities, tribes, and agencies to commit to flying high resolution imagery every other year for a total of five flights (2018, 2020, 2022, 2024, 2026). In this collaboration, Washington State conducts the imagery and distributes its findings. Due to budget constraints however, both the 2020 and 2021 flyovers did not include an IR band.



Updated datasets are currently unavailable for analysis in the 2021 tree canopy coverage analysis. Although the state imagery was captured in 2021, this did not include an IRband due to budget constraints. IR band data is needed to reproduce the NOAA/SWM data as seen in the 2020 Monitoring Report.

Washington State Department of Natural Resources (DNR) has recently undertaken a state-wide tree assessment in 2021. DNR is currently in the process of getting the data posted to a data portal for GIS staff to access this tree canopy data. DNR has not stated how the imagery data is sourced, and whether it includes IR bands. As of the publication date of this Monitoring Report, there is no current estimated time for when this data will be available.

This Monitoring Report will continually pursue using updated federal, state, and local data for future tree canopy coverage analysis.



Photo 2: Street and Residential trees next to Trillium Blvd Swift bus stop. Photo credit PDS Staff.



## 2014 Tree Canopy Regulations

Snohomish County Tree canopy regulations are contained in SCC 30.25.016. These regulations establish a minimum amount of tree canopy to be provided for each urban residential development on a sliding scale, depending on the type of residential construction (e.g., detached versus attached) and the number of lots or units (see Table 2). Under this approach, a higher canopy percentage is required for single family than multiple family developments to balance environmental goals with increased density and to accommodate future population growth in an efficient manner. Table 2 presents the amount of tree canopy required for new residential development applications.

**Table 2. Tree Canopy Coverage Requirements (SCC 30.25.016(3))**

Type of Development	Required 20-Year Tree Canopy Coverage (gross site area)
<b>Subdivisions for Single Family Residential (10+ lots)</b>	30%
<b>Short Subdivisions for Single Family Residential (4 to 9 lots)</b>	25%
<b>Short Subdivisions for Single Family Residential (&lt; 4 lots)</b>	20%
<b>Single Family Detached Units, Cottage Housing, Townhouse, Multi-family (10+ units)</b>	20%
<b>Single Family Detached Units, Cottage Housing, Townhouse, Multi-family (&lt; 10 units)</b>	15%
<b>Urban Center (residential and mixed use projects only)</b>	15%

These tree canopy requirements apply equally to sites which have existing canopy and those that do not, and they can be met through tree retention, new planting, or a combination of both. This is an important change from the 2009 tree replacement regulations which only applied to sites with significant trees. The current approach provides an opportunity to expand the urban tree canopy on redevelopment sites or sites that have been cleared in the past. Snohomish County Code does not require a one-for-one replacement requirement for significant trees, so that heavily forested lots proposed for residential development may lose tree canopy when developed. In order to balance the growing demand for housing and to comply with Growth Management Act

(GMA) goals to incentivize growth in urban areas, reduce sprawl, and provide affordable housing, large lots with in the UGA can be developed.

Retaining significant trees remains an objective of the current regulations. Under the current regulations, incentives exist to encourage developers to retain both individual significant trees and stands of significant trees. The tree canopy regulations also maintain the pre-2014 requirements that significant trees in critical areas and perimeter landscaping buffers be retained. The regulations also address species mix, encouraging more native trees to be planted to minimize disease and improve survivability. Finally, the regulations promote planting the right tree in the right place to ensure long term survivability.

You can find the Snohomish County Code (SCC) Tree canopy requirements in SCC 30.25.016:

<https://snohomish.county.codes/SCC/30.25.016>

## Measuring New and Existing Canopy

Newly planted canopy calculations are measured estimating what the square footage size will be when it is a 20-year old mature tree ([SCC 30.25.016\(4\)](#)). Snohomish County uses a [Tree Canopy Coverage List](#) of approved landscaping trees to measure the mature canopy area. Developers can also provide a report from qualified a landscape designer for trees not on the Tree Canopy Coverage List. Existing canopy is measured using either an aerial survey or a tree survey done on site.

## Annual Report on Tree Canopy: Five Requirements

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The assessment of the five reporting requirements pursuant to SCC 30.25.014 outlined in the Introduction section of this report, is based on a review of approved residential development activities between January 1, 2021 and December 31, 2021, that are subject to the tree canopy regulations in SCC 30.25.016. Each of the five specific reporting requirements is discussed in the following sections.

## Report Requirement #1:

### Number of Applications Exempt from Requirements

The following activities, which are listed in SCC 30.25.016(1), are exempt from the tree canopy requirements in SCC 30.25.016:

1. 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;
2. 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;
3. Construction or maintenance of public or private road network elements, and public or private utilities including utility easements not related to development subject to chapter 30.23A, 30.34A, 30.41G or 30.42E SCC;
4. Construction or maintenance of public parks and trails when located within an urban residential zone; and
5. Pruning and maintenance of trees.



Photo 3: Trees at Lake Stickney. Photo credit PDS Staff.



Since PDS does not issue a permit for pruning or for the removal of hazardous trees, there is currently no method to accurately track and report these two activities. Collecting data for the three remaining exempted activities is also very challenging because available permit data does not provide a means to track or report on these activities. As a result, no data has been collected for this, or for any past reports. Development of a system to collect, monitor, and assess this information would be a major program effort.

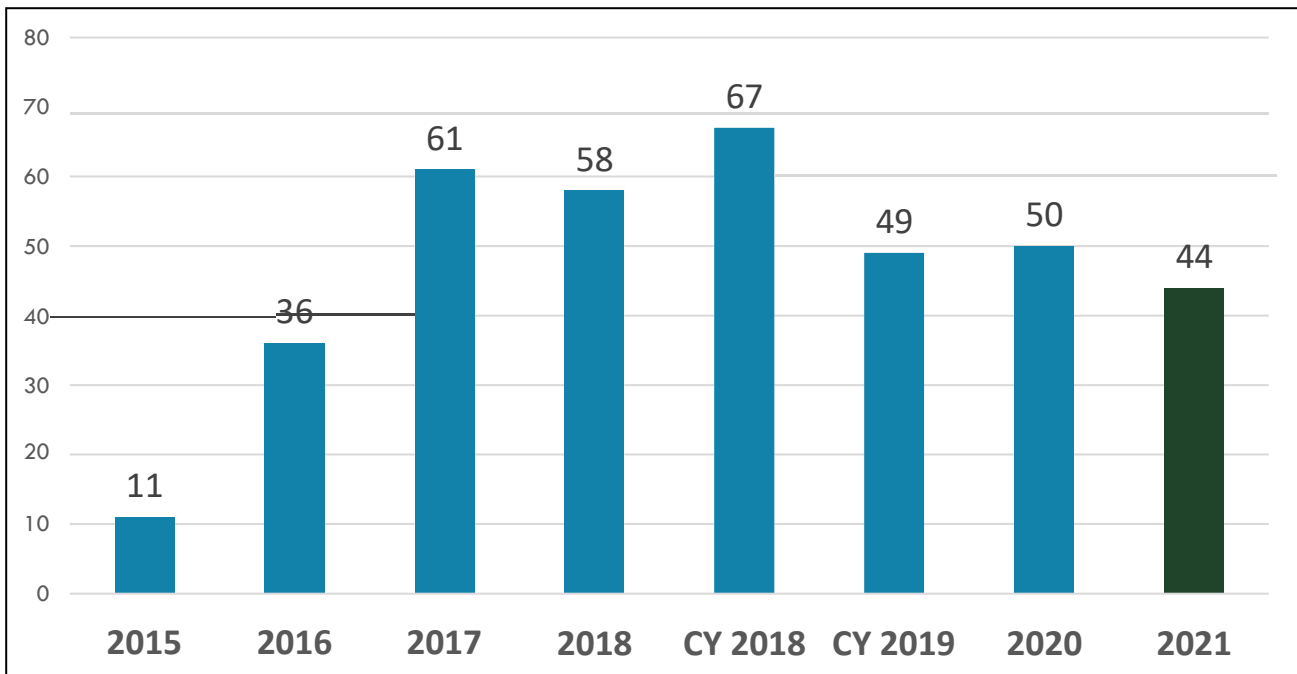
## Report Requirement #2:

### Number and Type of Applications

During this reporting period (January 1, 2021 through December 31, 2021), a total of 44 urban residential development applications subject to the tree canopy regulations were approved. The 2021 report compares the 44 approved development applications with data from previous reports.

Chart 1 shows the overall trends of permit applications that have been subject to tree canopy regulations since 2015. Table 3 summarizes the number and type of applications that are subject to the tree canopy requirements in SCC 30.25.016. It should be noted that some of the townhouse applications also involved land subdivision pursuant to SCC 30.41A.205.

**Chart 1. Total Permit Applications Subject to Tree Canopy Regulations**



**Table 3. Number and Type of Applications**

<b>Application Type</b>	<b>2018 Report (1/17 – 12/17)</b>	<b>CY 2018 Report (1/19- 12/19)</b>	<b>CY 2019 Report (1/19 – 12/19)</b>	<b>2020 Report (1/20- 12/20)</b>	<b>2021 Report (1/21- 12/21)</b>
Subdivision (10+ lots)	10	18	9	10	9
Short Subdivision (4 – 9 lots)	7	14	9	7	3
Short Subdivision (< 4 lots)	2	8	3	11	5
Single Family Detached Units (10+ units)	11	7	10	4	5
Single Family Detached Units (<10 units)	8	6	6	12	8
Cottage Housing (10+ units)	0	0	0	0	0
Cottage Housing (< 10 units)	0	0	0	0	0
Townhouse (10+ units)	12	5	3	3	8
Townhouse (<10 units)	1	3	2	3	2
Multiple Family (10+ units)	2	3	4	0	1
Multiple Family (<10 units)	0	0	0	0	1
Urban Center (residential and mixed use only)	5	3	3	0	2
<b>Total</b>	<b>58</b>	<b>67</b>	<b>49</b>	<b>50</b>	<b>44</b>

### Report Requirement #3:

### Number of Applications Calculating the Retained Existing Tree Canopy

Applicants that propose retaining a portion or all the existing tree canopy on a subject property to meet the minimum tree canopy requirements, have two options for calculating canopy coverage: tree survey method or the aerial estimation method. Under the tree survey method, the average 20-year canopy is calculated for each tree to be retained, whereas, under the aerial estimation method, an applicant can calculate the extent of the canopy by using a recent air photo.

Table 4 shows the number of applications that elected to retain tree canopy, and the specific method used to calculate existing canopy. Applicants that decide not to utilize either of these

methods to preserve trees and rely only on planting new canopy, calculate their 20-year canopy coverage for each new tree planted as previously discussed in this report. The percentage of retained canopy in proposed permits by report year is displayed in Table 5.

**Table 4. Number of Applications by Method**

<b>Tree Canopy Estimation Method</b>	<b>2018 Report (1/17-12/17)</b>	<b>CY 2018 Report (1/18 – 12/18)</b>	<b>CY 2019 Report (1/19 – 12/19)</b>	<b>2020 Report (1/20-12/20)</b>	<b>2021 Report (1/21-12/21)</b>
Tree Survey	6	19	4	7	4
Aerial Estimation	12	11	15	19	11
New Canopy Only	33	37	30	24	29
<b>Total</b>	<b>58</b>	<b>67</b>	<b>49</b>	<b>50</b>	<b>44</b>
<b>Percent of Permits that Retained Canopy Coverage</b>	<b>31%</b>	<b>45%</b>	<b>39%</b>	<b>52%</b>	<b>34%</b>

For this reporting period, four applications utilized the tree survey method while eleven applied the aerial estimation method. The remaining 29 applications used only new canopy to meet their required canopy coverage. The percent of permits that retained tree canopy coverage in order to meet their required canopy coverage decreased in 2021 when compared to 2020's report.

66% of the approved permits proposed exclusively new tree canopy to meet the canopy requirements. In several of these cases, the landscape plans indicated that some existing canopy and some significant trees were retained – often to meet other landscaping and retention requirements. However, this information is not included in the canopy calculations relied upon for this report primarily because the existing canopy coverage information was not consistently provided on these plans.

Overall, there were 15 significant trees that were surveyed and retained in 2021. Due to different reporting methods, not all individual significant trees that were retained (such as in clusters) were fully reported, but the full canopy from each of these reporting methods was retained.

Past reports suggested that aerial estimation was used more often by developers to measure existing canopy because it costs less than identifying individual trees within a tree survey. This suggests that the cost placed on developers of conducting a tree survey or aerial estimation is not adequately compensated by the canopy bonuses available for retaining significant trees. To further assess this trend, it may be useful to survey developers to better understand their reasoning for utilizing or not utilizing a particular incentive.



## Report Requirement #4 and #5:

### Data for Each Application & Number of Adjustments Used

These two reporting requirements require additional detailed information about each of the 44 applications approved during this reporting period. The specific data required for each application is enumerated below and is provided in its original form within Appendix 2 to this report. Table 5 focuses on retained canopy, and Table 6 provides an aggregated overview for all the data requirements listed below.

1. The tree canopy required by Table 30.25.016(3) prior to any adjustments;
2. Any adjustments to the required tree canopy, the specific type of incentive or other adjustment, and the specific code authority for the adjustment;
3. The required tree canopy after all adjustments;
4. The use and effect of applying any other incentives for tree retention;
5. The result of the calculation of existing canopy;
6. The canopy of trees retained;
7. The number of new trees planted; and
8. The result of the calculation of 20-year canopy.

**Table 5. Retained Tree Canopy Data**

<b>Tree Canopy Estimation Method</b>	<b>2018 Report (1/17-12/17)</b>	<b>CY 2018 Report (1/18 – 12/18)</b>	<b>CY 2019 Report (1/19 – 12/19)</b>	<b>2020 Report (1/20-12/20)</b>	<b>2021 Report (1/21-12/21)</b>	<b>Cumulative Retained Canopy</b>
Tree Survey (sq. ft.)	58,519	84,051	35,420	22,418	6,199	206,607
Aerial Estimation (sq. ft.)	259,713	253,004	475,231	1,041,803	370,662	2,400,413
Total Retained Canopy (sq. ft.)	318,232	337,055	510,651	1,064,221	376,861	2,607,020
<b>Percent of Canopy Coverage Retained</b>	<b>14.1%</b>	<b>19.9%</b>	<b>28.1%</b>	<b>51.8%</b>	<b>32.8%</b>	<b>29.1%</b>

**Table 6. Aggregate Data for Approved Applications**

Reporting Requirement		2018 Report (12/16 – 12/17)	CY 2018 Report (1/18– 12/18)	CY 2019 Report (1/19 – 12/19)	2020 Report (1/20- 12/20)	2021 Report (1/21- 12/21)	Total (12/16 – 12/21)
Number of applications		58	67	49	50	44	268
Tree canopy required by code (sq. ft.)		1,721,248	1,464,513	1,455,244	1,933,354	1,126,694	7,701,053
Existing Canopy Retained	<i>Tree Survey (sq. ft.)</i>	58,519	84,051	35,420	22,418	6,199	206,607
	<i>Aerial Estimation (sq. ft.)</i>	259,713	253,004	475,231	1,041,803	370,662	2,400,413
New Canopy		1,929,284	1,409,735	1,308,286	984,551	770,738	6,348,594
Total number of trees planted		5,417	4,297	3,989	2,844	3,306	19,853
Cumulative 20-year tree canopy calculation (sq. ft.)		2,247,516	1,686,790	1,818,937	2,054,772	1,147,599	8,955,614



Photo 4: Residential Trees near 164<sup>th</sup> Street. Photo credit PDS Staff.

# Tree Type Diversity

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In past monitoring reports, there was a recommendation to track tree type diversity from the already provided planting information on the landscape plans. Incorporating this data into the report provides an improved picture of the new canopy diversity. You can find the full species diversity list in Appendix 2 of this report. There were 69 total tree species utilized in approved landscape plans in 2021. Table 7 below shows the most popular tree species planted out of the total 3,306 trees planted in urban residential permits in 2021. These eight tree species represent 55% of all the trees that were planted in 2021.

For additional information about each tree listed here and in Appendix 2, please visit <https://snohomishcountywa.gov/2737/Tree-Canopy-in-Landscaping> and click the “Tree Canopy Database PDF”. Information about the species, growth type, drought tolerance, estimated 20-year canopy square footage, and more are included in this document.



**Table 7. Most Planted Tree Species within Approved Applications**

<b>Tree Species – Common Name</b>	<b>Tree Species – Scientific Name</b>	<b>Native Species</b>	<b>Evergreen (E) or Deciduous (D)</b>	<b>Trees Planted</b>
<b>Douglas Fir</b>	<i>Pseudotsuga menziesii</i>	Yes	E	<b>301</b>
<b>Vine Maple</b>	<i>Acer circinatum</i>	Yes	D	<b>299</b>
<b>Western Red Cedar</b>	<i>Thuja plicata</i>	No	E	<b>296</b>
<b>Pacific Madrone</b>	<i>Arbutus menziesii</i>	Yes	E	<b>240</b>
<b>Warrenred Pacific Sunset Maple</b>	<i>Acer truncatum</i> x <i>A. platanoides</i> 'Warrenred'	No	D	<b>238</b>
<b>Columnar American Arborvitae</b>	<i>Thuja occidentalis</i> 'Fastigiata'	No	E	<b>208</b>
<b>Incense Cedar</b>	<i>Calocedrus decurrens</i>	No	E	<b>130</b>
<b>Excelsa Western Red Cedar</b>	<i>Thuja plicata</i> 'Excelsa'	No	E	<b>115</b>

## Summary of 2021 Data

Every proposed landscape plan that was approved in 2021 met or exceeded the minimum 20-year tree canopy coverage required in SCC 30.25.016(3). 7 out of the 44 landscape plans (16%) had at least five percentage points more canopy than necessary to meet their minimum requirements, compared to 2020 which had 13 out of 50 landscape plans (26%) that had at least five percentage points more than required.

A total of 3,306 new trees were proposed to be planted to meet the specific tree canopy requirements of SCC 30.25.016. More than 3,306 trees were planted in 2021, but not included in this report because they were not necessary to meet the minimum tree canopy requirements. The additional trees were planted to meet other landscaping requirements, such as parking lot landscaping and street trees. In many applications, those trees are not always included in the canopy calculations (although they could be eligible if located on the subject property) because of the species mix requirements applicable to new canopy coverage trees. For this reason, the actual tree canopy provided by urban residential development is often under-reported by the canopy calculations provided by the applicants and compiled into this report. Similarly, the actual retention of tree canopy and existing significant trees is likely under-reported and is often greater than is indicated by the canopy calculations. Since retention is required within perimeter landscaping and critical areas, there is often no tree survey performed in those areas where no land disturbance is planned.

For this reporting period, a total of three applications utilized canopy bonuses (adjustments to canopy requirements) available for significant tree retention in SCC 30.25.016(5)(a). 15 significant trees were retained and given a 125% bonus to their existing canopy coverage. This bonus added 449 sq/ft cumulative in these three applications.

As in last year's report, none of the projects sought a reduction in their canopy requirements as allowed for certain situations by subsections 30.25.016(8) and (9). The only bonus used in 2021 was for individual significant trees under 30.25.016(5)(a), which counts individual significant trees retained on site to be counted as 125% of their actual canopy area. This could suggest that the tree canopy requirements are not overly burdensome to applicants or that the incentives to retain significant trees are not high enough. In the future, the county may consider reviewing why the reductions have not been utilized as frequently, and whether or not they should be revised.

Overall, two projects met their canopy requirements exclusively through retention of existing canopy, compared to six from 2020, and one from CY 2019. 29 projects met their requirements entirely through planting of new trees. The remaining 15 projects used a combination of canopy retention and new trees to meet the canopy requirements. This diversity of approach suggests that the regulations are flexible enough to accommodate different site conditions within the urban growth areas. It also indicates that the regulations are producing both canopy retention and new canopy creation within urban residential areas to help mitigate the inevitable loss of tree canopy from development on previously undeveloped urban sites.

Because pre-development tree canopy calculations are not required, except for projects and site areas where retention is used to meet the canopy requirements, it is not possible to measure the overall net change in the urban tree canopy using only the data available for these monitoring reports. Even if such canopy measurements were made, other factors, such as changes to landscaping after development approval despite requirements in code to retain proposed landscaping, would hamper efforts to accurately monitor changes in the overall canopy.

As mentioned above, even at the project level the canopy calculations do not accurately reflect new canopy because they frequently exclude trees used to meet other landscaping requirements where species mix is not also required. The best tool for overall canopy monitoring remains the satellite imagery available that is discussed in 'Tree Canopy Coverage Analysis Background' found earlier in the report.

## Recommendations for 2020 and Beyond

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PDS staff intends to continue to refine administrative processes in an effort to make the documentation and review steps associated with the canopy regulations streamlined for both the customer and PDS staff. Staff has also explored ways to better utilize its permit tracking system (AMANDA) to complete the data collection and compilation processes required to complete this annual report. There is an opportunity for PDS staff to continue improvements to promote efficiency in the collection of tree canopy calculations and the preparation of the annual report.

The following recommendations represent efforts that could streamline the administrative process, improve the quality of the data collected, and further expand flexibility for applicants.

- 1.** Update USGS and NOAA data for canopy coverage. The Amended Ordinance No. 14-073 identified that the urban areas of unincorporated Snohomish County had 30% tree canopy coverage, and that the intent of the Tree Canopy requirements was to maintain this percentage. Currently, Snohomish County Code does not require further GIS analysis of the most recent USGS Best Available Land Cover Data or improved dataset. Through updating to the most recent data, the county would benefit from better understanding how effective the current policies are at complying with their original intent, and provide better data for future reports to use for analysis.
- 2.** Update the Native Tree Species List. PDS is currently in the process of updating the Native Tree Species List for the county. Officially updating this list that is provided to developers would help to broaden the available tree species to include in the landscape plan, and more accurately represent the predicted 20-year canopy coverage.

# APPENDIX 1

**Table 8: Detailed Information by Application for Approvals from January 1, 2021 through December 31, 2021.**

#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
1	148th St Townhomes	Townhouse (10 or more units)	20%	22,626	113,131	0	0%	-	78	22819	20.2%
2	164th Street Apartments	Urban Center	15%	32,020	213,466	0	0%	-	174	34915	16.4%
3	2109 Larch Way SP	Short Subdivision (less than 4 lots)	20%	5,592	27,961	0	0%	-	18	5806	20.8%
4	A.B.G.B. Short Plat	Short Subdivision (less than 4 lots)	20%	5,581	27,907	0	4%	1,050	11	5610	20.1%
5	Abernathy SFDU	Single Family Detached Units (less than 10 units)	15%	1,527	10,180	163.5	8%	817	4	1558.49	15.3%
6	Amelia Park PRD	Subdivision (10 or more lots)	30%	26,676	88,920	0	0%	-	73	26768	30.1%
7	Antlia ULS	Townhouse (10 or more units)	20%	14,544	72,721	0	0%	-	77	14617	20.1%



#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
8	AVO	Single Family Detached Units (10 or more units)	20%	4,945	24,725	0	0%	-	27	5015	20.3%
9	Babarovich Townhomes	Townhouse (less than 10 units)	15%	14,614	97,429	0	63%	61,773	20	64083	65.8%
10	Bellflower Road SP	Short Subdivision (4 - 9 lots)	25%	21,553	86,211	0	4%	3,690	48	21751	25.2%
11	Braes Park ULS PSD	Subdivision (10 or more lots)	20%	19,807	99,035	0	0%	-	94	31000	31.3%
12	C More Healthcare	Multiple Family (10 or more units)	20%	7,729	38,644	0	4%	1,530	34	8289.81	21.5%
13	Calcutta Lane SFDU	Single Family Detached Units (less than 10 units)	15%	6,068	40,455	0	0%	-	26	6098	15.1%
14	Camberfield SFDU	Single Family Detached Units (10 or more units)	20%	53,950	269,748	0	27%	73,080	0	73080	27.1%
15	Carsen SFDU	Single Family Detached Units (less than 10 units)	15%	6,077	40,516	0	0%	-	24	6120	15.1%

#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
16	Cedar Grove Est SFDU	Single Family Detached Units (10 or more units)	20%	13,945	69,727	0	0%	-	46	15092	21.6%
17	Echelbarger LDMR	Single Family Detached Units (less than 10 units)	15%	2,114	14,092	0	0%	-	10	2880	20.4%
18	Edgewood Estates PRD fka Russells Assemblage	Subdivision (10 or more lots)	30%	32,591	108,637	117	3%	3,144	78	32632	30.0%
19	Edmonds 222nd SFDU	Single Family Detached Units (less than 10 units)	15%	4,548	30,323	0	0%	-	15	4932	16.3%
	Elmbrook Prelim Plat and PRD - Combined			<b>184,904</b>	646,151	0	0%	-	676	69322	10.7%
20	Elmbrook Prelim Plat and PRD – Townhouse	Townhouse (10 or more units)	30%		556,774	0				167,023	
21	Elmbrook Prelim Plat and PRD - Subdivision	Short Subdivision (4 - 9 lots)	20%		89,407	0				17,881	

#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
22	Epsilon ULS	Townhouse (10 or more units)	20%	15,037	75,185	0	20%	15,239	66	29620	39.4%
23	Gibson Road Estates SFDU	Single Family Detached Units (less than 10 units)	15%	1,503	10019	0	0%	-	14	3608	36.0%
24	Grannis Crossing SFDU	Single Family Detached Units (10 or more units)	20%	30,526	152631	0	0%	-	119	30615	20.1%
25	Harbour Cove SFDU	Single Family Detached Units (10 or more units)	20%	16,376	81878	0	0%	-	53	16377	20.0%
26	Highland Park Townhomes	Townhouse (10 or more units)	20%	27,756	138778	0	0%	-	82	29373	21.2%
27	Ironwood PRD	Subdivision (10 or more lots)	30%	209,020	696734	0	15%	105,152	373	209049	30.0%
28	Lake Serene Estates SFDU	Single Family Detached Units (less than 10 units)	15%	4,598	30650	0	0%	-	23	5286	17.2%
29	Legacy at Canyon Creek Plat	Subdivision (10 or more lots)	30%	59,204	197346	0	3%	3,278	303	56532	28.6%

#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
30	Legacy at Canyon Creek Short Plat	Short Subdivision (4 - 9 lots)	25%	6,886	27543	0	0%	-	49	6921	25.1%
31	Malone SP	Short Subdivision (less than 4 lots)	20%	5,622	28111	0	0%	4,280	7	5904	21.0%
32	Meadowdale Townhomes	Townhouse (10 or more units)	20%	10,029	50145	0	0%	-	60	10033	20.0%
33	Miners Cove PRD	Subdivision (10 or more lots)	30%	38,706	129021	0	0%	-	115	38792	30.1%
34	Nichols Place	Subdivision (10 or more lots)	30%	68,168	227225	0	42%	95,114	0	95114	41.9%
35	North Creek Assisted Living, LLC	Urban Center	15%	12,880	85867	0	0%	-	77	13672	15.9%
36	Phippen SP	Short Subdivision (less than 4 lots)	20%	8,922	44610	0	5%	2,343	29	8943	20.0%
37	Popach SP	Short Subdivision (less than 4 lots)	20%	5,260	26298	0	20%	5,183	1	5358	20.4%
38	Poplar Pointe ULS	Townhouse (10 or more units)	20%	6,243	31217	0	0%	-	34	6487	20.8%



#	Application	Development Type	Tree Canopy Percent Required	Required Tree Canopy Area After Adjustment (sq. ft.)	Gross Site Area (sq. ft.)	Bonus Canopy from Incentives (sq. ft. of bonus canopy)	Existing Canopy to be Retained (% of site area)	Canopy of trees retained (including bonuses) (sq. ft.)	Number of New Trees Planted	20 Year Canopy Area Proposed (New & Retained)	Total Tree Canopy Percent Proposed
39	Santa Clara PRD	Subdivision (10 or more lots)	30%	80,612	268706	0	0%	-	207	80710	30.0%
40	Serene Village Apartments Expansion	Multiple Family (less than 10 units)	15%	4,574	30494	168	4%	1,188	28	8669	28.4%
41	Shelby Lane SFDU	Single Family Detached Units (less than 10 units)	15%	6,546	43642	0	0%	-	31	6750	15.5%
42	Spruce Court	Short Subdivision (4 - 9 lots)	25%	10,880	43520	0	0%	-	38	10993	25.3%
43	Stetner Development 88	Townhouse (less than 10 units)	15%	2,793	18622	0	0%	-	18	3028	16.3%
44	Union Point ULS	Townhouse (10 or more units)	20%	13,141	65707	0	0%	-	46	13377	20.4%

\*Please note that the Elmbrook Prelim Plat proposed both townhouses and single-family residential units for the permit. The combined number represents the number totals that were included on the permit, accounting for the two different tree canopy requirements.

## APPENDIX 2

**Table 9: Tree Types Planted from January 1, 2021 through December 31, 2021.**

<b>Tree Species – Common Name</b>	<b>Tree Species – Scientific Name</b>	<b>Native Species</b>	<b>Trees Planted</b>
Alaska Yellow Cedar	<i>Chamaecyparis nootkatenis</i>	Yes	60
American Hornbeam	<i>Carpinus caroliniana</i>	No	16
American Sweet Gum	<i>Liquidambar styraciflua</i>	No	12
Autumn Applause Ash	<i>Fraxinus americana</i>	No	31
Autumn Gold Maidenhair Tree	<i>Gingko bilboa 'Autumn Gold' tm</i>	No	7
Bigleaf Maple	<i>Acer macrophyllum</i>	Yes	18
Bloodgood Londong Plane Tree	<i>Platanus acerifolia 'Bloodgood'</i>	No	3
Bowhall Maple	<i>Acer rubrum 'Bowhall'</i>	No	60
Columnar American Arborvitae	<i>Thuja occidentalis 'Fastigiata'</i>	No	208
Columnar Sargent Cherry	<i>Prunus sargentii 'Columnarus'</i>	No	6
Douglas Fir	<i>Pseudotsuga menziesii</i>	Yes	301
Edith Bougue Southern Magnolia	<i>Magnolia Grandiflora 'Edith Bougue'</i>	No	70
European Beech	<i>Fagus Sylvatica 'Dawyk Purple'</i>	No	2
European Plum	<i>Prunus domestica</i>	No	2
Excelsa Western Red Cedar	<i>Thuja plicata 'Excelsa'</i>	No	115
Flowering Peach	<i>Prunus persica</i>	No	2
Giant Green Arborvitae	<i>Thuja plicata 'Green Giant'</i>	No	37
Grand Fir	<i>Abies Grandis</i>	Yes	30
Greenspire Linden	<i>Tillia cordata 'Greenspire'</i>	No	21
Hedge Maple	<i>Acer campestre</i>	No	7
Incense Cedar	<i>Calocedrus decurrens</i>	No	130
Japanese Snowbell	<i>Styrax Japonicus 'Emerald Pagoda'</i>	No	1
Jonagold Apple	<i>Malus x domestica 'Jona Gold'</i>	No	2

<b>Juniperus scopulorum</b>	Juniperus scopulorum	No	7
<b>Katsura Japanese Maple</b>	Acer palmatum 'Katsura'	No	4
<b>Katsura Tree</b>	Cercidiphyllum japonicum	No	43
<b>Kousa Dogwood</b>	Cornus kousa	No	20
<b>Kwanzan Cherry</b>	Prunus serrulata 'Kwanzan'	No	4
<b>Leyland Cyprus</b>	Cupressocyparis leylandii	No	13
<b>Mountain Hemlock</b>	Tsuga mertensiana	Yes	16
<b>Noble Fir</b>	Abies procera	Yes	2
<b>Oregon Ash</b>	Fraxinus latifolia	Yes	56
<b>Osakazuki Japanese Maple</b>	Acer palmatum 'Osakazuki'	No	1
<b>Pacific Madrone</b>	Arbutus menziesii	Yes	240
<b>Pacific Wax Murtle</b>	Myrica Californica	No	102
<b>Paper Birch</b>	Betula papyrifera	No	23
<b>Paperbark Maple</b>	Acer griseum	No	75
<b>Pear tree</b>	Pyrus calleryana	No	46
<b>Persian ironwood</b>	Parrotia persica (NOT in database)	No	2
<b>Princeton Sentry</b>	Ginkgo bilboa 'Princeton Sentry'	No	4
<b>Pyramidal European Hornbeam</b>	Carpinus betulus 'Fastigiata'	No	36
<b>Quaking Aspen</b>	Populus Tremuloides	Yes	4
<b>Rainier Cherry</b>	Prunus avium 'Rainier'	No	2
<b>Raywood Ash</b>	Fraxinus oxycarpa 'Raywood'	No	23
<b>Red maple</b>	Acer rubrum	No	9
<b>Redspire Callery Pear</b>	Pyrus calleryana 'Redspire'	No	109
<b>Saskatoon Serviceberry</b>	Amelanchier Alnfolia	Yes	34
<b>Scarlet Oak</b>	Quercus coccinea	No	88
<b>Shademaster Honeylocuse</b>	Gleditsia triacanthos 'Shademaster'	No	60
<b>Shore Pine</b>	Pinus contorta	Yes	69
<b>Silver Fir</b>	Abies amabilis	Yes	6
<b>Sitka Spruce</b>	Picea sitchensis	Yes	7
<b>Slender Hinoki Cypress</b>	Chamaecyparis obtusa 'Gracillis'	No	40
<b>Sour Gum</b>	Nyssa Sylvatica	No	4
<b>Spire Cherry</b>	Prunus x hillieri 'Spire'	No	3

<b>Stellar Pink Dogwood</b>	Cornus x 'Rutgan'	No	1
<b>Subalpine Fir</b>	Abies lasiocarpa	Yes	15
<b>Sugar Maple</b>	Acer saccharum	No	3
<b>Tulip Tree</b>	Liriodendron Tulupera	No	11
<b>Vanderwolf's Pine</b>	Pinus flexillis 'Vanderwolf's Pyramid'	No	3
<b>Vine Maple</b>	Acer circinatum	Yes	299
<b>Warrenred Pacific Sunset Maple</b>	Acer truncatum x A. platanoides 'Warrenred'	No	238
<b>Washington Hawthorne</b>	Crataegus phaenopyrum	No	62
<b>Western Flowering Dogwood</b>	Cornus nuttalii	Yes	20
<b>Western Hemlock</b>	Tsuga heterophylla	Yes	25
<b>Western Larch</b>	Larix occidentalis	Yes	14
<b>Western Red Cedar</b>	Thuja plicata	No	296
<b>Whitebarked Himalayan Birch</b>	Betula utilis jacquemontii	No	2
<b>Zelkova 'Village Green'</b>	Zelkova serrata 'Village Green'	No	24
<b>Total Trees Planted</b>			<b>2312</b>

\*For additional information about each tree listed here, please visit <https://snohomishcountywa.gov/2737/Tree-Canopy-in-Landscaping> and click the "Tree Canopy Database PDF". Information about the species, growth type, drought tolerance, estimated 20-year canopy square footage, and more are included in this document.