

# CITY OF REDMOND TREE INVENTORY REPORT

## Puget Sound Energy – Energize Eastside Project

Prepared for:

Jens Nedrud  
Puget Sound Energy  
355 10<sup>th</sup> Avenue NE  
Mail Stop: EST03W48  
Bellevue, WA 98004

Prepared by:



750 Sixth Street South  
Kirkland . WA 98033

p 425.822.5242  
f 425.827.8136  
[watershedco.com](http://watershedco.com)

May 2016

**The Watershed Company Reference Number:**  
**111103.2**

**The Watershed Company Contact Person:**  
Jennifer Creveling, Senior Biologist  
or Mike Foster, Ecologist & Arborist

**Cite this document as:**  
The Watershed Company. May 2016. City of Redmond  
Tree Inventory Report: Puget Sound Energy – Energize  
Eastside Project. Prepared for PSE.

# TABLE OF CONTENTS

---

	Page #
<b>1 Executive Summary.....</b>	<b>5</b>
<b>2 Introduction.....</b>	<b>6</b>
2.1 Background.....	6
2.2 Study Area .....	6
<b>3 Site Description .....</b>	<b>9</b>
<b>4 Photos.....</b>	<b>10</b>
<b>5 Methods .....</b>	<b>12</b>
5.1 Significant Trees .....	12
5.2 Non-Significant Trees and Shrubs.....	12
5.2.1 Landscaped trees and landscaped tall shrubs .....	12
5.2.2 Weedy non-significant trees and tall shrubs; DBH between 3 and 6 inches 13	13
5.2.3 Weedy non-significant trees and tall shrubs; DBH less than 3 inches.....	13
5.2.4 Hedges.....	13
5.3 Authority.....	13
5.4 Vegetation Mapping .....	14
5.5 Attribute data collection.....	14
5.6 Data Management.....	15
5.6.1 Data Summary.....	15
<b>6 Limitations of Study .....</b>	<b>17</b>
<b>7 Tree Inventory Results .....</b>	<b>18</b>
<b>8 References .....</b>	<b>20</b>

# LIST OF FIGURES

---

Figure 1 - Map of proposed Oak and Willow routes from the Energize Eastside website. The Oak route is depicted in green while the Willow route variation is shown in orange.....7

Figure 2 - Overview of the study area corridor in the City of Redmond including Segment A and the northern portion of Segment C. ....8

Figure 3 - Vegetation in Segment A with the Sammamish substation in the background. Some small willow saplings are rooted in the project area. (photo taken March 10, 2015)..... 10

Figure 4 - Red alders in the ravine north of Redmond Way in Segment C. These trees are located beneath existing lines in the subject area (photo taken March 10, 2015)..... 10

Figure 5 - An APS-tagged significant tree in the Grass Lawn neighborhood of Redmond. (photo taken August 19, 2015) ..... 11

Figure 6 - A Google Streetview image of a cherry laurel hedge (polygon p292) in the PSE easement. This photo is looking northeast from NE 75th Street in Segment C. (Google, 2016) ..... 11

# LIST OF TABLES

---

Table 1. Attributes recorded for all inventoried vegetation and that are presented in the spreadsheet database..... 16

Table 2. Number of tagged and significant trees located on designated PSE segments in the City of Redmond. .... 18

## Acronyms and Abbreviations

APS	APS Survey & Mapping, LLC
DBH	Diameter at 4.5 feet above the surface of the ground
ISA	International Society of Arboriculture
PSE	Puget Sound Energy
RMC	Redmond Municipal Code
ROE	Right of entry
ROW	Right-of-way
RZC	Redmond Zoning Code
WSDOT	Washington State Department of Transportation
TWC	The Watershed Company



# CITY OF REDMOND TREE INVENTORY REPORT

---

## PUGET SOUND ENERGY – ENERGIZE EASTSIDE

### 1 EXECUTIVE SUMMARY

---

The Watershed Company conducted a field-based tree inventory from March 23, 2015 to November 9, 2015, collecting data on a total of 6,166 trees and 357 groupings of small trees along the 18-mile-long Willow and Oak routes. This inventory provides baseline information and does not represent the number of trees that could be pruned or removed as a result of the Energize Eastside project.

This is the City of Redmond report, summarizing the findings for Segment A and a portion of Segment C within the City limits. A total of 787 trees were tagged and assessed within Redmond. Of those trees, 634 meet the City's definition of "significant". A total of 19 trees (all in Segment C) have a trunk diameter greater than 30 inches, meeting the City definition of "landmark". A total of 28 groupings of small or weedy trees and landscaped hedges were assessed and mapped as polygons in Redmond.

The study area covered by the tree inventory is an approximately 100-foot wide easement in Segments A and C with overhead transmission lines and pole structures. Segments A and C comprise a portion of the Phase 2 DEIS Segment 1.

All vegetation with a potential to reach a height of 15 feet or more was evaluated under this study. Any landscaped tree or shrub meeting this criteria, regardless of trunk diameter or height, was marked with a small, numbered aluminum tag with either a nail or wire tie. Thickets of small, non-significant weedy trees were grouped in a polygon and assessed as a unit. Hedges were mapped and assessed using the polygon method as well.

All subject areas were assessed in the City of Redmond. No parcels were skipped as was the case in other jurisdictions along the route. More detailed parcel data (including records of refusal) were collected and tracked by Enviro Issues and PSE during the field work.

## 2 INTRODUCTION

---

The purpose of this tree inventory is to quantify and characterize all significant trees, as well as vegetation with the potential to reach greater than 15 feet in height along the 18-mile-long subject corridor consisting of the routes known as “Willow” and “Oak”. This inventory provides baseline information and does not represent the number of trees that could be pruned or removed as a result of the Energize Eastside project. These routes have been identified by Puget Sound Energy (PSE) as part of the Energize Eastside project. This report summarizes the findings for the City of Redmond portion of the Willow and Oak routes. The overall project crosses through a total of five local jurisdictions, including King County and the Cities of Bellevue, Redmond, Newcastle, and Renton. Trees inventoried in other jurisdictions as part of this study are summarized in separate reports. Data collected during the study is compiled in an Excel spreadsheet.

### 2.1 Background

The Energize Eastside project proposes to build a new electric substation and higher capacity transmission lines to serve homes and businesses on the Eastside. Current route options include Oak and Willow routes that will extend from the Sammamish substation in Redmond to the Talbot substation in Renton (Figure 1). The two routes diverge only through a portion of the City of Bellevue. Each route option includes a set of Segments, as follows: The Oak route comprises Segments A, C, E, G2, I, K2, M, and N. The Willow route comprises Segments A, C, E, J, M, and N.

### 2.2 Study Area

The City of Redmond portion includes PSE-labeled Segments A and the north end of Segment C (portions of Phase 2 DEIS Segment 1). The length of the corridor in the City of Redmond is approximately 2.1 miles, beginning at the Sammamish substation and running west and south to approximately NE 60th Street (Figure 2). The study area is an approximately 100-foot wide easement that includes two existing sets of 115kV transmission lines. These sets, consisting of three conductors (wires) each, are spaced approximately 50 feet apart on-center in most areas; H-frame pole structures carry each set of transmission lines. The sets diverge such that they are more than 50 feet apart in Segment A near the Sammamish substation.

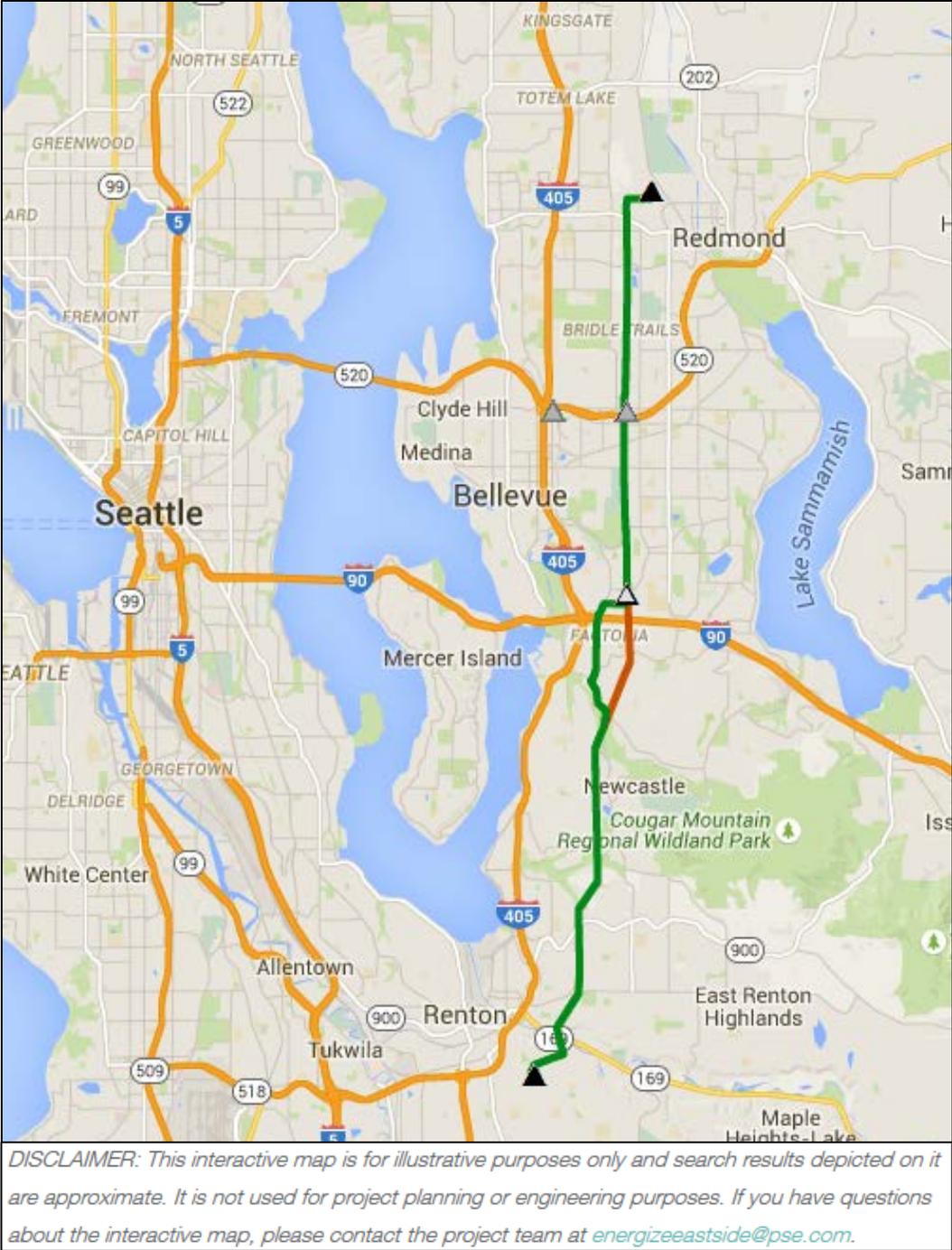


Figure 1 - Map of proposed Oak and Willow routes from the Energize Eastside website. The Oak route is depicted in green while the Willow route variation is shown in orange.

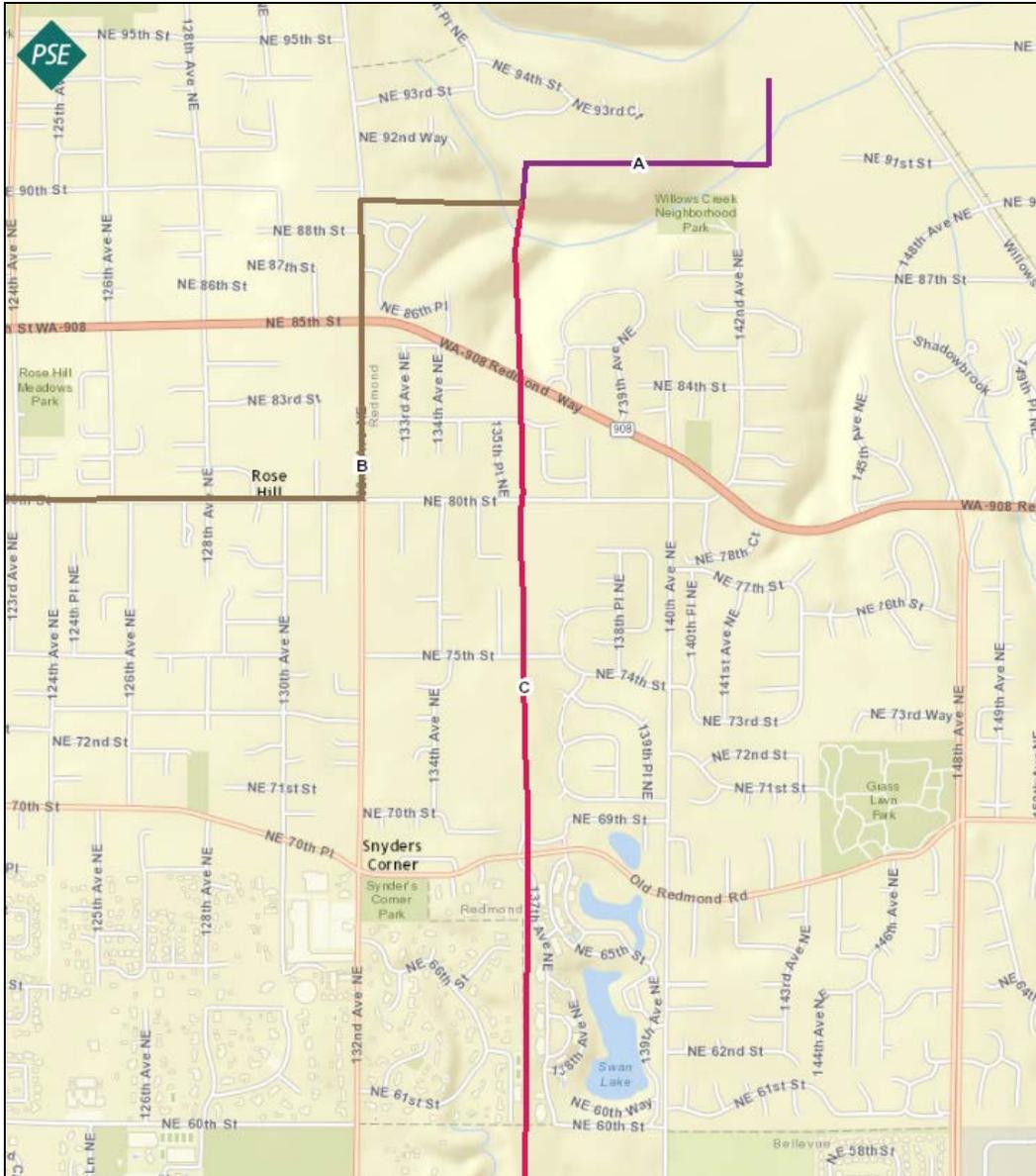


Figure 2 - Overview of the study area corridor in the City of Redmond including Segment A and the northern portion of Segment C.

### 3 SITE DESCRIPTION

---

The study area is located in the Willows/Rose Hill and Grasslawn residential neighborhoods on the west side of the City of Redmond, zoned Single-Family Urban (R-4, R-5, and R-6) and Multi-family Urban (R-12). It is located in Township 25N, Range 05E, and Sections 3 and 10.

North of Redmond Way, the corridor runs through parcels owned by PSE and the City of Redmond. This undeveloped area contains other transmission lines that originate from the Sammamish substation. Much of the area is characterized by dense thickets of Himalayan blackberry, Scot's broom, and small willow and red alder saplings. The powerline easement also crosses over two pronounced ravines that contain streams and wetlands and some tall trees. Some 60- to 80-foot tall red alder trees are growing at the bottom of the ravines where the additional height of the powerlines above the ground has precluded vegetation height maintenance. The easement here is adjacent to undeveloped forested areas and some residential tracts. Common vegetation includes western red cedar, red alder, vine maple, salmonberry, Himalayan blackberry, and reed canarygrass. In addition, a City of Redmond restoration area is located on a PSE parcel in the subject powerline corridor just north of Redmond Way.

The project area south of Redmond Way runs through private single family lots, PSE parcels near the Rose Hill substation, Rose Hill Middle School, and the Sixty 01 Village Condominium Complex. Vegetation is generally limited to landscaped areas and maintained yards with a small area near the Rose Hill substation that contains weedy patches of Himalayan blackberry and some tree saplings.

## 4 PHOTOS

---



Figure 3 - Vegetation in Segment A with the Sammamish substation in the background. Some small willow saplings are rooted in the project area. (photo taken March 10, 2015)



Figure 4 - Red alders in the ravine north of Redmond Way in Segment C. These trees are located beneath existing lines in the subject area (photo taken March 10, 2015)



Figure 5 - An APS-tagged significant tree in the Grass Lawn neighborhood of Redmond.  
(photo taken August 19, 2015)



Figure 6 - A Google Streetview image of a cherry laurel hedge (polygon p292) in the PSE easement. This photo is looking northeast from NE 75th Street in Segment C. (Google, 2016)

## 5 METHODS

---

Watershed Company ISA-certified arborists conducted a field-based inventory from March 23, 2015, to November 9, 2015 using the methods detailed below. Proposed methodology was developed, written and submitted to PSE in a Technical Memorandum dated March 13, 2015 for review and approved prior to field work. The methodology was developed to comprehensively identify, describe (by collecting attribute data), and mark (i.e., flagging to assist survey in locating subject trees), all vegetation greater than 15 feet tall, or that had the potential to reach a mature height of 15 feet or taller. The following methodology is based on the memorandum. Any deviation due to specific conditions encountered during field work is noted and described below.

### 5.1 Significant Trees

In the City of Redmond, significant trees are defined as any healthy tree six inches in DBH, or any tree four inches in DBH that, after considering its age, height, value, or function, the tree or tree stand is determined to be significant (RZC 21.78).

Any tree with a diameter of six inches at four-and-a-half feet above the surface of the ground (DBH) was tagged and inventoried. A round one-and-one-quarter-inch-wide, numbered aluminum tag was affixed to the trunk of significant trees using a two-and-one-quarter-inch long aluminum nail. Where property owners would not allow nailing, a small wire tie was used to affix the tag to a lateral branch or smaller shoot near the trunk. For a majority of the tags, a length of pink- and black-stripped flagging was included behind the tag to aid survey crews in visually locating the subject trees. Survey crews removed the bright flagging once the tree was survey-located.

Aluminum tags are intended to remain on the tree in perpetuity; however, they will eventually be consumed by the expanding radius of the tree trunk. Some tags may have been removed by property owners after the inventory work was completed.

### 5.2 Non-Significant Trees and Shrubs

Small, non-significant trees and shrubs with a potential maximum height of 15 feet or more (regardless of height during the study) were assessed and mapped according to the following methods:

#### 5.2.1 Landscaped trees and landscaped tall shrubs

Any landscaped or maintained tree or shrub with a potential maximum height of over 15 feet in a landscaped bed or maintained yard, regardless of trunk

diameter or height at the time of the field work, was inventoried. A numbered aluminum tag was affixed to the trunk with a nail where possible. If the trunk diameter was smaller than two inches, generally the aluminum tag was affixed to the trunk or a branch near the trunk using a wire tie.

### **5.2.2 Weedy non-significant trees and tall shrubs; DBH between 3 and 6 inches**

In residential areas, any weedy, non-significant tree or shrub exhibiting a trunk diameter of between three and six inches, with a potential maximum height of over 15 feet, was tagged similar to Section 5.2.1.

The trees and shrubs meeting this criteria north of Redmond Way (Segment A and the north portion of Segment C) were not tagged. Instead, they were assessed and mapped as a grouping of vegetation per Section 5.2.3, below.

### **5.2.3 Weedy non-significant trees and tall shrubs; DBH less than 3 inches**

Groups of weedy, non-significant trees and tall shrubs (i.e., from seed [not-planted] and not maintained) composed of species with a potential maximum height of greater than 15 feet, but with stem diameters smaller than three inches, were mapped and recorded as a polygon instead of as several individual points (Figure 3). Attribute data was averaged and recorded for the group of vegetation. These polygons were not survey-located. No significant trees were inventoried using this method. Attribute data was collected for each polygon per Section 5.5 below and is included in the data table.

### **5.2.4 Hedges**

Landscaped hedges were also described and mapped using polygons instead of tagging the individual plants that make up the hedge (Figure 6). Groupings of trees and shrubs with a potential maximum height of greater than 15 feet growing in a row with contiguous and trimmed foliage, regardless of the maintained height, were assessed as a polygon. Attribute data was collected for each polygon per Section 5.5 below and is included in the data table.

## **5.3 Authority**

Online resources were referenced to determine the maximum potential height of the various species of tree and shrub encountered in the subject area. For landscape trees and shrubs (plants not native to Washington State), the Oregon State University Department of Horticulture online landscape plant database (Oregon State University, 2016) was referenced. Native trees and shrub maximum heights were verified using the University of Washington WTU herbarium website (University of Washington, 2016) and the USDA plant database (United States Department of Agriculture, 2016). These resources were used for verifying both the scientific and common names for the spreadsheet reporting.

## 5.4 Vegetation Mapping

APS Survey and Mapping, LLC (APS) survey-located all TWC-tagged vegetation except for a subset of non-significant trees in the Grass Lawn neighborhood in Segment C (see below). The Watershed Company provided hand-drawn sketches of the tag locations to APS survey crews after one to two field days to assist in subject tree location. Generally, APS survey-located tagged vegetation within three days following the TWC inventory.

Polygons maps for vegetation described in Sections 5.2.3 and 5.2.4 were hand-drafted on aerial imagery in the field. The sketched polygon locations were converted into AutoCAD in the office by The Watershed Company.

### *Grass Lawn Neighborhood - Sketched Tree Points*

A small subset of TWC-tagged trees points shown in the survey data were not surveyed, but rather sketched in the field. In a 2.70-mile-long portion of Segment C through Redmond and Bellevue, TWC inventoried trees in August and September of 2015, several months after the APS survey crew collected data. APS, per their scope of work, had tagged and survey-located only trees with six-inch stems and larger (Figure 5). TWC crews passed through later to collect attribute data for the significant trees that APS had tagged. Further, TWC tagged and assessed the smaller trees per Section 5.2.1, and hand-sketched their location on a paper copy of the survey in the field. The new “sketched” tree points were digitized in AutoCAD and provided to PSE and APS in January 2016. A total of 273 non-significant trees were mapped in this manner; 155 are located in the City of Redmond.

## 5.5 Attribute data collection

The attributes collected during the field survey are described in Table 1, below. The Microsoft Excel spreadsheet database contains the data collected for each tree and polygon inventoried. General attributes documented for all inventoried vegetation include the date of assessment, unique identification number of tree or polygon, location (parcel number), and name of plant species. Physical attributes include number of stems, stem diameter (DBH), height, canopy radius, condition, and notes. For polygons, approximate number of individual trees or large shrubs within a polygon was recorded instead of stem number, and other physical attributes for vegetation within polygons were recorded as averages.

Diameter of all subject trees was measured at four-and-a-half feet above the surface of the ground at the trunk (DBH) where possible; however, some stems were measured differently due to size or branching structure. Very small trees without a defined stem at four-and-a-half feet were measured using the caliper-method, where the stem is measured at six inches above the ground. For trees with major branching at or below four-and-a-half feet, the smallest portion of the trunk below major branching was measured. Methodology for measuring

diameter of trees with major leans, on steep slopes, and with multiple trunks or stems generally followed those outlined in the *Guide for Plant Appraisal* (Gooding, et al., 2000).

Other attributes collected are listed and described below.

## 5.6 Data Management

Data were recorded using paper field data sheets. Data were entered into a Microsoft (MS) Excel spreadsheet in the office and subsequently reviewed, corrected, and organized into a searchable database. The spreadsheet file includes all the Willow and Oak route data and will be delivered along with this report.

### 5.6.1 Data Summary

Summary data reported in the Findings section below is derived from querying the tree spreadsheet using Excel formulas. Reported tree numbers were found by counting all trees in the City of Redmond with a DBH of six inches or greater and that have a condition rating of *excellent*, *good*, *fair*, or *poor*. Further, as the City of Redmond may also consider any tree between four and six inches significant after considering its age, height, value, or function (City of Redmond, 2016), all trees between four and six inches and that have a condition rating of *excellent* or *good* were queried. Very common landscape trees (e.g., Leyland cypress) or common fruit trees (e.g., Apple trees) were not considered under this portion of the definition. Proximity to critical areas was considered a factor for these smaller trees.

Table 1. Attributes recorded for all inventoried vegetation and that are presented in the spreadsheet database.

ATTRIBUTE	DESCRIPTION OF ATTRIBUTE
DATE OF ASSESSMENT	Date that the Watershed Company field crew tagged and assessed the tree or shrub.
ID NUMBER	Unique number assigned to an assessed tree or polygon. This number corresponds to the tag number in the field or the polygon number on the maps.
PARCEL NUMBER	Parcel number(s) in which the subject tree or polygon is located. In some cases, the parcel number corresponds to the closest parcel if the tree is in a City right-of-way.
SCIENTIFIC NAME	Formal scientific name conforming to the International Code of Nomenclature.
COMMON NAME	Name that is based on normal or common language of the Pacific Northwest.
DECIDUOUS/EVERGREEN	Notes whether a tree is considered deciduous or evergreen.
STEMS	Number of trunks or shoots that contribute significantly to the canopy.
DBH	Diameter at Breast Height; or 4.5 feet from the ground surface. See Section 5.5 for variations.
DBH2	DBH of secondary and other minor stems.
HEIGHT	Approximate distance from the ground surface at the trunk to the highest point of the subject tree as visually estimated. Average height for polygons.
CANOPY RADIUS	Measurement from the stem to the average drip line, or end of branches.
CONDITION	Health rating of an assessed tree using a 5-tier system as follows: 1 – Excellent: No apparent problems with the tree. Form is exemplary for the species. 2 – Good: Few minor defects such as crossed branches, minor foliage die-back, minor trunk damage, or unbalance canopy. 3 – Fair: Several minor problems exist. 4 – Poor: Major defects visible such as significant trunk decay, codominant leaders with included bark, significant canopy die-back, major cracks in a stem or major limbs, and/or other structural problems. Topped trees are generally considered poor. 5 – Dead or dying: Tree is dead or is in a state of significant decline.
NOTES	Additional comments relating to assessment of the tree or polygon unit.

## 6 LIMITATIONS OF STUDY

---

All properties containing PSE easement in the City of Redmond were accessed during this study. No property owners refused entry to the TWC field crew in the City of Redmond. All subject trees were either individually tagged or assessed as part of a polygon according to the methodology outlined above.

Tree identification was done using the vegetative characteristics present at the time of the inventory. Some trees and shrubs may be misidentified. Some trees and shrubs were unidentifiable, although most were identified to genus and species, or to at least genus. Some taxa, such as the “cherry” genus, contain many species and botanical varieties that were not identifiable given the time limitation and without all characteristics present. Where genus was known, but species was not, the species was indicated with “sp.” in the spreadsheet. An unknown cherry tree, for example, was indicated as “*Prunus* sp.” If an uncommon tree was simply not identifiable (for lack of leaves or flowers), an “unk.”, or “unknown” was entered into the name column of the spreadsheet and any descriptor that would aid in identification was added to the notes field.

Some reported parcel numbers in the spreadsheet may not be correct; the survey should be used as the authority. Trees and polygons located on the edge of parcel boundaries were assigned a parcel number based on field observations. However, fence lines sometimes do not exactly match parcel lines and the parcel boundary overlay on aerial imagery used in the field was sometimes inaccurate. Determining exact parcel boundary locations in the field was not always possible. The survey should be referenced to verify the exact ownership and location of any particular tree.

# 7 TREE INVENTORY RESULTS

Within the City of Redmond, 787 trees were tagged and assessed for the tree inventory; 634 of these trees are considered significant trees by the City of Redmond (Table 2). In addition, a total of 28 polygons containing smaller trees and shrubs were assessed along the corridor.

A total of seven *good*-condition native trees between four and six inches in diameter (DBH) were considered under the Redmond significant tree definition. However, none are exceptional individuals that would be considered significant. All are planted or growing under the existing PSE powerlines and would be subject to a height restriction. None of the trees in question are growing in or near a critical area or a critical area buffer. Therefore no trees between four and six inches are included in the 634 significant trees.

Nineteen trees in the Segment C portion of Redmond are larger than 30 inches in diameter and are considered landmark trees under City regulations. The largest, a 36.7-inch Douglas-fir is located in a residential backyard near the Rose Hill substation and is rooted near the west limit of the PSE easement. See the spreadsheet for size and parcel data regarding these landmark trees.

Table 2. Number of tagged and significant trees located on designated PSE segments in the City of Redmond.

SEGMENT	NUMBER OF TAGGED TREES	NUMBER OF SIGNIFICANT <sup>1</sup> TREES	LANDMARK <sup>2</sup> TREES	NUMBER OF POLYGONS <sup>3</sup> DESCRIBED
A	0	0	0	2
C <sup>4</sup>	787	634	19	26
REDMOND TOTAL	787	634	19	28

A total of 28 polygons were delineated around weedy vegetation and landscaped hedges in Redmond. Two large polygons, each with more than 100 individual saplings and small trees, are located in Segment A. Saplings in these areas varied from one to three inches in diameter with a height up to 20 feet. A large polygon

<sup>1</sup> According to RZC 21.78, a significant tree is any healthy tree six inches in diameter at breast height (d.b.h.), or any tree four inches in diameter at breast height (d.b.h.) that, after considering its age, height, value, or function, the tree or tree stand is determined to be significant.

<sup>2</sup> A landmark tree is any healthy tree with a diameter of 30 inches or larger (RZC 21.78).

<sup>3</sup> Does not indicate number of trees included in each polygon. See spreadsheet for more information.

<sup>4</sup> Indicates partial Segments; only the portion of the Segment in the City of Redmond is included in the tree total numbers

contains similar vegetation in Segment C north of Redmond Way. Landscaped hedges of cherry laurel, Fraser photinia and arborvitae, along with some weedy vegetation were mapped and characterized using polygons south of Redmond Way in Segment C. See the polygon tab in the spreadsheet for more information on polygon composition.

Many subject trees north of Redmond Way are located in Redmond-regulated stream and wetland buffers. See the *City of Redmond Critical Areas Delineation Report: Puget Sound Energy – Energize Eastside Project* (The Watershed Company, 2016) for more information about wetland and streams in Redmond.

## 8 REFERENCES

---

- Allen, E. A., Morrison, D. J., & Wallis, G. W. (1996). *Common Tree Diseases of British Columbia*. Victoria, British Columbia, Canada: Natural Resources Canada, Canadian Forest Service.
- City of Redmond. (2016, January 15). *Redmond Zoning Code*. Retrieved January 2016, from City of Redmond Washington: <http://www.redmond.gov/cms/>
- Dunster, J. A., Smiley, E. T., Matheny, N., & Lilly, S. (2013). *Tree Risk Assessment*. Champaign, IL: International Society of Arboriculture.
- Gooding, R. F., Ingram, J. B., Urban, J. R., Bloch, L. B., Steigerwaldt, W. M., Harris, R. W., & Allen, E. N. (2000). *Guide for Plant Appraisal* (9th ed.). (P. Currid, Ed.) Champaign, IL: International Society of Arboriculture.
- Google. (2016, March 1). *Redmond, WA*. Retrieved from Google Maps: <https://www.google.com/maps/@47.6716665,-122.158621,19z>
- Matheny, N. P., & Clark, J. R. (1994). *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*. Pleasanton: HortScience, Inc.
- Oregon State University. (2016, January 15). *Landscape Plants: Images, Identification, and Information*. (P. Breen, Editor) Retrieved 2015, from Oregon State University Horticulture Department: <http://oregonstate.edu/dept/ldplants/>
- The Watershed Company. (2016). *City of Redmond Critical Areas Delineation Report: Puget Sound Energy – Energize Eastside Project*. Prepared for PSE.
- United States Department of Agriculture. (2016, January 15). *Natural Resources Conservation Service*. Retrieved from PLANTS Database: <http://plants.usda.gov/java/>
- University of Washington. (2016, January 15). *WTU Image Collection: Plants of Washington*. Retrieved 2015-2016, from Burke Museum of Natural History and Culture: <http://biology.burke.washington.edu/herbarium/imagecollection.php>