

XX. TREE TRIMMING - CLEARING REQUIREMENTS AND METHODS

Standards Tree trimming or pruning shall be carried out under Pruning Standards attached in Section 00850; WAC 296-45; ANSI A300 Part 1: *Tree, Shrubs, and Other Woody Plant Maintenance – Standard Practices, Pruning*, its special companion publication *Best Management Practices: Utility Pruning of Trees*, and ANSI Z-133.1 *American National Standard for Arboricultural Operations – Safety Requirements*, and to the satisfaction of the Power Line Clearance Coordinator.

1. Leaders shall be cut back to the main trunk or to a significant lateral branch no less than 1/3 of the diameter of the leader being cut to prevent excessive sucker re-growth and to minimize disease.
2. Trees that are to be removed shall be cut to as close to grade as possible with a chainsaw, except as directed by the Line Clearance Coordinator.
3. Trees shall be trimmed so as not to endanger the health of the trees or they shall be targeted for removal.
4. If more than 50% of the live foliage on a branch is removed, the branch shall be removed at the main stem. In no case should limbs be stubbed off at the edge of the clearing limits.

5. If more than 50% of the total foliar crown of a tree is to be removed, the Contractor shall contact the Powerline Clearance Coordinator or designated representative to reevaluate the appropriateness of retaining tree, prior to completion of that site.
6. Using multiple indiscriminate small diameter shaping cuts to create a hedged wall, commonly known as "fuzzing" contravenes the practices of natural pruning, and is unacceptable except where indicated and authorized by City Light.
7. All dead branches overhanging primary conductors at any height shall be removed. All overhang at any height shall be removed over structures carrying both distribution and transmission circuits.
8. A minimum of cuts shall be utilized to achieve required clearances.
9. Where practical, cuts should be primarily restricted to large diameter branches made well within the crown. Shaping through the use of many cuts of small diameter branches in the outer crown shall be avoided.
10. All cuts are to be made outside the branch bark collar leaving as small a stub as possible in a manner consistent with A300 Standards
11. Stripping or tearing of bark when cutting limbs shall not be permitted
12. Climbing irons or "hooks" shall not be used except in cases involving tree removal, work or where failing to use them constitutes a demonstrable and reasonable safety hazard.
13. All severed limbs shall be removed from each tree. Any "hangers" remaining will constitute an incomplete job and shall be removed by the Contractor at their expense.
14. Where it is necessary to only crown reduce a tree, the reduction shall comply with ANZI A300 Part 1 special companion *publication Best Management Practices: Utility Pruning of Trees*.

Distribution Secondary Circuit - Residential Sites

The secondary circuit clearing limits extend out from secondary conductors to a distance of least 3-ft on conifer trees and 5-ft on deciduous trees. Secondary circuits include all right-of-way between the City Light owned primary pole with transformer and the final City Light owned pole.

1. All tree/branches extending into the secondary clearing zone are to be trimmed to provide at least 3-ft on conifer trees and 5-ft on deciduous trees of clearance between the conductors and the nearest branch.
2. Vigorous, sound stems or branches 4-in or greater in diameter, as measured at the point closest to the conductor, more than 3-ft from the nearest conductor may be allowed to remain, unless its location is inside the 10-ft primary clearance requirement. (Example: If a transformer were located on the pole, the 10-ft primary clearance would be required).
3. Primary neutral shall be trimmed to secondary circuit clearances on all sites including commercial and industrial sites.

Individual Services and Streetlight Circuits - All Sites

1. Trimming of individual services is not included in this Contract except for the first 10-ft of the service from the pole to house towards the customer's meter. If the tree is inside the primary 10-ft clearance zone, prune accordingly.
2. Customers requesting tree pruning or removal outside the first 10-ft from the pole must contact City Light's Customer Service Representative, North or South, to arrange for the service line to be de-energized (at no cost to them) in order for them to have the tree trimmed or to have someone else trim the tree for them. The line will then be re-energized for them at no cost.
3. Streetlight secondary circuits shall be trimmed to secondary clearance standards unless directed otherwise by the Power Line Clearance Coordinator.
4. Trimming streetlight for illumination patterns will not be performed unless authorized by the Power Line Clearance Coordinator.

Distribution Primary Circuit Right-of-Way - Residential Sites

The primary clearing limits required on residential sites involving high value yard and street trees of landscape value extend out from primary conductors to a distance of a minimum of 10-ft below and off to each side of the conductor(s) and 15-ft over-top of the conductor(s). The minimum primary clearing limit extends 10-ft, 360 degrees around all equipment energized at primary voltages.

* The primary clearing limits are subdivided into zones, defined as distance measured from the outermost conductor(s).

1. Natural low growing tree species around electrical system that will not interfere with the power line should not be pruned. Basic guidelines are that trees under 20-ft in height on residential streets are compatible with the electrical system; trees on arterial and that are 27-ft in height are compatible with the electrical system.
2. Vigorous, structurally sound stems or branches of species recognized for slow growth and stronger, open branching habit greater than 6-in diameter (as measured at the point closest to the conductors), more than 6-ft from the nearest conductor may be allowed to remain provided that they do not overhang the conductor(s).
3. Vigorous, structurally sound trees greater than 20" diameter breast height, may be side trimmed to the main stem using natural pruning methods provided there is greater than 5-ft of clearance between the conductor(s) and the main stem, and that no branches directed within 120 degrees of the conductors are allowed to remain.
4. All vegetation above the conductors shall be removed to a height of 15-ft. Live branches 15-ft or more above conductors shall be removed or trimmed so that if they fail and swing from a "hinge" break, no contact with conductors will occur. Structurally sound branches greater than 6-in in diameter at the point of origin are not considered a risk, and are excluded from the hinge break removal requirement. Conifer overhang shall be tapered back so no abrupt increase in overhanging branch length remains.

On conifers the first whorl of overhanging branches more than 15-ft above the conductors should be pruned to approximately 40% normal length. The second whorl of overhanging branches above the conductors should be pruned to approximately 60% normal length, with the third whorl of branches being pruned to not more than 80% normal length. All dead branches of any species at any height that overhang the conductor(s) shall be removed.

5. In no case shall conifers with visible stem defect from past pruning or loss of top besides trimmed leaving a leader(s) above the height of conductors.
6. The primary clearing zone shall be extended as necessary to assure at least 5-ft of clearance around all secondary circuits and the system neutral when such facilities occupy an underbuild position.

XXI. CITY LIGHT ADMINISTRATIVE GUIDELINES ON CLEARANCES

The following schedule gives required minimum clearances for energized circuits according to OSHA and WISHA Regulations.

	Secondary Under 600V	Primary 4KV	Primary 26KV	Over 26KV
<u>Vertical Clearances</u>				
Deciduous	5-ft	10-ft	10-ft	16.5-ft
Conifer	3-ft	10-ft	10-ft	16.5-ft
<u>Horizontal Clearances</u>				
Deciduous	5-ft	10-ft	10-ft	16.5-ft
Conifer	3-ft	10-ft	10-ft	16.5-ft
<u>Overhead Clearance</u>				
Deciduous	Clear	15-ft	15-ft	Clear
Conifer	Clear	15-ft	15-ft	Clear

The above clearances will be used in conjunction with pruning diagrams attached in section 00850 and to the satisfaction of the Power Line Clearance Coordinator..

In special cases or under special circumstances when tree trimming to the scheduled clearances is impractical or undesirable, the Power Line Clearance Coordinator will determine the required clearance, but in all cases tree trimming shall conform to the requirements of WAC 296-45; WAC 296-32; ANSI 300; ANSI Z133.1 and RCW 64.12.035, which mandates procedures for trees that pose an imminent hazard or potential threat to electric facilities, general public health, safety, or welfare.

Trees that may interfere with ungrounded supply conductors should be trimmed or removed. Normal tree growth, the combined movement of tree and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required.