SDCI | Director's Rule 21-2017

Applicant: City of Seattle Department of Construction and Inspections	**Page** 1 of 5	**Supersedes:** NA
	Publication:	**Effective:**
Subject: Calculating Tree Valuations and Civil Penalties for Tree Protection Code Violations	**Code and Section Reference:** SMC 25.11.100.I	
	Type of Rule: Code Interpretation	
	Ordinance Authority: SMC 3.06.040	
Index: Tree Protection Code SMC 25.11	**Approved** **Date** Nathan Torgelson, Director, SDCI	

BACKGROUND

SMC 25.11.100.I.1 states that

> "Any person, firm or corporation who is responsible for the removal, topping, or other action detrimental to a tree in violation of this chapter or any notice, decision or order issued by the Director pursuant to this chapter shall be subject to a civil penalty in the amount equal to the appraised value of the tree(s) affected in accordance with the Guide for Plant Appraisal, 9th Edition, or successor."

The Guide for Plant Appraisal (referred to as the "Guide" hereafter) provides three different methods for determining tree value: the Income Approach, the Market Approach, and the Cost Approach. Neither the Income nor the Market Approach is useful for the broad range of tree cutting or removal violations that SDCI encounters. For instance, the Income Approach measures a tree's contribution to income generated by a property, such as via timber sales. The Market Approach tries to isolate the value of trees based on a comparison of recent sales of comparable properties. This produces different values for the same tree depending on the neighborhood. The City's practice, therefore, has been to use the Cost Approach. Under the

Cost Approach, we use the actual replacement cost as would be found at a local nursery for trees that can be replaced in kind. For trees too large to be replaced in kind, we use the Trunk Formula method to calculate tree value.

This rule:

- Confirms that SDCI will continue to use the Cost Approach to calculate tree valuations and civil penalties;
- Clarifies how to use the Trunk Formula methodology within the Cost approach;
- Directs how to consistently administer and apply variables within the Trunk Formula methodology;
- Results in tree valuations and civil penalty amounts that are equitable, predictable, and consistent, regardless of where in Seattle a tree was located;
- Provides a method to determine the value of a tree and consequent penalty amount when the tree has been removed from a site and SDCI as a result is unable to fully evaluate the prior condition of the tree; and
- Provides a methodology for calculating valuations and penalties even if staff are viewing a tree or the remains of a tree from a distance.

RULE

A. When a tree has been damaged or removed in violation of SMC Chapter 25.11, Tree Protection, and the tree cannot be replaced in kind, SDCI will determine the value of the tree, and the civil penalty amount, using the Trunk Formula method, as follows:

Tree Value and civil penalty amount =
(Basic Tree Cost) x (Species Rating %) x (Condition Rating %) x (Location Rating %)

1. **Basic Tree Cost** is calculated using the "base price" for a conifer or deciduous tree, as provided by the Pacific Northwest International Society of Arboriculture (Pacific Northwest ISA), multiplied by the area in square inches of a cross-section of the tree. The area of the cross section is calculated using the formula $pi \times (1/2 \times diameter)^2$.

    a) When possible, the area of the tree trunk will be determined using the diameter of the tree trunk measured at 4.5 feet above ground.
    b) If the tree has been cut below 4.5 feet above ground, SDCI will use the diameter of the tree trunk where it has been cut, but will reduce the diameter by 10% in recognition that trunk diameter typically shrinks with height of the trunk.
    c) If the trunk cannot be measured to establish the area of the trunk, the department will estimate trunk diameter taking into account distance, sight angles, nearby objects of known size, street views from online mapping tools, aerial photos, prior surveys or site plans, and any other information available. When information is not sufficient to support using a larger diameter, the department will use the minimum regulated diameter in establishing the Basic Tree Cost.

1) The minimum regulated diameter for exceptional trees is defined in Director's Rule 16-2008 and in any updates to that Rule.
2) The minimum regulated diameter for non-exceptional trees on undeveloped lots and for trees on developed lots in residential and commercial zones is 6 inches or greater in diameter.

d) The Department will use the base price for a conifer or a deciduous tree in calculating Basic Tree Cost. When that distinction cannot be established, SDCI will use the higher of the base price for conifers or deciduous trees.
e) The current base price for conifers is $60 per square inch and the current base price for deciduous trees is $72 per square inch.

2) **Species Rating** is the factor assigned to a given tree species, based on the value given in the publication *2007 Species Ratings for Landscape Tree Appraisal, 2nd Edition* (or the most recent version) published by the Pacific Northwest ISA. If SDCI cannot readily determine the tree species~~,~~ after reviewing online information, aerial photos, and information from the site, the Species Rating will be 70%, which balances the range of species ratings for many of the most common trees in the City.

3) Condition Rating is a rating of a tree's structural integrity and health. SDCI will review the remains of the tree, street views from online mapping tools, aerial photos, prior surveys or site plans, and any other information available to determine whether any evidence of disease or hazard exists. Absent clear indication of poor health or structural integrity in the tree, SDCI will use a 60% condition rating in calculating tree values for assessing penalties.

4) **Location Rating** is a rating of the quality of a site, the contribution of a tree to the landscape, and the appropriateness of the placement of the tree in its surroundings. SDCI will review street views from online mapping tools, aerial photos, prior surveys or site plans, and any other information available, taking into account factors such as other trees in the immediate vicinity, proximity to structures, solar availability, and provision of shade. Absent a clear positive or negative element tied to location, SDCI will use a 60% location rating in calculating tree values for assessing penalties.

B. Additional Considerations

1) **Hazardous or potentially hazardous trees** may be removed only with prior approval from SDCI (except in emergency situations where there is an immediate danger to life or property). Removing a hazardous or potentially hazardous tree in a non-emergency situation without prior approval from the Director is a violation of the Tree Protection code.
   a) Penalties for removing a hazardous or potentially hazardous tree without prior approval are calculated using the 60% condition rating unless the department has clear evidence supporting a different rating.
   b) The total penalty amount may be reduced if a replanting plan is submitted, approved, and implemented.

2) **Tree groves** typically have greater environmental and aesthetic value than single trees. The condition and location ratings for trees in a grove will be set at 75% to reflect the greater value unless SDCI has clear evidence supporting a different rating.
3) **Willful or malicious cutting** may result in tripling of the penalty amount as provided in SMC 25.11.100.I.
    a) Cutting for view enhancement is considered willful cutting.
    b) Cutting within six months prior to submitting a development proposal, so as to avoid tree protection regulations, is considered willful cutting.
4) **Cutting or damaging trees in environmentally critical areas** is subject to a separate and additional penalty under the Critical Areas Code, SMC Chapter 25.09.
5) **Updates to prices and ratings:** SDCI may use revised base prices and species rating for trees as needed to remain consistent with current valuations provided by the Pacific Northwest ISA.

EXAMPLES:

Tree Value = penalty amount = Basic Tree Cost multiplied by the percentages for Species, Condition, and Location.

> Basic Tree Cost is the base price for a conifer or deciduous tree, multiplied by the area in square inches of a cross-section of the tree trunk measured at approximately 4.5 feet above ground. The area of the cross section is calculated using the formula *pi x (1/2 x diameter)^2 or 3.14 x (the tree diameter x .5) squared.* When the tree has been removed or cut below 4.5 feet above ground, SDCI will use the process described in this Rule, part A.1 to determine trunk diameter.

1. 36-inch Douglas fir tree. Staff measures remaining trunk approximately 1 foot above ground; reduces trunk measurement by 10% and calculates from a diameter of 32.4 inches. No known unusual condition or location factors.
Basic Tree Cost = 3.14 x 16.2 x 16.2 x $60 = $49,444
Tree Value/Penalty = $49,444 x .75 (for Douglas fir species) x .6 for condition x .6 for location = **$13,350**

2. 30-inch deciduous tree. Measured approximately 18" above ground. Front yard. Staff determined tree was a Red Maple by reviewing online street views, aerial photos, and leaf remains, so species rating is 60%. Diameter reduced 10% to 27 inches for calculating the penalty. No known unusual condition or location factors.
Basic Tree Cost = 3.14 x 13.5 x 13.5 x $72 = $41,203
Tree Value/Penalty = $41,203 x .6 x .6 x .6 = **$8,900**

3. Big conifer. Could not access for measurement but photos of the stump indicate diameter at breast height would have been much greater than 30 inches. Probably a western red cedar based on Google street view photos. Use 30-inch diameter as minimum for an exceptional

tree. Use 90% for species rating (Thuja plicata). No known unusual condition or location factors.
Basic Tree Cost = 3.14 x 15 x 15 x $60 = $42,390
Tree Value/Penalty = $42,390 x .9 x .6. x .6 = **$13,734**

4. Four large (at least 24") but non-exceptional coniferous trees cut on previously developed LR 2 property. No new development proposed. Legal to remove three. Removal of fourth tree is a violation. Staff could not access property to measure trunk stumps but developed conservative estimate of 24" based on photos showing trash bin and yard waste bin nearby. Diameter for calculating penalty is reduced by another 10% in recognition of narrower trunk as height increases, or 21.6". Species unknown, so use 70% for species rating.
Basic Tree Cost = 3.14 x 10.8 x 10.8 x $60 = $21,975
Tree Value/Penalty = $21,975 x .7 x .6 x .6 = **$5,538**

5. 40" Big Leaf Maple, multiple branches still on site. One branch shows some heart rot. Although the tree may not have been in perfect condition, it is illegal to remove it without approval from SDCI designating it as a hazardous tree. Condition rating dropped to 50%.
Basic Tree Cost = 3.14 x 20 x 20 x $72 = $90,432
Tree Value/Penalty = $90,432 x .6 x .5 x .6 = **$16,278***
* With an approved and completed replanting plan, the penalty amount for removing a hazardous tree without approval can be reduced by 50%.