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Tree removal criteria for ficus trees (*Ficus microcarpa* 'Nitida').

Article 16 of the Public Works Code governs trees and landscaping in the public right of way. The residents of San Francisco value street trees, and have mandated their protection. Article 16 of the Public Works Code, adopted as the Urban Forestry Ordinance of 1995, was created to:

(a) Realize the optimum public benefits of trees on the City's streets and public places, including favorable modification of microclimates, abatement of air and noise pollution, reduction of soil erosion and runoff, enhancement of the visual environment, and promotion of community pride;

(g) Recognize that trees are an essential part of the City's aesthetic environment and that the removal of important trees should be addressed through appropriate public participation and dialogue, including the California Environmental Quality Act (Public Resources Code Sections 21000 et seq.).

(h) Recognize that green spaces are vital to San Francisco's quality of life, as they provide a range of environmental benefits and bring beauty to our residential neighborhoods and commercial districts.

However, it also was designed to:

(d) Reduce the public hazard, nuisance, and expense occasioned by improper tree selection, planting, and maintenance.

The tree structure of many of these ficus trees includes large, competing trunks with acute angles of attachment. Due to recent large limb and tree failures of ficus trees, causing property damage, injury and concerns for public safety, the Director of Public Works has established new guidelines for the staff evaluation and determination of whether to approve removal of this particular species of tree on a case-by-case basis.

There is no one-size fits all approach and each tree must be evaluated by a qualified arborist. Ficus trees that are candidates for removal may only exhibit one of the defects described below, or, multiple defects may be present.



Staff will consider the following criteria to be considered when evaluating the structural health of ficus trees:

- **Competing/codominant stems, with acute angles of attachment, with or without included bark**

Large trees, with multiple competing trunks/stems, with acute angles of attachment (where pruning off the limb to mitigate the attachment would remove 30 percent or more of the tree canopy) with or without included bark.

- **Failure history**

Previous limb failures at point of codominance, or multiple previous limb failures within the canopy.

- **Live crown ratio**

The ratio of the size of a tree's live crown to its total height. Fifty percent live crown ratio is ideal but rarely attained in urban environments. Live-crown ratios of less than 30 percent shall be considered problematic.

- **Canopy vigor**

If the canopy of the tree shows decline and reduced vigor in 25% or more of the canopy.

- **Large limbs damaged by vehicles**

If there are large limb(s) that have repeatedly been hit by vehicles (where pruning off the limb to mitigate the damage would remove 30 percent or more of canopy).

- **Root pruning history**

If the tree has been root pruned more than two times

- **Canopy balance**

If the tree has been pruned for building clearance to the extent that it is seriously imbalanced, and balancing necessitates the removal of more than 25 percent of remaining canopy.

- **Large stature**

If the tree is taller than 50 feet, even if other criteria are not met, the approval may be granted based on size.

- **Utility conflicts**

If the tree has canopy or main trunk in conflict with existing utility infrastructure, such as high-voltage power lines, Muni overhead lines, or street lights.

Notwithstanding the above:

- 1) If the department determines that any of the criteria listed above can be mitigated through pruning or some other intervention, the department may not approve removal.
- 2) If the tree does not meet the above criteria but the director determines that other factors validate removal, the department may still grant removal.
- 3) All tree removals must still go through the process outlined in Article 16. Due to concerns regarding public safety, ficus trees meeting one or more of the criteria outlined



above may be determined to be imminent hazards, and therefore a reduced public notification, as outlined in the code, can be used.

- 4) The department recognizes the potential impact to the total street tree canopy cover due to the loss of such large stature trees. Therefore, if the ficus tree is removed, Public Works will require the replacement of the tree, as outlined in the Urban Forestry Ordinance and in some cases will require large stature (at maturity) replacement species, unless site constraints would preclude this.



Appendix 1

Below are excerpts from the book *Arboriculture* (3rd Edition, 1999), a text that is considered the primary authority in the arboricultural industry. Regarding codominant stems, with or without included bark, it states:

- Codominant trunks with included bark do not form connective tissues between stems and are prone to failure. (pg. 491, *Arboriculture*, 3rd Edition, 1999).
- The relative size and arrangement of the scaffold branches is important to structural stability. Two or more leaders (stems) about the same size or branches near the same size as the trunk are more likely to fail than if one leader or the branches were only half the size (75 percent of the diameter) of the main trunk. (pg. 491).
- A trunk is not able to grow around a branch when both are near the same size (pg. 491).
- Several relatively large branches arising near the same level on the trunk are even more vulnerable to failure (pg. 491).
- Also, the weight and leverage of such limbs are great in relation to the strength of their attachments. As trees age, their branches usually continue to spread, further increasing the stress on their attachments (pg. 491).
- Most of these structural hazards can be prevented by proper training of the trees while they are young. (pg 493).

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Approver 1

