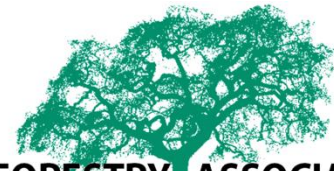


**Client:** Fairfax Department of Public Works  
**Contact:** Mark Lockaby  
**Project Location:** Fairfax Parkade, Bolinas Park, Peri Park, and Doc Edgar Park  
**Inspection Date:** Multiple days Dec '19 – Feb '20  
**Arborist:** Zach Vought, Ben Anderson, Ray Moritz



**URBAN FORESTRY ASSOCIATES, INC.**

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## ASSIGNMENT

Mark Lockaby, Public Works Director for the town of Fairfax, asked Urban Forestry Associates (UFA) to update a previous assessment (2014, 2017) of the trees in Fairfax Parkade, Bolinas Park, Peri Park, and Doc Edgar Park in Fairfax, California. This is the first year Doc Edgar Park was included in the assessment. The purpose of the inspection was to assess the health and structure of the subject trees and to provide pruning and removal recommendations for risk mitigation. The inspections occurred between January and February 2020. A final sweep of the park was made in May of 2020 to review all the trees.

## OBSERVATIONS

A Microsoft Excel spreadsheet and tree map (PDF and .kml file) are to accompany this report. This spreadsheet is a tree by tree inventory, containing tree numbers (relative to metal tags affixed to each tree), species, diameter at four and a half (4.5) feet above grade, number of stems, observations and recommendations. Work recommendations were also prioritized from one (1) to four (4). Trees with a first priority rating were highlighted in red.

The numbering system is not entirely continuous as many trees have been removed since the time it was first established. If there are any questions or clarifications needed, UFA welcomes your calls.

## METHODS

Unless otherwise stated, all trees were inspected visually, from the ground. Most trees were sounded with a mallet to attempt to detect internal decay or **necrotic** areas under the bark. Where possible, a 360-degree inspection was made of the base. Many common defects are widespread such as acute angle branch attachments and poorly attached sprouts from old heading cuts. These were not always noted in descriptions. Nor was deadwood in the canopy unless its size, location, and the residency in the target zone was such that the deadwood presented at least a moderate risk. We did not fill out a tree risk assessment worksheet for every tree but did perform mental risk calculations based on the methodology described in the Tree Risk Assessment BMP<sup>1</sup>. The inspections were focused on risk mitigation over high value targets.

New trees added to the inventory were rated using the descriptions found in Table 1, Page 4. These are generally higher than what was used in the past. Trees previously described as "fair" now roughly equate to trees rated as "good." All assessments will use the new table moving forward.

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<sup>1</sup> Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly. Tree Risk Assessment Manual. 2013. Champaign, Illinois: International Society of Arboriculture

## SPECIFIC AREAS OF CONCERN

- Trees 401-406. These are all stems of a single tree in poor condition targeting a road. While they are not a high priority now, their condition will only worsen, and the risk will only increase with time. The tree could be removed, or all the stems could be headed back by at least 20 feet.
- Trees 115-126. This stand is located at the corner of Bolinas Avenue and Park Road. It is high visibility stand with near constant occupancy in the target zone of potential falling branches. While only one of the trees has first priority work recommendations, once the climber arborist has entered the canopy of the stand, it would make economic sense to perform all the work recommendations for these trees.
- Trees 136 & 137. These are large valley oak trees in the center of a heavily used playground. This species is known to have a tendency to drop large branches with no associated decay. This is especially true of larger specimens. In 2019 Tree 136 dropped a limb- the tree was subsequently pruned. Pruning does not appear to have been performed to Tree 137 at that time. Considering the species characteristics of valley oak and the high use area below the trees, these two trees should be subject to annual inspections. Given the history of tree failure in the park that appears to be the result of *Armillaria* (*Armillaria spp.*), a **root collar excavation** on the subject trees is recommended. This assessment technique can be costly but can provide critical information regarding the condition of supportive roots.

In tree risk assessment, likelihood of failure is rated as improbable, possible, probable, or imminent within the specified time period. Probable means failure may be expected under normal weather conditions within the specified time frame. Possible means failure may be expected in extreme weather conditions, but is unlikely during normal weather conditions. In this case, the time frame is one year, assuming the trees begin annual assessments. When considering trees of this size and age, with a history of large branch failure, likelihood of branch failure will never be below possible. The likelihood of impacting the most valuable target (park users) is relative to the amount of time the park is occupied. The park is frequently occupied, so the likelihood of impact is medium. Consequences of an impact would certainly be severe. This results in a minimum risk rating of "low," according to the standard of the industry. See the structural failure profile for the species published by the International Society of Arboriculture's Western Chapter.

- Peri Park redwoods. The condition of this grove has not improved since 2017. There is a good deal of deadwood on the interior of the grove, which is heavily used. While deadwood in general is typically a low priority, given the amount scattered through the trees and the high priority of some of the other work in the stand, it would make economic sense to perform all work recommendations on the trees in this stand at the same time as the other, higher priority work. Any heavy equipment or aerial lifts should be on soil armoring to spread the load. **Mulch** is an affordable means of mitigating soil compaction in high traffic areas while promoting tree health. Coarse wood chip mulch had been installed under the canopies of the redwood grove in Bolinas park but needs to be refreshed. The same should be done in Peri Park.
- **Structural Pruning** is recommended for newly planted trees. UFA can provide more information and training if the Town is interested. This could be a short, one-hour meeting with maintenance staff. Such pruning is critical for young trees; to establish strong canopy architecture and eliminate defects. The structural pruning concept can be translated for larger trees in some cases but is best applied to small and medium sized trees.
- **All work previously recommended that was not performed is still recommended unless specifically stated in the inventory.**

## Glossary

### **Armillaria**

*Armillaria sp.* is a common soil-borne fungus that lives on a wide range of woody and herbaceous plants. Also known as oak root fungus, mushroom root rot, honey fungus and shoestring fungus, it is found in the soil of temperate regions throughout the world and is native to many areas including California. Under natural conditions, *Armillaria* usually inhabits the root system of most native oaks without ill effect. But, when trees become stressed, susceptibility increases. The fungus can then begin rotting the roots. The loss of roots may cause the tree to be unable to assimilate water and nutrients, or to fall over from lack of support. This fungus is sensitive to drying. It can survive indefinitely in the soil on diseased or dead roots and will develop most rapidly under warm, moist conditions (UCANR).

**Mulch**- material that is spread or sometimes sprayed on the soil surface to reduce weed growth, to retain soil moisture and moderate temperature extremes, to reduce compaction from pedestrian or vehicle traffic or to prevent damage from lawn-maintenance equipment, to reduce erosion or soil splattering onto adjacent surfaces, to improve soil quality through its eventual decomposition, and/or to improve aesthetic appearance of the landscape. Mulch can be composed of chipped, ground, or shredded organic material such as bark, wood, or recycled paper; unmodified organic material such as seed hulls; organic fiber blankets or mats; or inorganic material such as plastic sheeting.

Mulch treatments are beneficial to trees in many ways. It insulates the soil and root zone, reducing moisture loss, reducing soil temperature, in turn, increasing root productivity. In addition, mulch aids to prohibit establishment of weeds, reduces soil compaction, soil erosion and water runoff. In forest conditions, organic material collects on the forest floor, providing a layer of insulation and natural cycling of nutrients. Highly maintained urban sites often lack this beneficial layer, and consequently suffer from increased soil temperatures and soil moisture loss. Mulch should be applied to depth of two to four inches at least out to the drip line of the tree, but not piled up against the trunk.

**Necrosis** - localized death of tissue in a living organism.

**Root collar excavation (RCX)**- process of removing soil to expose and assess the root collar (root crown) of a tree, exposing large supportive roots. The most efficient and least injurious means of performing this on large trees is pneumatic excavation (Airspade). The process typically involves removal of soil to a depth of 1-2 feet, to a radius of approximately 3-5 feet.

**Structural Pruning** – pruning to develop a strong trunk and branch framework to support the tree crown. When the structure is strong, it is less likely that the tree will fail. The primary benefits of structural pruning are: (1) reducing risk of damage or injury from tree failure; (2) prolonged tree life and the environmental, ecological, and social benefits trees provide; and (3) reducing the costs of pruning and tree repair work over the life of the tree.

## SCOPE OF WORK AND LIMITATIONS

Urban Forestry Associates has no personal or monetary interest in the outcome of this investigation. All observations regarding trees in this report were made by UFA, independently, based on our education and experience. All determinations of health condition, structural condition, or hazard potential of a tree or trees at issue are based on our best professional judgment. The health and hazard assessments in this report are limited by the visual nature of the assessment. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Since trees are living organisms, conditions are often hidden within the tree and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Likewise, remedial treatments cannot be guaranteed. Trees can be managed but they cannot be controlled. To live near trees is to accept some degree of risk and the only way to eliminate all risk associated with trees is to eliminate all trees.

**Table 1. Condition ratings table. Taken from *Guide for Plant Appraisal, 10th edition***

Rating category	Condition components		
	Health	Structure	Form
Excellent	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.
Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.
Fair	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised.
Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree.
Very poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.
Dead			