

Planning for the Care of Mature Trees

Tyler Mitten, Board-Certified Master Arborist

Large, mature trees provide a variety of utility, ecological, and psychological benefits that make them well worth caring for. Mature trees reduce heating and cooling costs, lower human stress levels, and increase property values. Trees are vitally important for hundreds of species of microorganisms, insects, birds, and mammals that depend on them for food and shelter. The root systems of large trees also play an important role in managing stormwater and runoff. Trees, like other assets, require maintenance and care. This maintenance and care often requires budgeting and spending money to keep them maintained.

The goal of this article is to provide insight into the services required to manage mature trees in an urban or suburban environment to help prevent surprise expenses when caring for them. Consider adopting the same attitude as saving for a new car, new roof, bathroom remodel, etc. when caring for your trees. Starting your own “tree fund” account could be the difference between adequately caring for your family’s favorite tree or potentially being forced to remove it!

Initial Assessments

An initial professional assessment of your mature trees is a proactive, cost-effective way to plan and budget for future services. Consulting arborists can identify structural defects, nutrient deficiencies, the presence of pests and diseases, and site concerns all in one appointment. Most consulting arborists can also utilize advanced methods for tree risk assessment and decay detection. Starting with an initial assessment helps determine if your tree is worth investing in and what treatments are immediately necessary. Expected cost for this service varies depending on the level of equipment used and the credentials of the consulting arborist.

Plant Health Care

After the initial assessment, establishing a plant health care (PHC) program may be necessary. PHC refers to any service that aims to improve the health of the tree, such as soil amendment or modification, fertilization, root health improvement, and treatment of pests or diseases. Below are some common examples of PHC services for mature trees:

Air excavation services

An increasingly popular PHC service is air excavation- using high-volume compressed air to remove soil without damaging tree roots. Air excavation can be used to improve tree health in a number of ways, including:

- Uncovering root flares to restore proper soil grade level
- Removing excess mulch or turf from the critical root zone
- Girdling root removal

- Root pruning
- Vertical mulching or radial trenching for soil aeration

Proper soil height on the trunk and root flare is an important health factor for mature trees and is often overlooked. Soil grade is often altered during construction or landscape projects, leaving excess soil piled around trees and covering the root flare. This can affect gas exchange, slowly suffocating the tree. Air excavation can be used to restore proper soil height while also creating an appropriately sized mulch ring, thereby reducing water and nutrient competition with turf in the tree's critical root zone.

Girdling roots are roots that have begun to strangle other main roots or the trunk of the tree. These roots restrict nutrient and water transport through the cambium layer of the tree, just like leaving a rubber band on our wrist restricts blood flow. Air excavation can expose the problem roots, allowing a PHC technician to prune them away without damaging the rest of the root system.

Vertical mulching or radial trenching can help remediate heavily degraded, compacted soils often found in urban environments. These soils lack adequate pore spacing and organic material necessary for healthy root growth. These soil improvement techniques fracture compacted soil by injecting air below the surface. The holes are then filled with organic materials to maintain the newly created pore space and deliver nutrients directly to the root zones of trees.

Pest and Disease Treatment

For species that are more prone to severe pests and diseases, arborists may recommend a PHC program centered on the prevention of pests or pathogens rather than reactive treatment. This is especially true for:

- ash trees - Emerald Ash Borer
- oak trees - Oak Wilt Disease
- American elm trees - Dutch Elm Disease

Emerald Ash Borer populations can often be suppressed with biannual insecticide trunk injections, while Oak wilt and Dutch Elm disease can both be prevented with biannual or triannual fungicide trunk injections.

Less critical pests and diseases, such as scale insects, foliar fungal issues, and chlorosis, can be treated reactively as needed after being identified by an arborist. Laboratory testing can also be used to confirm the presence of certain pathogens or nutrient deficiencies.

Fertilization

Biannual fertilization with organic materials is a cost-effective way to give your mature tree any additional nutrients it may be missing from its environment. Soil and foliar samples can be collected for nutrient analysis prior to fertilizing, either by a consultant during an initial assessment

or prior to performing fertilization service. This allows arborists to know which nutrients are lacking in the soil or in the tree and prevents the formation of a phytotoxic environment.

Costs for PHC services can vary widely depending on tree size, infestation severity, and treatment methods required. Treatments requiring trunk injections, sprays, and deep root fertilization should be completed only by licensed professionals with proper equipment, and only after proper diagnostic measures have been taken.

Pruning

Pruning mature trees is generally less intensive than pruning young trees in terms of the portion of the canopy that is managed. The goal of pruning large trees is to maintain a healthy canopy while also mitigating risk. If the tree has been well-maintained throughout its life, pruning costs can be kept relatively low. If not, a higher initial pruning cost can be expected. It is much less expensive to manage trees periodically from the time they are planted than to attempt to “make up for lost time” once they are already of mature size.

Examples that constitute higher initial costs include:

- Weak main unions (may require mechanical support or severe weight reduction)
- Abnormal amounts of deadwood measuring 2 inches in diameter or more
- Many over-extended branches to prune back, especially over structures
- Large, co-dominant stems to subordinate or otherwise mitigate
- Very close proximity to structures

After resolving any of the above, annual costs to prune mature trees as needed can be assumed to be fairly low, as typical pruning cycles for mature trees can range from 3-7 years. This largely depends on the property owner’s level of concern and the tree’s proximity to any structures or infrastructure.

Conclusion

As with any major asset, trees can present up-front costs in order to receive their long-term benefits. This is especially true when managing large trees in the urban or suburban environment. Great care must be taken in order to balance human needs and safety with the health and longevity of large, mature trees.

Maintaining the benefits that trees provide often requires the tree manager or owner to provide health and structural improvements. These improvements should be based on what will improve the tree’s health, vigor, and reduce the risks it may pose to certain targets of concern. Your trees should be periodically inspected, and you should have a tree fund set aside to manage your tree assets so they can continue to provide the numerous benefits they offer.

There are over 1,000 qualified tree experts in the state of Ohio who have passed rigorous training and testing by the International Society of Arboriculture to become ISA Certified Arborists. These tree care professionals have the knowledge and experience to ensure your trees are in a safe, healthy, and functional condition. To find one in your area, visit www.trees4ohio.org.

Written by Tyler Mitten and reviewed by Mark A. Webber

The Ohio Chapter International Society of Arboriculture's mission is to advance responsible tree care practices through research, technology, and education while promoting the benefits of trees.