

Citizen Tree & Shade Committee

ORDINANCE GUIDELINES – 2018 Jan 30

Section 1. Introduction

We recognize the importance of trees in our communities for their economic, environmental, health, and safety benefits. We further recognize the equity gaps in our current tree canopy and the need to prioritize these in our approach to increasing our urban tree canopy.

Trees are a source of natural capital that produce value for our communities. A 2016 study by the U.S. Forest Service found a return of investment of \$5.82 for every \$1 spent on planting trees. These economic benefits take the form of energy savings, increased property values, and additional business revenue generated as people are attracted to the urban forest image of the city. Trees are one of the few assets that become more valuable over time.

Trees provide environmental benefits by filtering air pollutants, increasing atmospheric oxygen levels, reducing stormwater runoff, improving water quality, sequestering carbon dioxide, stabilizing soils, and reducing heat. The biological diversity of wildlife and plant communities are also enhanced by the favorable conditions created by trees.

Trees are vital health and safety infrastructure. Air quality concerns and heat related deaths are rising in our city. The Environmental Protection Agency recognizes planting and maintaining trees as an effective way to reduce urban heat islands and should therefore be valued seriously as public health infrastructure.

A 2017 report by The Nature Conservancy stated that the national standard for public investment in trees is one-third of a percent of a city's budget, and an investment of \$8 per capita is needed to grow and maintain urban tree canopies to levels where economic, public health, and environmental benefits are fully realized. Applying that to Phoenix, one-third of a percent of the 2017-2018 City of Phoenix's general fund budget of \$1.27B would have been \$4.2M, though this would have achieved only \$3 per capita.

These ordinance guidelines act on the City of Phoenix's nationally recognized 2010 Tree & Shade Master Plan and its stated goals of 1) raising awareness, 2) preserving, protecting, & increasing the urban tree canopy, and 3) sustainable and maintainable infrastructure. Ratified by the voters in the General Plan (2015), the purpose of these ordinance guidelines are to provide a clear and effective mechanism that provides direction for City staff, developers, professionals in the field, and residents to ensure both the installation and retention of trees and shade in both public and private spaces.

Section 2. General

Stewardship of the urban tree canopy is one of the most significant, long-lasting, and best-yielding investments. This is acknowledged by the City's commitment to provide an urban tree canopy of 25% by the year 2030. As of July 2015, this figure stood at approximately 12.4%. To achieve this goal, these ordinance guidelines should be used to increase, maintain, and protect trees in the public and private realms, and create the Citizen Tree & Shade Committee as recommended in the Tree & Shade Master Plan.

1. Citizen Tree & Shade Committee

These ordinance guidelines call for the immediate creation of the Citizen Tree & Shade Committee called for in the 2010 Tree & Shade Master Plan. Its membership shall consist of not less than eleven (11) members who shall be residents of Phoenix and who are representative of the diversity of our community and includes at least one landscape architect, one horticulturist/certified arborist, and one agronomist appointed by the mayor; and additional members appointed by councilpersons. All shall serve staggered three-year terms. Its charge is to oversee both the City's efficacy in implementing these ordinance guidelines, resulting ordinances, and the goals set forth in the Tree & Shade Master Plan, including yearly review of the current tree and shade data, goals, and actionable items. It shall provide recommendations to City Council and/or City departments as is necessary or relevant in order to meet the stated urban tree canopy goal of 25% by the year 2030, measure results, and make recommendations for increasing the goal when deemed necessary.

2. Focus on Areas of High Priority

Fairness of public investment in the distribution, delivery, and maintenance of services derived from urban tree canopies is a basic environmental justice and public health concern. Areas with high numbers of pedestrians and those who rely on public transportation would benefit greatly from increased shade, and the lowest existing tree canopy is in the most densely populated and least affluent neighborhoods of Phoenix. Both factors must inform our immediate investment priorities.

The following direction on how to prioritize urban tree canopy investments is a requirement, but not exhaustive:

- All primary and secondary schools where students walk to and from school as well as areas where students wait for transport to and from school.
- All transit stops in the top 20% of boardings (both bus and light rail) shall have shade trees along all pedestrian rights-of-way within at least a 500-foot radius from the transit stop.
- All grocery stores and grocery-replacement stores in under-served neighborhoods (as designated by the Planning & Development Department) shall have shade trees along the walkways from the pedestrian rights-of-way to the store entrances.
- The urban villages of Central City, Estrella, Maryvale, and South Mountain have both above-average concentrations of low-income residents and below-average urban tree canopy coverage. The under-served areas of these four villages should be high-priority targets of new plantings and focused maintenance.

3. Updates to City Code

These ordinance guidelines are to be integrated into zoning ordinance wherever applicable and develop a vacant lot tree planting program that leverages unused land to further the goals of the Tree and Shade Master Plan.

4. Violations

- In addition to any other remedy allowed by law, violations by any person or entity shall be subject to civil actions and administrative penalties as determined by the City Attorney.
- Violations by any person or entity shall be liable for civil penalties of not less than \$250 or more than \$25,000 for each day the violation continues.
- All remedies prescribed herein are cumulative, and the election of one or more remedies does not bar the city from the pursuit of any other remedy for the purpose of enforcing these requirements herein.
- All fines, fees, penalties, etc. collected shall be deposited into a dedicated fund for stewardship of the urban tree canopy.

Section 3. Planting Trees

The planting and selection of trees plays an important part in the success in canopy density and long-term goals of shade produced by trees. The available soil mass and root space also contributes to the overall health, vitality, and lifespan of urban trees.

1. Tree species

- Tree species are limited to those specified for each neighborhood or character area, as developed by the Citizen Tree and Shade Committee. The use of alternative species must be approved by the City Arborist, the Planning & Development Director, and the Citizen Tree & Shade Committee. Tree locations in conflict with overhead power lines may use alternative tree species that are on the approved SRP or APS utility plant list and alternatively any species directly approved by SRP or APS.
- Palms (monocots) do not count toward minimum tree requirements as they do not significantly add to shade canopy.
- *Species diversity*. This standard applies only to the trees being planted, not to existing trees.
 - If there are fewer than 8 required trees, they may all be the same species.
 - If there are between 8 and 24 required trees, no more than 40 percent can be of one species.
 - If there are more than 24 required trees, no more than 25 percent can be of one species.

2. Tree sizing

- For new developments and rights-of-way a minimum of 24” box tree shall be planted. Appropriate tree caliper size shall be determined by species, as recommended by the Arizona Nursery Association tree standards.
- At least 30% of required new trees shall be a minimum 36” box tree. Appropriate tree caliper size shall be determined by species, as recommended by the Arizona Nursery Association tree standards.
- Where space allows, such as large intersection corners, or excess or irregularly shaped rights-of-way, street tree density should be increased via node (oasis) plantings.
- Trees must be accommodated near underground pipes such as water lines. This can be accomplished by installing a root barrier around or along the pipe per City of Phoenix standard or five (5) feet from the exterior pipe perimeter, whichever is closer.
- Water lines should be designed and installed as not to interfere with existing or planned tree locations.
- Tree spacing is to be determined by species, use of property, and goal of planting.
- A minimum of two-foot six-inch radius shall be clear of hardscape around the base of the tree.
- Tree roots shall be free of defects, including root girdling roots (RGR), stem girdling roots (SGR), and circling or kinked roots at the time of planting. Root defects shall be removed before planting. If defects cannot be removed, the tree shall not be planted.

3. Soil volume and structure

- Soil volume minimums shall be 500 cubic feet for ornamental trees and 1000 cubic feet for shade trees.
- Root paths, soil trenches, soil vaults, and suspended sidewalk systems (ex: Silva cells) are permitted to meet soil volume requirements.
- Up to 20 percent of structural soil volume may be used toward the minimum soil volume requirements.
- Soil compacted during construction should be excavated and water settled.

- Trees are not to be planted in caliche, solid rock, or in compacted soils. Areas of compaction which have been subsequently amended with 12 inches of friable native soil are suitable for planting.
- Trees in the right-of-way must be spaced and planted and their irrigation and soil systems designed for the tree to live as long as possible in order to maximize the value to citizens.
- There shall be maintained around the base of the trunk of each tree in the public rights-of-way, or on private property subject to site plan review and approval, thirty (30) square feet of “open ground”. The open ground may be provided through the use of landscape materials, tree grates, pervious pavers, or a combination thereof. The open ground shall have no dimension that is less than three (3) feet. The Planning & Development Department shall have the discretion to allow for open ground of less than thirty (30) square feet in instances where a sidewalk is less than seventy-two (72) inches wide and mitigating measures to assure the health of the tree are in place, including but not limited to enhanced irrigation and pervious pavers.

4. Irrigation for new trees

- Trees having similar water use requirements shall be grouped together in distinct hydro-zones.
- Whenever possible, passive irrigation techniques as described by the Watershed Management Group shall be implemented.
- Irrigation delivery shall be checked once per month after planting for a period of one year.
- Irrigation shall be inspected at one year from planting, at which time drip emitters should be moved to a drip line to encourage rooting away from the base of the tree.

Section 4. Maintaining Trees

Mature trees contribute long-term aesthetic, environmental, and economic benefits to the city. Property owners shall be responsible for maintaining the health of all trees on their property per the applicable site plan and shall replace any tree which dies unless a removal permit explicitly exempts this requirement.

1. Pruning

Pruning is a specialized type of maintenance that can be done reactively to eliminate hazards such as obstructed traffic signs or to remove branches at risk of falling. Pruning can also be done preventively for tree health and safety. Proactive pruning for health and safety is done to remove diseased or insect-infested wood, to improve air flow, to remove broken limbs to encourage wound closure and prevent hazards, and to prevent obstruction of signs and pedestrian traffic. Pruning also helps the tree to develop a strong structure.

- To ensure that long-developed investments in the urban tree canopy are preserved, all limb and root pruning shall be performed by International Society of Arboriculture (ISA)-certified arborists or ISA-certified tree workers.
- Pruning shall be in accordance with industry standards as defined in the ISA tree pruning guidelines and those in the American National Standards Institute (ANSI) A300 pruning standards. No tree may be excessively pruned or topped.
- No tree shall be pruned more than 14 feet above a public street, or 8 feet above public sidewalks or other public rights-of-way.

2. Irrigation

- All irrigation systems shall be designed and installed per the ISA standards.

3. Open Ground Around Tree Base

- Where any tree in the public rights-of-way, or on private property subject to site plan review and approval, is surrounded at the base of the trunk by ground which is not open, or by open ground of less quantity or measurement than required by Section 3, it shall be the responsibility of the Planning & Development Department to notify the owner of the property on which the tree is located to remove impervious materials and replace with appropriate materials that satisfies the description of open ground as required herein and within a time fixed in the notice. If the person or entity notified fails to remove the covering by the time fixed, the Department may perform the work and charge the person notified for the work done.
- Tree grates and pavers are often used in urban areas to cover the soil around trees planted in sidewalks. These grates and pavers, if left unmaintained, can damage trees as the trunks increase in diameter with growth. Grates and pavers should therefore have openings adequately sized to allow for trunk growth.
- Tree grates must always be maintained to be at least four inches from the base of the tree at all points, therefore grates and pavers will need to be replaced or adjusted every few years as tree trunks expand to avoid causing damage.
- The use of string trimmers shall not be permitted at the base of trees unless the appropriate protection is in place around the base the tree base to avoid girdling.
- Support staking shall be limited to the use of materials that do not constrict growth of the trunk and shall be removed after one year, per ISA and ANSI standards.

4. Health checks

- After the one-year irrigation establishment period, trees and irrigation systems shall be inspected by a certified arborist at least once every three months to ensure the proper maintenance and health of the tree.
- If any tree is found to have died due to neglect or improper maintenance, it shall be treated as having been removed without a permit.

Section 5. Removing Trees

1. Permit to remove

- No person shall, without a permit, remove any tree located on public property, or any tree having a diameter at breast height (DBH) of six inches.
- *Permit.* In order to remove trees for construction, renovation, demolition, landscaping, or other purposes, a permit shall be obtained by making application in a form prescribed by the Planning & Development Department.
 - Political subdivisions of the State, including the City of Phoenix, must also obtain any necessary permits.
 - Trees or portions of a tree that pose an immediate and significant danger to property or the general public may be removed immediately followed by reporting documentation submitted to the City within 15 days stating that the removal was prudent, necessary, and could not wait for the permitting process to be completed. In such case, the City Arborist must be notified and the tree shall be replaced per the City Arborist's instructions.
- *Application requirements.* Each application shall include the address of the property and the owner's name, phone, and email. If applicable, it shall also include the name, phone, and email of the tree service proposing to do the work.
 - Each tree shall be identified as to its species, its DBH, location, and identifying characteristics or added markings.

- Applications to remove trees for landscaping improvements or other purposes shall be accompanied by a tree replacement plan.
- *Process.*
 1. The applicant must post notice of application for a permit on the site in question and provide affidavit of the same to the Planning & Development Department. This notice must remain in place for 15 calendar days.
 2. If the City Arborist or their designee grants preliminary approval of the application in whole or in part, the applicant must then post notice of such and must mark all trees to be removed. This second posting shall not begin until after the first posting is removed and must remain for 15 calendar days. During this time, the public may appeal the preliminary approval.
 - Any Phoenix resident or registered neighborhood association may appeal the decision within 15 calendar days of the notice of preliminary approval. Appeals will be heard in a public hearing by the Director of the Planning & Development Department or their designee.
 3. The notice of preliminary approval shall be immediately posted in the office of the City Arborist that ruled on the application, on the City of Phoenix website, and in a prominent manner upon the property affected so that it may be seen and read by passers-by. The notice of preliminary approval shall inform any reader that an appeal may be filed and shall indicate the deadline by which the appeal must be filed. The notice shall further indicate that failure to appeal within the designated time period will result in the issuance of the removal permit without further right of appeal. If the notice of preliminary approval is not posted as required by this section, no permit shall be issued.
 4. If a preliminary approval is granted, and no appeals have been filed or all appeals have been denied, then the applicant shall be granted a permit to remove the tree(s) for which preliminary approval was granted.
- The Citizen Tree & Shade Committee may provide further additional rules regarding this process to the extent that such rules are not inconsistent with the requirements of this section.
- *Finality.* Once a permit has been granted in accordance with the procedures set forth in this section, there can be no further appeal.
- A fee schedule should be developed by City Staff.

2. Criteria for removal

- No permit shall be granted for the removal of any living and non-hazardous tree unless:
 1. A tree replacement plan meeting the requirements has been approved, and
 2. All other requirements of this article are met, and
 3. One of the following conditions exist:
 - The tree prevents reasonable access to the property;
 - The tree is located in the footprint of a proposed structure and there are no reasonable ways to design around it or move the tree;
 - The tree is diseased or injured where total failure will occur within two years as determined by a certified arborist, and
 - restoration to sound condition is not practicable, or
 - the disease may be transmitted to other trees, endangering their health.

3. Standards for tree replacement

- *Minimal impact on trees.* Each applicant for a permit to remove trees shall, to the maximum extent feasible, minimize the impact on the trees on the site.
- *Replacement Trees.* The applicant shall plant replacement trees on site that equal the total number of trees being removed unless otherwise stated on the removal permit.

Section 6. Development Projects

1. Site plan requirements

- Site plans shall include a tree survey identifying the size, species, and location of all trees having a DBH of four inches or greater. Such site plan shall contain topographic information at two-foot contour intervals and shall show all existing and proposed buildings and structures, driveways and parking areas, drainage structures, water detention areas, utilities, construction material staging grounds, and all areas of required cut and fill.
 - Single family lots of record may be exempt from the requirement of the topographic survey provided that no grading or cut or fill or other changes in topography will occur.
- Such plan shall denote for each tree to be saved, the percentage of root save area that will be impacted, the required protection fences for trees to be saved, and the proposed tree replacement plan. The proposed tree replacement plan shall set forth the manner in which the newly planted trees will be watered. (e.g. manually, drip irrigation, Gator bags, etc.) In addition, the proposed tree replacement plan shall have attached a copy of a paid maintenance contract for a minimum of 12 months, if applicable.
- A construction limit line shall be delineated on each site plan submitted for a building permit. Within the construction limit line, the tree replacement requirements shall be shown. Outside this limit line, no tree survey shall be required, and the applicant shall be required to leave undisturbed all areas of trees.
- *Boundary trees.* Boundary trees shall be included in the site plan. The on-site portion of the root save area of a boundary tree shall be enclosed in a tree protection fence according to established arboricultural standards. In consultation with the owner or owner's representative of a boundary tree, the city arborist may prescribe, and the applicant shall institute additional protective measures to limit impact on the tree during construction, including but not limited to watering regimes, root treatments, mulching, deadwood removal, and protective pruning.
- Shade trees shall be installed where not already in existence along all pedestrian rights-of-way adjacent to the development and inside all at-grade parking facilities in the development to the extent needed to shade at least 75% of each.

2. Pre-construction conference

- Upon approval of any permit for grading, demolition, or construction, no work shall commence, no grading shall be undertaken, and no trees shall be removed prior to a preconstruction conference on the site between a City arborist and the applicant or their designees. The City arborist shall inspect the site to assure the accuracy of permit application data and shall inspect tree protection fences and other protective devices which have been installed to protect trees. After the inspection is complete, the City arborist shall notify the director, and thereupon demolition, grading, and construction may proceed.
 - It is further provided that for any permit for an addition to a one-family or two-family residence, the City arborist may rely on data submitted in the application and certified by the applicant for the building permit in lieu of a preconstruction conference on the site.

3. Protection of trees during construction

- The City arborist shall require that improvements be located so as to result in the protection of the trees on the site. It is the specific intent of this section to require that damage to trees located within the setback and required yard areas and to trees located on abutting properties owned by others be minimized to the greatest degree possible under the particular circumstances, as determined by the City arborist according to the following guidelines:

- On lots and subdivisions of one acre or more, the applicant shall identify environmentally sensitive areas as part of the site plan required. Such areas shall include wetlands, floodplains, permanent and intermittent streams, stands of trees, and other significant aspects of the natural environment on site. Limits of disturbance to these areas shall be established and detailed on the site plan. In order to protect the more environmentally sensitive areas, development activities shall be confined to the portion of the lot required for the intended construction.
- On lots and subdivisions of less than one acre, root save areas shall be established in the setback and required yard areas to preserve trees in those areas. Grading, trenching, or other land disturbance in these areas shall be limited to necessary hydrologic and erosion control measures and access corridors to streets, utility connections, or other features required by code. In order to protect the trees in the setback and required yard areas, development activities shall be confined to the portion of the lot required for the intended construction.

4. Certificates of occupancy

- No certificate of occupancy shall be issued with respect to any permit unless and until a City arborist shall have inspected such site and confirmed that all replacement trees have been planted in accordance with this article.
- No certificate of occupancy shall be issued until an as-built is provided for soil solutions such as structural soil or Silva Cells.

Section 7. Monitor, Report, and Adjust

- City staff shall, within six months, estimate how many net trees must be planted each year, factoring expected tree loss, in order to achieve the Tree & Shade Master Plan goal of 25% urban tree canopy coverage by 2030 and submit this to City Council for review.
- Every six months, the City Arborist shall submit a report to City Council and the Citizen Tree & Shade Committee detailing progress made on each of the recommendations in the Tree & Shade Master Plan, known challenges to achieving the 25% goal and proposed ordinance or policy solutions to those challenges, and other ordinance or policy opportunities to further the City’s progress toward increasing the urban tree canopy.
- Every year, the City Arborist shall submit a report to City Council and the Citizen Tree & Shade Committee detailing the progress made to the urban tree canopy coverage percentage since the last report and the resulting projected year of achieving the 25% goal.
- The above reports shall be made publicly available on the City of Phoenix website.

Section 8. Definitions

- **“Caliper”** means the measurement of a tree trunk at 6 inches above the soil line.
- **“Drip Line”** means the outermost circumference of the tree canopy, where water drips from and onto the ground.
- **“Excessive Pruning”** means removing more than the ANSI-permitted amount of the functioning leaf, stem, or root area in a single growing season. Exceptions are when clearance from overhead utilities or public improvements is required or to abate a hazardous condition or other public nuisance. Excessive pruning does not include normal pruning that follows ANSI standards, see “Proper Arboricultural Practices,” and “Pruning”.

- **“Girdling”** means the squeezing or compression of the vascular system of a tree. Girdled stems and roots have limited movement of water and nutrient flow from the roots to the shoots which can negatively impact the tree’s health.
- **“Ornamental Tree”** means any tree that is not defined as a Shade Tree.
- **“Proper Arboricultural Practices”** means the methods employed during tree planting or cutting or removing any part of the branching structure of a plant in the crown, trunk, or root areas in accordance with the most recent edition of the American National Standards Institute (ANSI) “A-300 Standards” and published “Best Management Practices” of the International Society of Arboriculture.
- **“Removal”** means an act that causes or may be reasonably expected to cause a tree to die, including uprooting, severing the main trunk, damaging the root system, excessive pruning, and topping.
- **“Shade Tree”** means a tree meant to provide significant shade. These trees must have wide canopies in order to successfully cast shade for people below it. The more pedestrian activity that is expected near the tree necessitates more density in its canopy.
- **“Structural Soil”** means a type of engineered soil solution in which crushed stone provides the structural integrity that pavement applications require, yet also maintains gaps whereby tree roots can penetrate.
- **“Topping”** means the pruning practice of reducing tree height by cutting to a predetermined crown limit without regard to tree health or structural integrity. Topping does not include acceptable pruning practices as described in the ANSI “A-300 Pruning Standards” and companion “Best Management Practices for Tree Pruning” published by the International Society of Arboriculture, such as crown reduction, utility pruning, or crown cleaning to remove a safety hazard, dead, or diseased material. Topping is considered “removal”.