

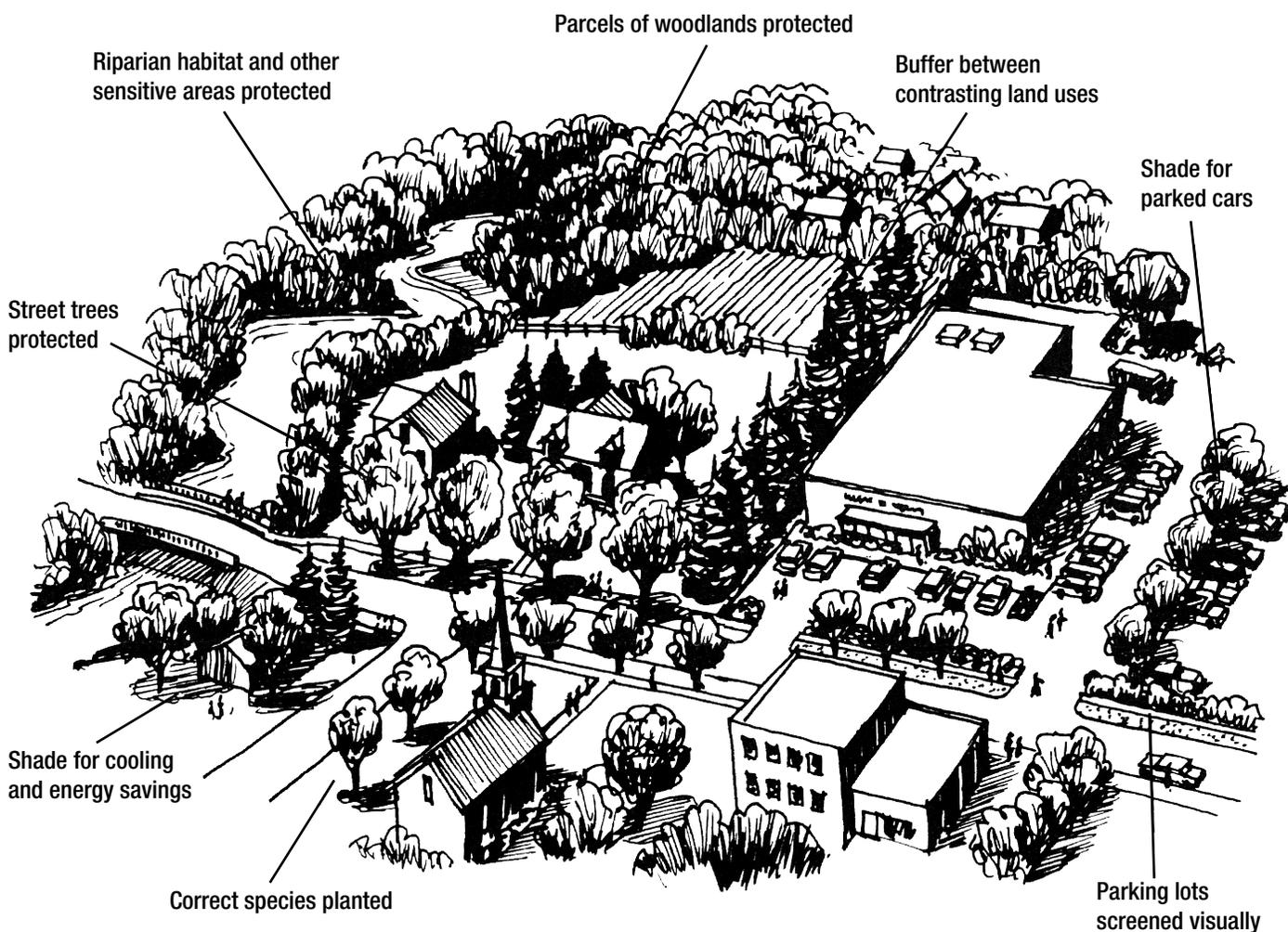


# Tree Protection Ordinances

**TREE CITY USA®  
BULLETIN**

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**O**rdinances are the strongest means available to a community for protecting its trees. Ordinances can safeguard street trees, ensure beautiful landscaping in commercial areas, and prevent woodlands from disappearing as shopping malls and housing tracts spread across the land. Used correctly, ordinances can help provide a high-quality environment — without causing undue hardships on developers.



Tree protection ordinances and landscape ordinances can provide a community with both practical and aesthetic benefits.

# Why Protection Ordinances?

*“Legions of belly-dumping earthmovers wheeled at speeds akin to tanks on flank attack. An antebellum-style house disappeared one night; all that was left were the surrounding trees. Dust clouds as if from brigades on maneuver rose to the sky. Wetlands were banked. Chain saws roared.”*

—Joel Garreau  
Edge City



Land development need not mean the end of trees! Tree protection ordinances provide a guide so that development is compatible with the area's natural vegetation and may include tree replacement when removal is unavoidable.

A community forestry specialist for the U.S. Forest Service recently noted that nine out of 10 public inquiries he receives are questions about how a community can save its trees in the face of land development. “There is a distinct increase in interest,” he said, “in protecting urban trees on private land, not just along streets and in public parks.”

Why this growing interest? Probably because citizens are alarmed at the disappearance of wooded sites at the edges of their cities. The conservation group Trees Atlanta reported not long ago that the Atlanta region was losing up to 50 acres of woodlands each day during the prime building season. The suburbs surrounding Washington, D.C., have lost up to half their woodlands over the past 30 years. From Florida to Seattle, the sciences of destruction are repeated, and citizens are seeking a stronger way to say, “Stop!”

Tree ordinances are not new. Perhaps the first came in 1807 when a Detroit ordinance specified the planting of trees along the city's streets. Eventually, sections were added to ordinances prohibiting the intentional damage or removal of street or park trees, and more recently, landscaping provisions were added to require the installation of trees and shrubs to

screen new parking lots or separate land use zones. Finally, there were ordinances to protect (or preserve as is commonly used in these laws) some percentage of tree cover in wooded areas on private land slated for development.

Regulating the fate of trees on private land is a controversial concept. To some, it is an onerous intrusion of government on the rights of individuals. To others, it is a duty of government, justifiable on the grounds of safeguarding the general health and welfare of society. There is considerable legal precedence for the action, usually based on the principle that the needs of society come before the rights of individual landowners. In recent years, the legal defense of tree protection ordinances has been broadened even more. Proponents argue that the regulations are justifiable based on the potential impact of development on a community and its environment. According to this line of reasoning, actions such as assessing fees or requiring tree replacement are similar to assessing fees for impacting the community's infrastructure in creating a demand for new schools and fire stations. In fact, by allowing ordinances that require developers to retain or provide trees, the law places trees on par with other services and amenities that citizens expect as part of a high standard of living.

# The Many Forms of Protection

## THE IMPORTANCE OF PUBLIC INPUT

*In the Seattle area, as in communities throughout the United States that are experiencing growth, officials are pleading with residents to get involved in the planning process. Few heed the call — until too late. Here is how one local professional explains the effect:*

*“The public doesn’t always get actively involved in the planning process and attend hearings that define city policy. But the developers do. They show up in force and speak up to weaken proposed ordinances. Then the community rises up and gets angry when building takes place and trees are destroyed. At that point it is too late.”*

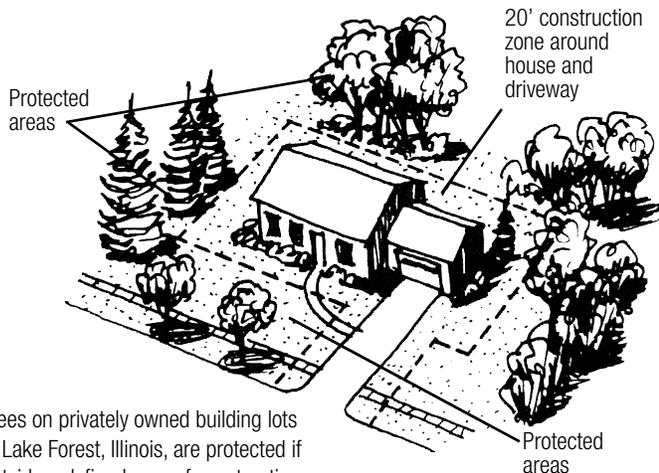
*-Dan DeWald*

NATURAL RESOURCE MANAGER, BELLEVUE PARKS & COMMUNITY SERVICES, BELLEVUE, WASHINGTON

Tree protection ordinances vary widely, as well they should. Because trees, individual needs, and the will of citizens vary from place to place, ordinances should be designed to fit the social and biological structure of a community. In general, however, the purpose of tree protection ordinances is to ensure that residents are not deprived of the many benefits of urban trees, including the practical aspects of wind protection and shade for energy savings, higher property values, less soil erosion, and the prevention of wetland siltation. Here are some examples that illustrate the range of tree protection ordinances currently in use. They are borrowed from an issue of the American Planning Association’s *Zoning News*.

## LAKE FOREST, ILLINOIS

- Permits are required for the removal of trees 12 inches in diameter and larger within 35 feet of the road right-of-way.
- If a removal permit is granted, the homeowner may be required to replace the tree with another one not less than 4 inches in diameter.
- Mass removal of trees on construction sites is limited to a defined “building envelope,” driveways, and utility routes.



Trees on privately owned building lots in Lake Forest, Illinois, are protected if outside a defined area of construction.

## HILTON HEAD ISLAND, SOUTH CAROLINA

- Homeowners are required to maintain the trees on their lot and replace any that die.
- Developers on previously cleared land are required to plant trees to meet a minimum number of square inches of tree trunk per acre.
- On wooded land, developers must count all trees and record the species. This becomes the basis for preserving a given number of trees (totaling 900 inches in diameter) per acre. In addition, to preserve diversity, the mix of trees must be essentially the same as in the original forest.

## AGOURA HILLS, CALIFORNIA

- To protect native oaks, a permit is required to remove an oak or even to prune limbs larger than 2 inches in diameter.
- When an oak is removed, four must be planted where there is growing space.
- During construction, a 5-foot-high chain link fence must be placed around all oaks at least 15 feet beyond the trunk.

## WEST BLOOMFIELD TOWNSHIP, MICHIGAN

- Woodlands are designated on official maps and identified by ecological sensitivity. This determines a “tolerance point” that is linked to a number of trees that can be removed by a developer without destroying the site’s woodland character. For example, in areas of good growth, 50 percent of the trees may be removed; in more delicate areas, removal may be limited to only 10 percent.
- Developers must post a bond equal to \$60 per tree to guarantee that the required number of trees will be left standing.

### **TWO VIEWS FROM THE DEVELOPMENT**

*COMMUNITY reveal the challenge — and the potential — of winning support for tree protection and landscape ordinances. Through flexibility based on site and conditions, communication that leads to understanding, and even-handed application of the law, it is possible to gain support and cooperation that make everyone a winner.*

“It would just input another layer of bureaucracy that is not needed. We have to deal with the building people, the planning people, the fire marshal, and the health department. And then to add this tree person, that’s just ridiculous.”

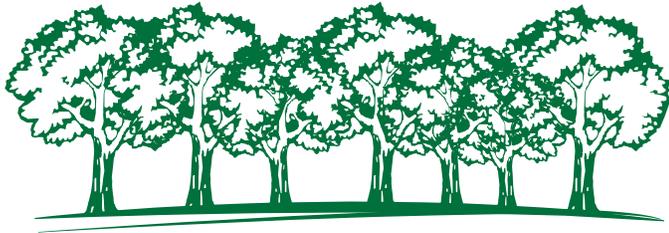
– Architect, *Overland Park, Kansas*

“At first blush, you would think once more it is government intervention on the developer. Let’s take one more pound of flesh from them ... (However,) in the past several years ... we began to understand it was just plain good for business. In fact, it was not only good for our business as a developer, but it was good for our customers, our tenants.”

– Developer, *Columbus, Ohio*

# Lessons for Urbanizing Counties

*Tree protection, or preservation, ordinances are primarily designed to protect existing trees during development. The reason is based largely on the societal benefits and ecoservices provided by trees. Fulton County is a rapidly urbanizing area surrounding Atlanta, Georgia, that adopted a strict tree protection ordinance in 1985. It is considered an ordinance with considerable strength while at the same time providing administrative flexibility and fairness. Today, much of the county has been incorporated as new cities such as Sandy Springs, Johns Creek, Milton, and others. These communities are adopting versions of the county ordinance, and it remains an excellent model for communities facing development and the disappearance of woods or farmland. The following is a general outline of the system provided by the ordinance and some thoughts on why it works.*



## REZONING AND PERMIT PROCEDURES

The county arborist is charged with conducting a preliminary review of all rezoning requests and special use permit applications. A field review may be made and conditions applied to the rezoning request in order to have the project conform to provisions of the tree preservation ordinance.

**ADVANTAGES:** First, the governing body must have a qualified, professional forester or arborist on staff in order to carry out the provisions of the ordinance. In addition, by including this person in the rezoning process, trees are considered at the very start of development.

A landscape/tree protection plan must be attached to applications for a land disturbance permit (required for all construction except individual single family homes and duplexes).

**ADVANTAGES:** This, too, requires that careful thought be given to saving trees early in the development process. It alerts developers early to what is expected, thereby not only protecting trees from intentional or inadvertent damage, but also protecting the developer from unexpected delays and expenses. It also ensures the participation of a forester in the approval hierarchy along with the engineers, hydrologists, and other city or county officials.

The county arborist or forester checks the plan for compliance with all provisions of the tree protection ordinance and can accept or deny the application.

**ADVANTAGES:** This gives the forestry professional more than a token role. He or she can actually stop a project if tree protection or replacement is inadequate.

## VIOLATIONS AND PENALTIES

Violators are charged with a misdemeanor. Each day's continuance is considered a separate offense.

**ADVANTAGES:** By imposing the daily condition, even small fines associated with misdemeanors become significant. This helps ensure compliance and prompt mitigation work.

## REMOVAL AND REPLACEMENT TREES

Trees are protected by zoning laws from mass removal without the approval of county officials.

**ADVANTAGES:** With this as a philosophical and legal base, it places the burden on developers to document why trees must be removed and to find ways to reduce or mitigate any loss.

When no trees are present on the development site (such as when farm fields are to be converted to housing), it becomes the responsibility of the owner or developer to landscape with trees.

**ADVANTAGES:** This provision deters land clearance in advance of applications for development and recognizes that trees help offset the environmental changes brought by urbanization. It also provides equal treatment for all developers, regardless of existing tree cover.

When grading is necessary outside the buildable area and/or the buildable area leaves no space for trees between the structure and the property line, minimum landscape areas are prescribed (with dimensions dependent on the type of zoning district) for front, side, and rear.

**ADVANTAGES:** Even in tight situations, this provision ensures some green amenities for the property and the community.

Specimen trees may not be removed without the express written permission of the county arborist. Administrative standards are established for the identification and protection of specimen trees.

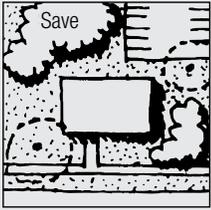
**ADVANTAGES:** Special attention is given to the truly important trees. By using administrative standards instead of language in the ordinance, flexibility is provided for the use of professional judgment and for making changes without going through the cumbersome process of amending the ordinance.

## ADMINISTRATIVE GUIDELINES

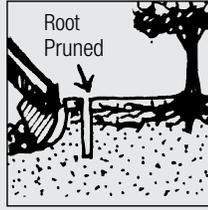
The heart of Fulton County's ordinance is that details for implementing it are spelled out in a separate document, Tree Preservation Ordinance Administrative Guidelines. Included in this document are explanations of the reasons behind tree protection, as well as detailed drawings ranging from how a planting hole should look to how to install root aeration systems. The intent is to provide clear explanation of the rules and to also be as helpful as possible to the developer.

# Protecting 'Save' Trees

Rules for the construction area focus mostly on protecting the roots and trunks of trees that are to remain on site. These include:



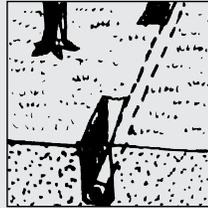
Requiring construction plans to delineate "save islands," entire stands of trees (the preferred option), or the drip lines of individual specimen trees.  
**REASON:** This incorporates tree protection into engineering plans and ensures that construction activities are kept a safe distance from the selected trees.



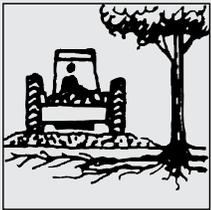
Suggesting (requiring, in the case of specimen trees) root pruning along the limits of land disturbance.  
**REASON:** Careful cutting prevents torn roots. Cut roots will produce a flush of new root growth and reduce the chance of rot entering the root system.



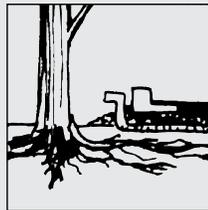
Specifying the construction of protective barriers around save areas and prohibiting construction activities in these protected zones.  
**REASON:** Protection barriers prevent soil compaction over critical root zones, injuries to bark and limbs, and spills of oil, concrete, or other harmful materials.



Recommending tunneling instead of trenching for the installation of utilities that cannot be routed around protected trees.  
**REASON:** Tunneling 2 to 4 feet beneath the surface avoids cutting most roots. This enhances the tree's chance to stay healthy following construction.

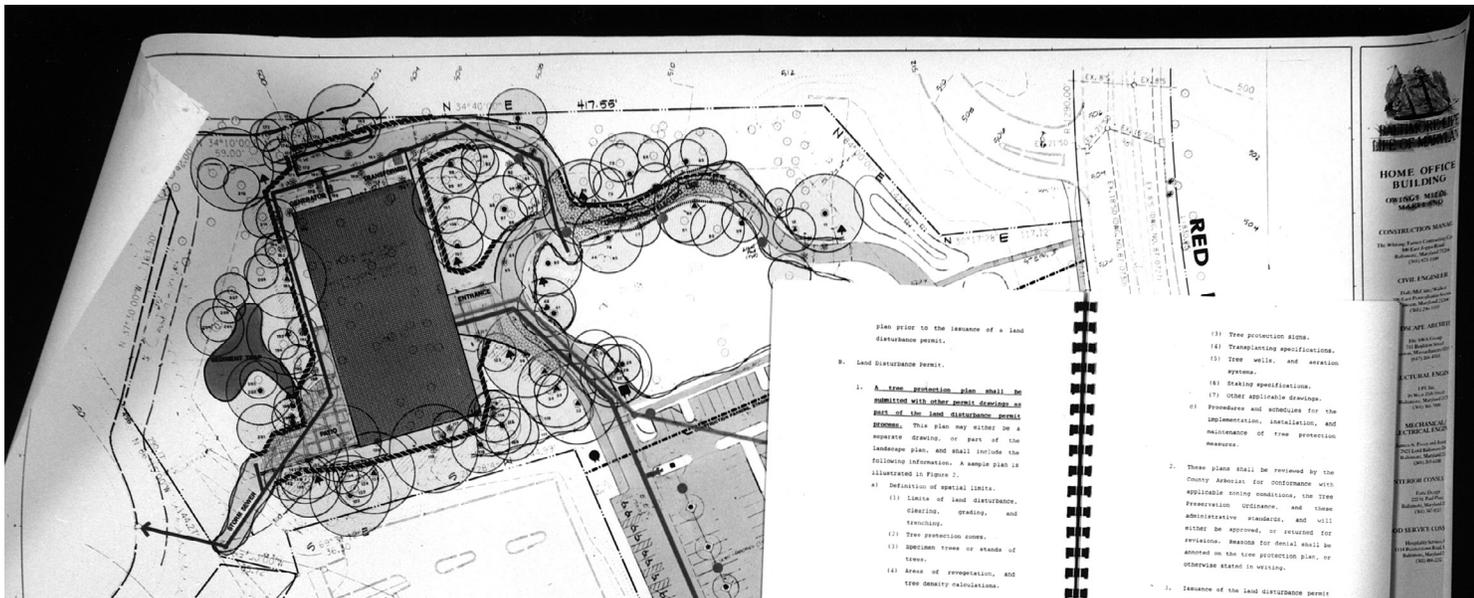


Requiring a 4-inch layer of chip mulch or 6 inches of pine straw where machinery must cross through a protected zone.  
**REASON:** This is a minimum layer of protection to displace the weight of machines and prevent loss of pores in the soil that allow passage of air and water to roots.



Suggesting aeration systems over root zones that must be covered with fill; retaining walls when cuts are unavailable.  
**REASON:** Providing air passages under fill or pavement prevents smothering roots; retaining walls help maintain original soil depth where the slope has been cut.

Importantly, to be effective, an arborist must have the authority to adjust the requirements or stiffen the suggestions based on the specific circumstances of the job site and the trees. This is the flexibility missing in many tree protection ordinances. Such a system is to the advantage of builders and in the best interests of trees — but to work effectively, it requires a knowledgeable and conscientious arborist or forester to make the hard decisions. This is no easy task in today's world of demands for "black or white" clarity.



Administrative Guidelines provides full details on how to comply with Fulton County's tree preservation ordinance. It also gives useful information to make tree planting and care a successful part of development.



# TREE CITY USA®

## AN IMPROVED ORDINANCE CAN HELP YOUR COMMUNITY QUALIFY FOR A TREE CITY USA GROWTH AWARD

Developing a new or improved tree protection ordinance can earn six of the 10 points required for a community to receive a Tree City USA Growth Award. The criteria fall under eligible activities in Category C – Planning and Management. Specifically:

A new or revised and significantly improved ordinance related to trees was adopted. The ordinance(s) must lead to the improved management and/or protection of trees and tree habitat and might include such measures as protecting historic or specimen trees, protecting trees and tree habitat during construction, conserving woodlands, ending tree topping, requiring new developments to preserve green spaces or plant trees, etc.



## TECHNIQUES TO GUARANTEE COMPLIANCE

If compliance with tree protection is part of a process and tied to the granting of permits, there is rarely any need for fines or other penalties. If the rules are clear and developers want to move through the steps of development, compliance is expected. The goal should be education of developers, teamwork, and voluntary compliance. *(In some cases, astute developers regularly exceed minimums and actually try to outperform competitors, win awards, and gain public recognition.)* When enforcement is necessary, these techniques are available:

- ✓ Providing conditions for zoning changes or denying permits.
- ✓ Stopping work orders.
- ✓ Delaying occupancy permits.
- ✓ Holding funds in escrow.
- ✓ Posting of performance bonds (including the guaranteed survival of trees within a given period, such as 18 months).

Incentives can often be as powerful as enforcement methods. These might include:

- ✓ Tax breaks, including current use rates for wooded areas rather than taxation based on market value.
- ✓ Variances on minimum parking lot surface, grade specifications, road or sidewalk width, set back distances, and similar requirements when minor allowances will help save trees.
- ✓ Free attendance at continuing education programs.
- ✓ Credits against planting or landscaping when large, existing trees are left on-site and adequately protected.
- ✓ Awards and publicity for successful trans-planting, tree protection, wildlife habitat preservation, and other achievements.

There are many ways to require the replacement of trees that are removed during development, but planting stock quality, species comparability, and flexibility based on site conditions are important components of any method. Most important is clear communication of ordinance requirements.

# Tree Replacement Formulas

*Communities search for methods of tree replacement or planting that are fair to developers and builders, easy to understand and apply, and that ensure the benefits of tree cover for the future. Methods vary and change with experience, but a specified percentage of surface area covered by tree crowns is currently a favored requirement in many communities.*

## HOW MUCH CANOPY?

The conservation organization American Forests has been a leader in quantifying the relationship between tree canopy and its function as city infrastructure. In other words, tree canopy provides measurable services such as stormwater retention, carbon sequestration, air pollutant filtration, energy savings, and others.

Ordinances that require developments to retain or achieve a specified percentage of tree canopy base the measure either on percent of gross acreage of the site or lot within the zone or land use designation, or after excluding built features. A timeline is usually included, such as the expectation that the percentage will be achieved in 10 years, for example. If mature trees are retained, some communities will give credits to meet the requirement and will lower the overall canopy cover requirement accordingly. Some require that if space in the development does not allow for retaining or achieving the required percentage, mitigation be done by planting trees elsewhere in the community.

## OTHER TREE REPLACEMENT METHODS

**Density formulas:** In this method, trees must be planted to make up the difference between the basal area of trees remaining after development in a wooded area and the basal area determined by experts to provide a satisfactory minimum amount of benefits that come from local natural forests. For example, this might be 66 percent of the basal area in a local forest under normal growing conditions.

**Specified diameter:** If a 12-inch-diameter tree is removed, a tree or trees totaling 12 inches must be planted.

**Specified number of trees per acre:** For a given area of land

(exclusive of buildings, pavement, and water surface), a given number of trees must be planted.

**Tree for tree replacement:** If 20 trees are removed, 20 trees must be planted following construction. If there is not space in the development, mitigation efforts are negotiated with the developer, usually asking that trees be planted in other areas to make up the difference.

**Parking lot specifications:** With 30-40 percent of the surface of many downtown areas devoted to parking lots, it is important that this space be addressed in ordinances. Some provide specific requirements such as one tree per seven parking spaces. Others specify a percentage of shade after a certain period of time, e.g. "10 years after installation, the landscaping must provide shade for 50 percent of the parking lot paving at 2 p.m. in July and August." The latter assumes that trees will grow to be approximately half their mature size in 10 years, and summer shading will increase thereafter.

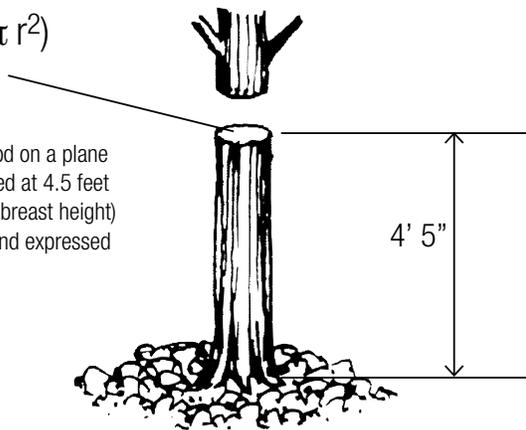
## WHAT IS TREE CANOPY?

For simplicity in determining percentages of tree canopy, tree canopy (C) is considered to be the square-foot area beneath tree crowns. It is determined either through aerial or satellite photography or by measuring the area under the crown spread of a tree ( $C = \pi r^2$ , where r is the radius of the crown spread in feet). Depending on species, trees have the following potential for canopy coverage:

<b>Very small trees</b>	150 sq. ft.	<b>Medium trees</b>	900 sq. ft.
<b>Small trees</b>	400 sq. ft.	<b>Large trees</b>	1,600 sq. ft.

Basal Area  
( $BA = \pi r^2$ )

The area of wood on a plane usually measured at 4.5 feet (DBH, diameter breast height) above ground and expressed in square feet.



The goal of tree replacement formulas is to ensure continued benefits of trees while at the same time being fair and equitable to developers.

# Tree Protection Ordinances Need Public Support

Abraham Lincoln once said, "Public sentiment is everything. With public sentiment nothing can fail; without it, nothing can succeed." This wise insight applies well to the protection of urban tree resources. If residents support a strong tree ordinance and insist on it being enforced, it portends well for the community forest.

One way to gain public support is to highlight heritage trees. These are trees of particular importance due to their great size, historic value, or some unusual feature. Each has a story that can attract media attention and develop public support for the tree's protection. When mapped and publicized — often in the form of a booklet — heritage trees can be the foundation for broader support for a comprehensive urban forestry program.

Ordinances must reflect the will of the people. Awareness through heritage programs, Arbor Day celebrations, and other activities that draw attention to trees is the first step toward tree protection ordinances. This is the ongoing challenge of tree boards nationwide.



Heritage trees and other significant trees can be protected when a strong ordinance is in effect and is enforced.

## FOR MORE INFORMATION

There is an abundance of information about ordinances in books, booklets, and online. For more sources, please visit [arborday.org/bulletins](http://arborday.org/bulletins).

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