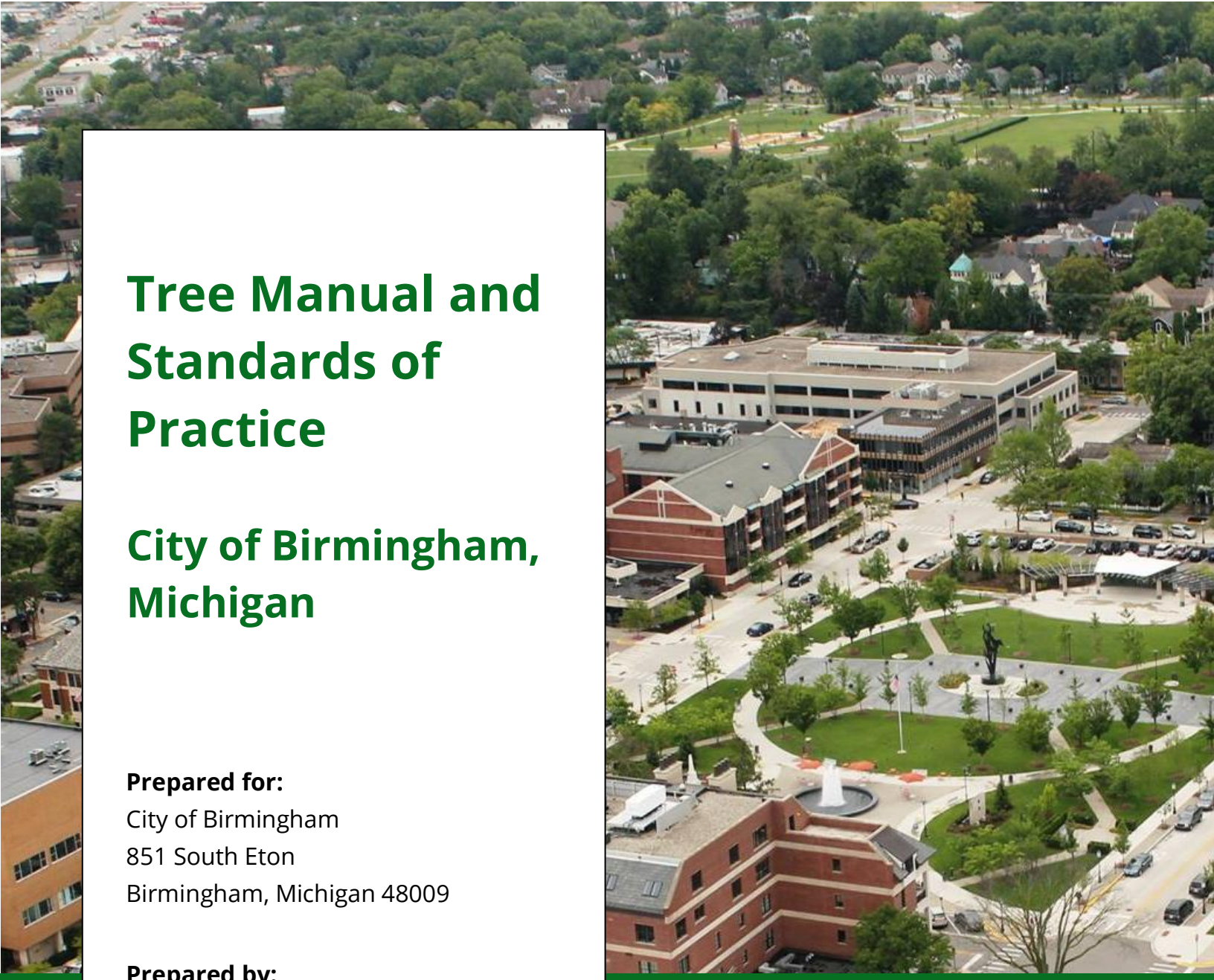


Tree Manual and Standards of Practice

City of Birmingham, Michigan

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ACKNOWLEDGMENTS

Birmingham is thankful for the grant funding they received from the Michigan Department of Natural Resources in cooperation with the U.S. Department of Agriculture Forest Service through its Urban and Community Forestry Program, the goal of which is to preserve, protect, expand, and improve Michigan's urban and community forestry resources.

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INTRODUCTION

In 2020, Birmingham received a grant from the Michigan Department of Natural Resources and worked with Davey Resource Group, Inc., "DRG", to develop this *Tree Manual and Standards of Practice*. The purpose of this tree manual is to provide information to the public and City staff that clarifies specific technical regulations, standards, and specifications necessary to implement the City ordinances related to trees. It also provides information about industry best practices and how they apply to Birmingham's urban forest, so the community can achieve its management and preservation goals. Specifically, this manual addresses the following goals:

- Align City tree maintenance guidelines with community goals and priorities.
- Provide the City with valuable tools to help enforce City tree policies.
- Establish clear guidance in the requirements, practices, and enforcement of tree maintenance.
- Promote the valuable role trees play in your community.
- Ensure compliance with current industry-accepted best practices and standards.

To write this Public Tree Manual and Standards of Practice, DRG reviewed pertinent documents, conducted interviews with City staff and the Contracted Arborist, and collected information about industry best practices and solutions to municipal forestry problems.

THE VALUE OF BIRMINGHAM'S URBAN FOREST

The tree canopy of Birmingham is viewed by residents as an important part of the character of the community, even in the heavily built-up districts and downtown areas. Birmingham has an aggressive urban forest management program and has been recognized by the State of Michigan and National Arbor Day Foundation as a Tree City USA for over 40 years, since 1978. The City of Birmingham recognizes its community trees are a significant public infrastructure asset and is dedicated to the protection and expansion of this valued asset. Scientists and researchers have studied the effects of trees on human behavior, traffic patterns, crime rates, air quality, storm water runoff, and property values. Trees are demonstrably beneficial and positively affect human and public health. Trees intercept storm water, sequester carbon, provide clean air, and contribute numerous human health and aesthetic benefits to Birmingham's residents. Trees also provide many economic benefits by reducing energy costs, increasing property values, and mitigating impacts on city infrastructure, such as reducing water entering storm water systems.



In 2012, Birmingham's public trees along the public rights-of-way and in two golf courses were inventoried and calculated to be valued at approximately $21,817,630.00 in benefits provided to the community. This

does not include the trees in Birmingham's parks, which provide additional benefits. The City expends time and resources to care for and promote tree health along streets, in parks, and in public properties throughout the community. For this reason, public trees—those trees located on the street right-of-way and on public properties—are deserving of protection and clear guidance on how, when, and by whom they should be planted, established, maintained, and removed. A management plan was written to provide recommendations for maintaining and planting trees to provide the highest return on investment. This manual reinforces those recommendations and builds on them.

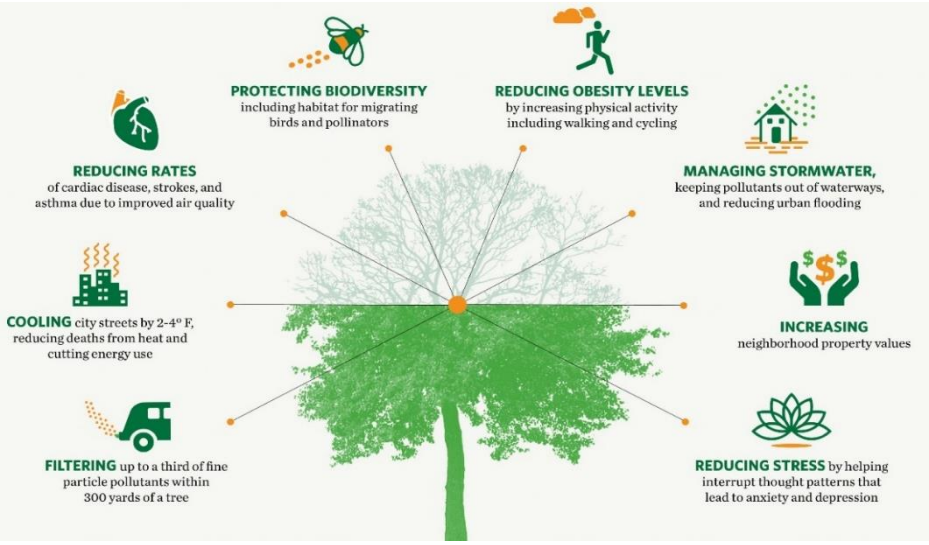


Figure 1. Benefits of Trees. Source: The Nature Conservancy

COMMUNITY GOALS

This manual was written with input from key City departments in Birmingham to understand the challenges the City faces and align community goals with respect to trees.



Figure 2. Birmingham's overall municipal goals

While the boundary of the City of Birmingham and neighborhood boundaries are not expanding, the community is in a state of growth. Birmingham is a desirable place for newcomers. Neighborhoods are under redevelopment and City streets are being rebuilt in the City Streets Improvement Program. It is understood that trees can present conflicts with existing infrastructure and new development by breaking up concrete, interfering with sewer lines, or simply being in places that conflict with plans for development. However, with careful planning and acknowledgement of the importance of trees to the community, the City can balance the demands of a developing community with the preservation of its highly valued trees. Birmingham is dedicated to both development and preservation of its valuable tree

resources and recognizes and addresses competing priorities. The City's Tree Preservation Ordinance and Zoning Ordinance help address these challenges and complement the City's tree management program for street and park trees.

In 2016, Birmingham's City Commission developed a set of 5 key goals for the community (Figure 2). These goals apply to all aspects of city management. The goals of the City urban forest management should be measurable and in line with these over-arching community goals. Table 1 outlines how Birmingham can address each goal when managing the urban forest.

Table 1. Birmingham community goals applied to urban forest management

Community Goals	Urban Forest Management
1. Provide sound leadership and responsible governance to maintain financial stability. a. Continue to utilize public resources in an effective, efficient manner, adapting to current and future economic trends and conditions. b. Balance community needs and desires with available resources.	• Trees provide economic benefits when they are properly cared for. • Adequate funding for tree planting and maintenance provides the community with a higher return on investment. • Follow best practices for urban forest management. • Careful record keeping of tree work to ensure resources are used effectively. • Clearly define roles urban forest management roles and process to maximize efficiencies.
2. Be innovative and responsive in how services are provided to the community. a. Seek new and collaborative approaches to improve the effectiveness and efficiency of competing community interests. b. Continue to provide the highest level of customer services in an economically sustainable manner.	• Streamline process for requests and complaints from the public. • Employ communication tools for transparency about best practices, tree health and maintenance needs, and prioritization of work. • Consistent enforcement of tree policies.
3. Support the vitality of both the residential and business communities that depend upon each other for success. a. Continue to encourage and recognize citizen involvement for the common good. b. Support continued private investment throughout the City.	• Tree-lined streets and greenspace contribute to the livability of a community. • Healthy trees and landscaping increase property values.
4. Cultivate a safe, healthy, and dynamic city. a. Foster an innovative and inclusive environment that attracts all people to live, work, shop, and play. b. Maintain a vibrant and walkable community.	• Trees and landscaped areas reduce crime rates and attract business and development to the neighborhoods and business districts. • Trees slow traffic. • Trees make communities more vibrant and walkable by cooling sidewalks and improved aesthetics.
5. Continue to be proactive with infrastructure maintenance programs and reinvestment in cost-effective improvements to roads, sewers, water mains, parking, parks, and public facilities.	• Birmingham parks are essential to the physical and mental well-being of community members. • Street trees are viewed essential infrastructure and should be prioritized as any other City infrastructure.

HOW TO USE THIS MANUAL

This manual is divided into six chapters, each covering a specific topic related to the care of Birmingham's urban forest. The purpose of the manual is to align community goals with best practices for urban forest management, as well as to inform the public about why the City of Birmingham follows certain procedures and policies.

For the Public: Members of the public in Birmingham can use this manual to gain information about how the City cares for trees and why certain policies and procedures are in place. It is recommended that members of the public start by reviewing the FAQ's section, as their questions may be easily answered.

For Developers and Contractors: Developers and private contractors can use this manual to better understand the policies in place in Birmingham that relate to construction and trees. It is recommended that developers use Chapter 5 (Tree Protection and Preservation) to learn more about the City's Tree Preservation Ordinance and Zoning Ordinance. Other sections should be referred to as they apply to specific construction projects. For example, when planting a tree as part of an approved Construction Site Plan, refer to the Chapter 1 (Tree Planting and Early Care) for tree planting best practices.

For City Staff and City-Contracted Arborists and Forestry Professionals: This manual provides key information about best practices for arboriculture and urban forestry. The information in this manual can be referenced and used to improve planting and maintenance practices. The manual will make it easier for the City to make consistent decisions and concisely communicate decisions and the reasons behind them to the public.

FREQUENTLY ASKED QUESTIONS (FAQ'S)

The following are answers to common public inquiries about the management of public and private trees in Birmingham. Sections of the manual are referenced; it is recommended to review referenced sections for more information:

What is a City (public) tree? Can I perform work on the City tree in front of my property?

> **Public trees:** Trees on public property, including the street rights-of-way and parks, are managed by the City's Department of Public Services. All work on public trees must be done or approved by the City. To prune or plant a tree on public property, the property owner must obtain a permit (See Appendix C) and hire a Tree Service registered with the City Clerk.
>
> **Private trees:** Trees on private property are the responsibility of the property owner. Tree planting, maintenance, and removals are at the discretion of the property owner. In specific situations, such as the discovery of diseased trees, property owners may be required by the City to take specific action on their public tree, such as removal or pruning. In addition, private trees within 25-feet of new development are considered in site plan reviews.
>
> **Shared trees:** Some trees are considered shared ownership trees (typically located inside of the sidewalk and/or on the edge of the right-of-way). The City maintains these trees and all the rules and regulations pertaining to public trees still apply. However, the City may be more inclined to allow for shared ownership tree removals in certain situations.

What can I do if a City tree is interfering with my construction project (renovation, new building, new driveway approach, sidewalk installation, etc.)? Can I remove or trim the tree, or prune its roots?

During construction and development, all work near public trees must go through the City's site plan review process before work can commence. Removal, pruning, and root pruning of public trees is strictly prohibited unless approved in a site plan or tree work permit. The City's Tree Preservation Ordinance outlines these policies and associated fines (See Chapter 5: Tree Protection and Preservation).

My City tree looks unhealthy or dead. Can I request a tree health inspection of my public tree?

The City contracts a Certified Arborist to perform inspections on public trees. If you suspect a tree in the street right-of-way is sick, injured, dead, or dying, contact the Department of Public Services. The Contracted Arborist will inspect the tree and make a determination on necessary maintenance and will respond or leave a Courtesy Notice at the caller's property notifying what correct measures, if any, will be taken by the City (See Chapters 2 and 3 about public tree maintenance and pruning).

Why can't I decide how to prune my City tree? I do not like the way the City pruned my tree.

Public trees are pruned routinely as part of the City's block trimming cycle, or when the tree presents a level of risk that requires pruning. The City prunes trees with the goals of minimizing risk to the public and keeping trees healthy to provide the maximum amount of tree benefits to the public. The City follows industry standards for pruning and, therefore, does not allow excessive or unnecessary pruning, topping of trees, or pruning strictly for aesthetics (See Chapters 2 and 3 about public tree maintenance and pruning).

My City tree is scheduled to be removed or pruned. Why hasn't the work been completed yet?

If your City tree received a Low-Risk rating, it may take several months to be removed or pruned. When inspecting trees, the City performs a tree risk assessment in line with industry standards and assigns each tree a risk rating. The City then prioritizes all work based on risk rating. For the safety of the public, the City will perform work on all Extreme and High-Risk trees before addressing Low-Risk trees, as Low-Risk trees are unlikely to cause immediate, severe damage to the public (See Chapters 2 and 3 about public tree maintenance and pruning).

Why can't I remove my City tree and plant a new tree?

Mature trees provide many more benefits than young trees. They provide more shade, filter more pollutants, absorb more storm water, and have a greater effect on reducing energy costs; the larger the tree, the more benefits it provides to the public. Additionally, tree planting is an investment. Young trees can require more maintenance, such as watering, staking, and structural pruning. For these reasons, the City does allow the replacement of existing trees unless the tree is dead or presents a risk to the public or the removal is part of an approved construction site plan.

How can I request a new tree planting for the right-of-way (lawn strip or tree bed) adjacent to my property?

The City of Birmingham plants about 200 public trees each year. To request a new public tree, call the Department of Public Services at 248-530-1700. The City will send a staff member or

Contracted Arborist to inspect the location. Determination on suitable planting sites and species selection are at the discretion of the City.

Can I choose the tree species to be planted in the right-of-way in front of my property?

Because the Department of Public Services has jurisdiction over public trees, the City chooses which tree species are planted at each site. The City's Contracted Arborist is knowledgeable about which tree is the appropriate choice for the site, following industry standards. While the public may have strong opinions about individual trees, species selections are made with many considerations in mind: site characteristics, species tolerances, overall diversity of the urban forest, future maintenance needs, pest and disease concerns, and nursery availability (See Chapter 1: Tree Planting and Early Care).

Can I decline a public tree planting?

The City has the final determination is selecting sites and species for tree plantings on public property, including the street right-of-way adjacent to private property. Trees on public property provide the entire community with the many environmental, aesthetic, and economic benefits. In Birmingham, public trees are viewed as necessary infrastructure. Just as the placement of other community assets such as fire hydrants and streetlights cannot be refuted, tree placement is viewed as a public asset that cannot be refuted. For these reasons, the City retains the right to deny any request to refuse a public tree. Few exceptions can be made, such as for accessibility issues or legitimate infrastructure conflicts (See Chapter 1 for planting information and Chapter 4 for justified reasons for tree removals).

Why does the City have policies about trees?

The urban forest is highly valued by community members in Birmingham. The social, economic, and environmental benefits of the City's urban trees amount to more than $21 million. Trees reduce energy costs, filter the air, and reduce storm water runoff. They provide wildlife habitat and contribute greatly to the beauty and character of the City, even in its heavily built-up commercial areas.



CHAPTER I.
TREE PLANTING AND EARLY CARE

This chapter provide guidance to help ensure Birmingham's newly planted trees thrive by selecting the right tree, the right location, and following best practices for planting and early tree care. Trees are a long-term investment; they take many years to establish and grow. Tree survival, growth rates and long-term health are a direct result of the thought given to planting and tree care, particularly in the early years. Planting trees is necessary to increase canopy cover and to replace trees lost to natural mortality (expected to be 1% per year) and other threats (for example, invasive pests or impacts from events such as storms, wind, ice, snow, flooding, and drought). Planning for the replacement of existing trees and finding the best places to create new canopy is critical.

Tree Planting in Birmingham

Sites for trees planted by the City are selected based on requests from the public and locations where trees were previously removed. Residents and developers can plant trees on public property through applications for Tree Planting Permits (Appendix C) or individual site plan review during construction projects (See Chapter 5: Tree Protection and Preservation).

Contracted Tree Planting

The City of Birmingham hires a planting contractor to plant most trees in public parks and in the City right-of-way. The contractor places tree care notices at properties with newly planted City trees. The City provides the sites to the planting contractor. The contractor is responsible for contacting MISS DIG and procuring plant material. The specified tree stock is 3"- 3 ½" caliper, balled and burlapped. Tree species and locations for planting in public areas are selected by the City's Contracted Arborist and approved by the Director of Public Services—including all trees planted in parks and on the public right-of-way.

TREE PLACEMENT

Choosing the right location for a new tree is critical to its long-term survival and maximizing the benefits it can provide to the entire community. It is more cost-effective to choose the right tree for a site than to modify the site after the tree has been planted or to have high maintenance costs because a poorly established tree is unhealthy.

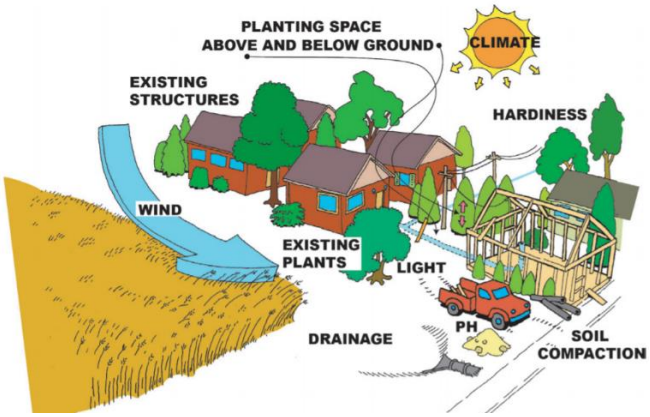


Figure 3. Site Conditions. Source: International Society of Arboriculture

Species Requirements and Tolerances

Each tree species has unique site requirements and tolerances for urban conditions. Once a potential tree-planting site is selected, the species for the site should be carefully chosen to match the characteristics of the site. Some site conditions that should inform species selection include available soil

volume, available light, soil moisture, soil PH, construction activity and soil compaction, road salt, and sources of air or soil pollution or contamination. Refer to Appendix A for Recommended Tree Species.

Tree Spacing

Trees planted on the street right-of-way should be centered between the curb and the sidewalk. Trees compete with other trees and vegetation for resources, such as light, water, and nutrients in the soil. Therefore, trees should be spaced an adequate distance from one another to minimize competition so each tree can thrive.

When determining tree spacing, it is important to consider the tree's size and shape once it reaches maturity, not its small size at planting time. Research the tree species before planting in order to visualize the tree's height and width at maturity and consider how much soil volume its roots will need to thrive.

- It is recommended that large statured trees should not be planted any closer than 30 to 40 feet from one another.
- Medium statured trees can be planted at least 25 feet apart.
- Small trees can be planted 20 feet apart.
- Permitted tree plantings and trees planted as part of a Construction Site Plan review should be spaced 40 feet apart when possible, as required by the Tree Preservation Ordinance and Zoning Ordinance (See Chapter 5: Tree Protection and Preservation for details). Exceptions based on species characteristics and design may be approved by the City.

Tree Placement around Utilities

It is important to locate underground and overhead utilities before planting a tree. A tree may be damaged in the future if it interferes with overhead utilities and requires pruning. Conversely, roots may require pruning or sustain damage if an underground utility line requires servicing. It is unsafe to dig a hole for a new tree on top of underground utility lines.

Underground Utilities

Trees should be located at least 5 feet from underground water, gas, or electric lines. It is wise to site trees away from any other existing underground utilities to prevent future damage to the tree when utilities require servicing.

Call MISS DIG (811) at least three days before planting to have underground utilities or services marked. Adjust the final location of your tree as necessary to prevent impacts to overhead and underground utilities.

Overhead Utilities

Utility companies have jurisdiction over the right-of-way surrounding their overhead lines. This means that within a 10-foot radius of an overhead utility line, the respective utility company may prune the tree if it conflicts with the line. This pruning is done with the goal of minimizing interference with the line and may not take industry standards for pruning and long-term tree health into consideration. For this reason, it is crucial that large statured trees are not planted near overhead utility lines.

It is suggested that no tree species that grows to a height of 30 feet or greater at maturity should be planted beneath or within 15 feet on either side of existing overhead power lines. This guideline applies to primary, secondary, and distribution lines.

Tree Placement around Infrastructure and Buildings

Trees in urban areas are a necessary component of City infrastructure, just like stop signs and sidewalks, and should be treated as such. Careful planning of tree planting locations will ensure trees do not interfere with other City infrastructure or buildings. A tree planted in the right location can thrive and will not impede safety or become a financial burden by causing preventable damages that prompt repair.

The following are general spacing requirements and guidelines around existing infrastructure and buildings. Exceptions can be made for unique conditions. Refer to Appendix A for Recommended Tree Species.

Tree Spacing Guidelines around City Infrastructure and Buildings

- Minimum distance from a stop sign should be 30 feet.
- Minimum distance from other traffic signs, such as “School Crossing” and “Stop Sign Ahead”, should be 25 feet.
- Minimum distance from a streetlight should be 25 feet.
- Minimum distance from a gas or water line should be 5 feet to the root flare.
- Minimum distance from a driveway or crosswalk should be 6 feet to the root flare.
- Minimum distance from the corner of a street intersection should be 35 feet.
- Tree width at maturity must be considered when planting trees near buildings. Large statured tree species that grow to a width of 30 to 40 feet at maturity should not be planted in narrow sites (within 10 to 20 feet of a building). Small or medium statured tree species or columnar varieties should be used in these tight spaces.
- Carefully consider clearance needs before selecting a tree species. Wide statured tree species with prominent excurrent form (branches that grow horizontally from the trunk) may be inappropriate for streets with heavy truck or bus traffic.

TIMING OF PLANTING

Trees can become overly stressed during planting. They are removed from their ideal growing conditions in the nursery and placed in an environment with challenging urban conditions, such as soil compaction, air pollution, and road salt. It may take several years for a tree to recover from transplant shock and become established and healthy. To help minimize this stress, trees should be planted while they are dormant. When dormant, trees can allocate resources to root development rather than canopy growth and begin establishment in their new soil environment.

Trees should be planted in the dormant season, before bud break or after leaf drop. Due to cool temperatures and moisture, early spring or late fall are ideal planting windows. However, provided additional water and care, trees can also be planted anytime during the growing season.

A resident planting a permitted tree within the City right-of-way or other public area should be sure to request a tree permit well in advance of their planting (See Appendix C). A developer planting a tree as part of a site plan review should start the permit process well in advance to be sure planting can be done prior to final site plan approval by the City (See Chapter 5: Tree Protection and Preservation).

SPECIES SELECTION

Diversity Goals

Diversity of tree species is critical to the long-term health and economic management of the urban forest. Having a diverse mix of trees in a community provides an aesthetic appeal. People commonly perceive a row of similar-looking trees as aesthetically appealing, but a range of species can be more interesting to look at, as they provide variety in structure, flowering time, and fall color, and provide habitat to different types of wildlife. If desired, communities can maintain some uniformity and still meet diversity goals by planting different species that have similarities in form, leaf shape, or other characteristics.

Monocultures, or urban forests with an abundance of one or just a few species, can result in detrimental losses of trees in a short period of time, putting strains on cities' financial and other resources. Urban forestry professionals have seen the devastating effects of monocultural plantings when Dutch elm disease destroyed populations of urban elm trees. In recent years, emerald ash borer has wiped out huge populations of ash trees in urban communities; many of these trees were planted to replace the lost elms. Birmingham's 2012 management plan emphasizes the important goal of diversifying the City's urban forest and highlights key pests. We cannot predict which tree species will be the host of future destructive forest pests and diseases, so the City's best defense is to encourage a wide palette of tree species, genera, and families. Refer to Appendix A for Recommended Tree Species.

10-20-30 Diversity Rule

Many urban forestry practitioners aim to follow the 10-20-30 rule. This means in any given area—city or neighborhood—any one species should make up no more than 10% of the tree population; any one genus should make up no more than 20% of the tree population; and any one family should make up no more than 30% of the tree population. A wide variety of tree species may help to limit the impacts from physical events, such as strong storms, wind, ice, flooding, and drought, as different species react differently to stress.

For example, the species swamp white oak, known as *Quercus bicolor*, should make up no more than 10% of Birmingham's tree population. The genus *Quercus* includes all oak species; oak should make up no more than 20% of the tree population. *Quercus bicolor* is part of the Fagaceae (beech) family that includes oak, beech, and hornbeam. These species should collectively make up no more than 30% of the tree population.

Recommended Tree Species

A list of recommended tree species is in Appendix A. This list includes tree species known to do well in Birmingham's urban environment as well as trees hardy to the region with known urban tolerance. It is important to note that this list is not exhaustive, and a vast number of trees may be suitable for public or private spaces. The Department of Public Services manages this list and updates it accordingly.

Native Species

The City of Birmingham encourages the planting of native over non-native species whenever possible. Native species are well-adapted to Michigan's climate conditions and native pests, provide wildlife habitat, and are less likely to encroach and take over a site. Refer to Appendix A for recommended native tree species.

Prohibited Tree Species

A list of common prohibited plant species is in Appendix B. These trees and plants are not allowed to be planted in public areas or on private property due to their invasive nature, susceptibility to disease or insects, undesirable structure or form, aggressive root systems, or other challenging characteristics. The Department of Public Services and the Contracted Arborist maintain the list of all Prohibited Species.

TREE PROCUREMENT AND TREE STOCK REQUIREMENTS

All trees planted on public property or as part of a site plan requirement shall meet or exceed American Standards for Nursery Stock (ANSI Z60.1-2004) at the time of planting. Be sure to inspect the tree root system before planting. Look for common problems such as girdling roots, buried root collars, J-rooting, inadequate moisture, or small root systems. During transport, be sure to protect both the tree's crown and root system from wind damage. Cover trees in an open bed or trailer with a tarp to reduce wind damage. Ensure the root ball remains moist, but ensure trees are not in transport for an excessive amount of time, as moisture may cause disease, fungal infections, or decay.



Figure 4. Tight branching and included bark can lead to future problems, such as splitting. Source: International Society of Arboriculture

Types of Tree Stock

There are three common types of tree stock sold in the nursery industry (See Figure 5). The focus of this manual is on balled-and-burlapped trees, since the City of Birmingham usually plants this type.

1. **Balled-and-burlapped** trees are delivered with soil surrounding the entire root system, referred to as the root ball. Balled-and-burlapped trees are slower to dry out than bare-root trees, as the roots are inside a soil ball. However, burlap may cover dead or poorly pruned roots and should be inspected before planting. The type of soil surrounding the roots should not be too different from the soil on the site or the tree roots may not extend sufficiently into the surrounding soil from the

root ball. In such a case, the backfill soil should be amended to provide a transition between the two types of soil.

2. **Bare-root** trees are delivered bare, without soil attached to the roots. They are the least expensive and allows roots to be in contact with the native soil. However, care must be taken to keep the roots protected and moist before planting, as the fine roots can dry rapidly.
3. **Container** trees are delivered in a container, usually the container in which they were grown. These trees have an undisturbed root system and can be planted with the intact root system. If the tree has been in the container for too long, however, the tree may be pot-bound with the roots encircling the inside perimeter of the pot. The roots should be sliced or partially separated to improve the ability of the tree to extend its roots into the surrounding soil.

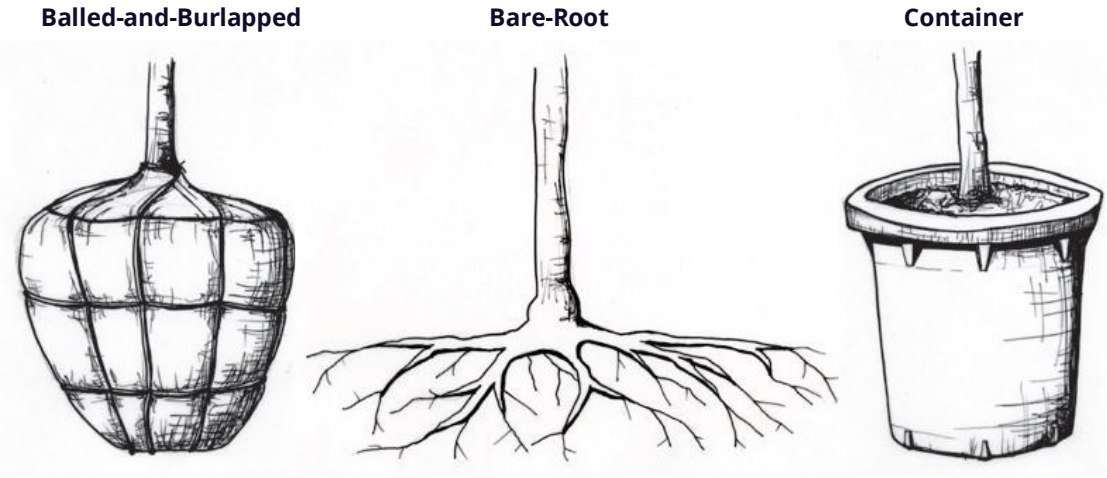


Figure 5. Types of Tree Stock. Source: USDA Forest Service.

Characteristics of Quality Tree Stock

- Trees with a good quality root system
- Trees should not be buried deep in root ball or container—the deeper the tree, the smaller the functional root system.
- Ideally, the root flare is visible upon delivery or only a couple inches below to soil surface.
- Trees should have no circling or girdling roots.
- Container trees should not be pot-bound. If the tree has been in the container too long, an excessive amount of root mass will need to be cut to mitigate circling roots, which can impede the tree's ability to get established.
- The tree's root system should surround the tree on all sides; no J-rooting.
- A straight trunk without wounds
- A single, central leader or stem (except in the case of small, ornamental trees as approved by the Director of Public Services).

- A full, well-balanced crown.
- Branches should be spaced several inches apart, not spaced so tightly that ideal branch spacing (approximately 18-inches) cannot be achieved through pruning once the tree is established.
- Branches should have wide angles of attachment, ideally 45 degrees or greater. Tight branch unions make weak crotches that will likely split when the branches grow larger.
- Tree should be free from any sign of pests, diseases, or decay. Note, presence of lichen and moss should not affect the health of the tree.
- Tree has good leaf color; leaves are not chlorotic (discolored) and are free of signs of pests and diseases.

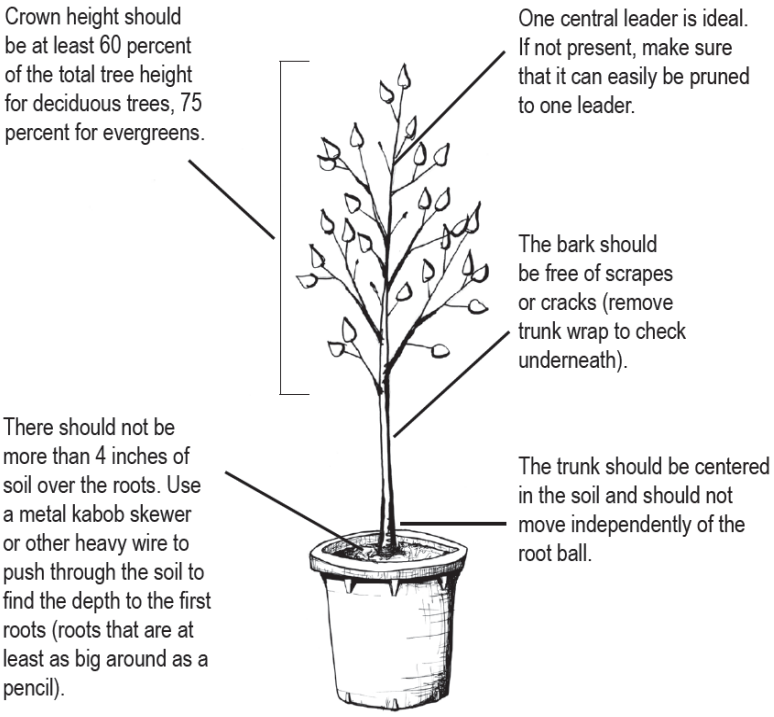


Figure 6. Selecting Quality Tree Stock. Source: USDA Forest Service.

Finding the Right Nursery

Many tree or partial tree failures are a result of poor-quality stock. These issues often occur underground and go unnoticed for years, leaving urban forestry practitioners and property owners wondering what could have been done to prevent the failure. Even with the right care and maintenance, trees with root problems arising in the nursery have a reduced chance for long-term survival. It is important to address these concerns at the source.

Many trees in the nursery do not meet industry standards for planting. It is recommended to continuously assess the quality of trees received from nursery sources and track any consistent issues. When consistent issues arise, they should be addressed with the source nursery. Some nurseries provide warranties for stock. If a nursery does not meet industry standards, it is time explore new tree sources to protect the long-term health and safety of Birmingham's trees and community members.

SOILS

Trees in forests have ideal conditions for growing. Forest soils provide adequate nutrients to the tree's roots as leaf litter and wood debris decompose on the forest floor. Fungal and animal organisms contribute to this nutrient cycling and help make water and nutrients available to tree roots. Trees in forests have adequate space for the roots to grow, often well beyond the dripline of the tree.

Trees in urban areas are typically growing in harsh, less than ideal conditions. Urban soils can be heavily compacted, contaminated with chemicals or construction debris, or saline due to heavy use of road salt. Trees are often planted in urban sites do not that offer enough space for roots to properly anchor the tree or seek out sufficient water and nutrients.

Soil Volume

Consider the mature size of a tree species when matching it with a planting location and size of tree bed. Tree roots are not a mirror image of the tree canopy; they often grow farther from the tree trunk than the dripline. Tree roots grow shallow in the soil for easy access to oxygen, water, and nutrients; often, most of the tree's root system grows in the top 18 inches of soil. The recommended minimum planting space width allowed for tree planting is approximately 4 feet wide whenever possible. The following guidelines will help minimize damage to sidewalks, sewer lines, and other features, and will ensure the tree has adequate space to thrive into maturity.

Minimum recommended tree bed size for:

- Small trees: 4 to 5 feet wide
- Medium trees: 6 to 7 feet wide
- Large trees: 8 feet wide

Mulch

One of the best things you can do for a tree is supply it with mulch. Mulch provides many benefits to the tree, including supplying nutrients, retaining moisture in the rooting area, and insulting the tree roots in winter. Mulch should be placed around the tree in a donut shape, with a space 1-3 inches left mulch free around the trunk. Placing mulch up against the trunk of the tree creates a moist environment that can lead to fungal infections and decay.

Soil Amendments

Ideal soils for tree planting have about 10% organic matter. Organic matter in urban soils helps mitigate the common problem of severely compacted soils by adding pore space to the soil structure; pore space, or tiny pockets of air in the soil, allows tree roots to penetrate the soil to seek out water, nutrients, and oxygen.

Regular soil tests should be completed to test the nutrient levels and organic matter content in soils. Urban soils can be amended during planting time, and even once the tree is mature. Compost is a common soil amendment and can be mixed in very small quantities with the soil in and around the planting space.

Fertilizer

Overuse of fertilizers can be very harmful to trees. "Fertilizer burn" can toxify tree roots or overstimulate canopy growth, diverting nutrients away from root establishment. Trees generally do not require fertilization. Fertilization should only be performed following a soil or tissue test to confirm that one or more nutrients are limited. Following the soil test, only fertilization that targets the limiting nutrient should

be performed. Fertilization should be performed by a qualified professional, to ensure a tree is receiving the right mix of nutrients, applied in the right manner, and to prevent unnecessary environmental impacts.

Engineered Soils

Birmingham installs engineered soils during large planting projects to combat severe soil compaction that restricts root growth. Engineered soils have larger particle sizes and larger pore spaces that prevent future compaction, allow for water movement through the soil, and give the roots room to grow.

Pervious Pavement

Trees growing in heavily built-up areas are often surrounded by concrete or asphalt, also known as impervious surfaces. During a rain event these trees receive very little water since there is minimal soil surface area for water to infiltrate. Most of the rain runs off, entering the street or storm sewer, and never reaches the tree's roots. It is recommended to use pervious pavement or pavers around tree beds in heavily built-up areas to help alleviate this issue.

PLANTING STANDARDS

The City of Birmingham encourages adherence to proper tree planting protocols. Tree planting should be performed and specified according to ANSI A300 Part 6 Standards.

Tree Planting Steps

For planting trees on public property and as requirement for construction site plans, the City requires the following planting steps are carefully followed:

1. **Prepare the site and soil for tree planting**, on a site-by-site basis. In heavily built-up areas, engineered soils, soil amendments, and/or pervious pavement is encouraged.
2. **Identify the root flare**. The root flare is where the roots spread at the base of the tree. The root flare is located where the first major root extends horizontally from the tree's trunk. When trees arrive from the nursery, the root flares may be buried under several inches of soil. If the flare is not visible, remove some soil from the top of the root ball or planting container to find it (Figure 7). The tree must be planted so the tree's root flare is at grade.

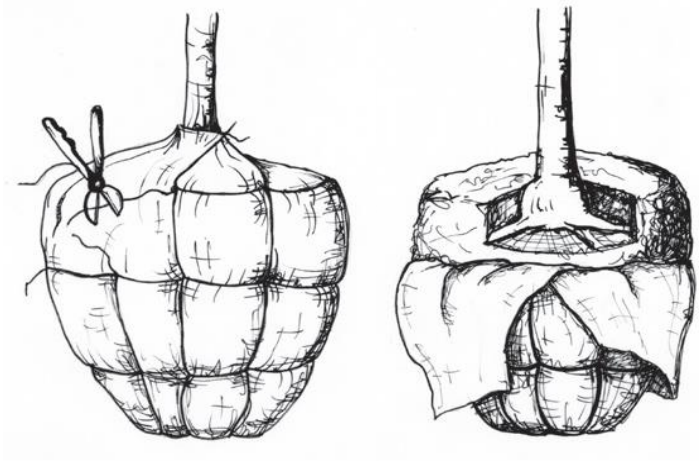


Figure 7. Find the root flare. It may be buried under several inches of soil. Source: USDA Forest Service.

3. **Dig a shallow, broad planting hole**. A planting hole should only be as deep as necessary to ensure the tree's root flare is planted at grade. The hole should be as much as two to three times the diameter of the root ball (Figure 8). The purpose of making the hole wider is to loosen the soil around the tree, to decompact the soil to promote root growth.

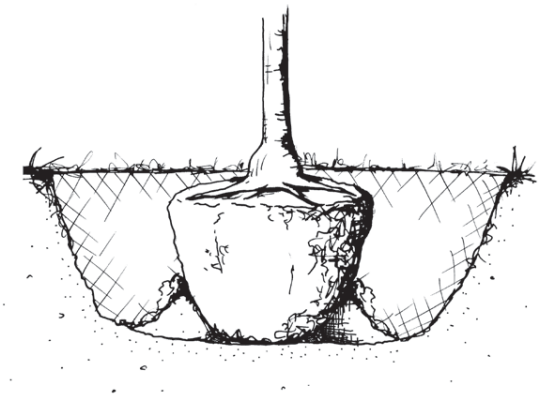


Figure 8. Dig a hole the depth of the root ball and two to three times wider than the root ball. Source: USDA Forest Service.

4. **Prepare the tree for planting**. Any ties in the tree's canopy should be removed prior to planting. These may be difficult to reach once the tree is planted. Container trees should be removed from the container at this time. Inspect the roots for any girdling or circling roots. Cut any roots growing in a circular direction (tree roots will not uncoil or change direction on their own once planted). Broken, dead, damaged, or crossing branches may be pruned at the time of planting. Otherwise, the City of Birmingham does not recommend pruning newly planted trees until after the second growing season. Removal of too many live limbs during planting time will stress the tree and prevent its roots from being firmly established.
5. **Place the tree in the hole**. Before placing the tree in the hole, check the depth to ensure the tree's root flare will be at grade. Place the tree in the hole and check depth again. If necessary, remove the tree from the hole, or shift the tree, and add or remove soil to ensure the root flare is at the proper depth. Always lift the tree from its root ball and not the trunk to prevent straining the trunk. It is better to plant a tree 1 or 2 inches too high than too deep.
6. **Straighten the tree in the hole**. Check that the tree's trunk is straight and centered in the planting hole. Walk 360 degrees around the tree to make sure it is straight from every angle. If the tree trunk has a bend in it, the tree should be positioned so the base is straight, and the top will likely straighten over time as it grows.
7. **Fill the hole**. If the tree is wrapped with burlap or wire, cut and remove as much burlap and wire as possible. As a general rule, the top 2/3 of the burlap and wire basket should be removed. Backfill the hole 6 inches at a time. With each 6-inch layer, gently, but firmly tamp the soil with your hands or feet to slightly compress the soil. Do not stomp or jump on the backfilled soil. Add soil until the hole reaches grade. Do not add excess soil to the newly planted tree. Old roots, rocks, concrete, and other debris should be disposed of properly.
8. **Water the tree**. When the hole is filled, apply enough water to moisten the entire planting hole and tree's root system. The installer may need to wait for water to permeate into the soil before adding more water. As a general rule, give the tree approximately 20 gallons of water after planting.

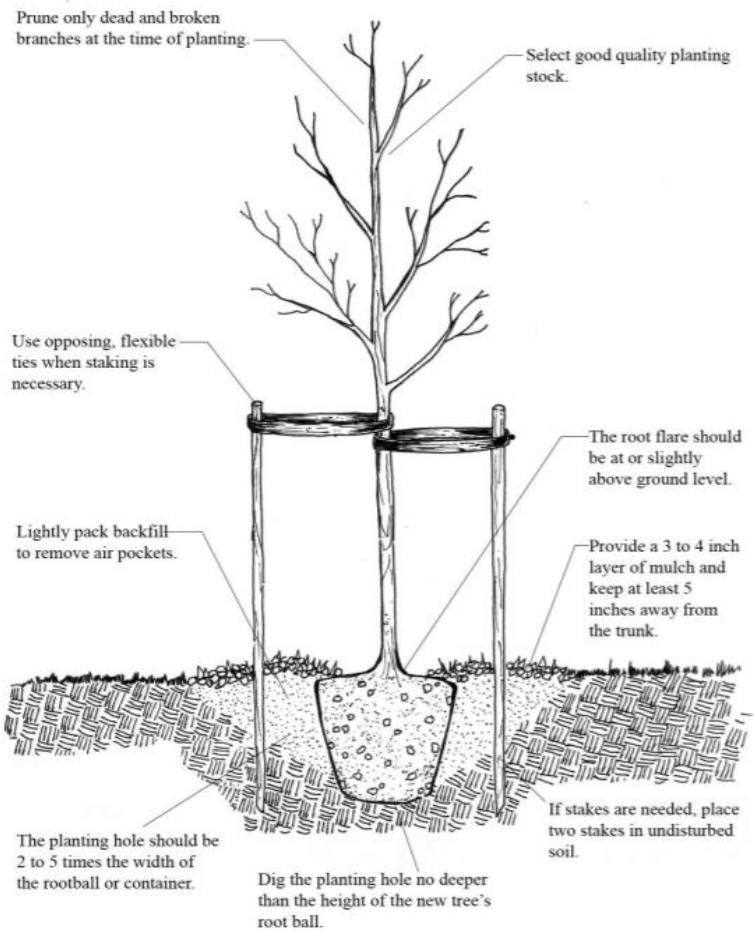


Figure 9. Tree planting specifications. Source: Racine Wisconsin Tree Manual and Standards of Practice

9. **Stake the tree only when necessary**. Trees should only be staked if staking is necessary for the tree to remain upright, such as windy sites. Research has shown that trees establish more quickly and develop stronger root systems and trunks without stakes. If the installer decides to stake the tree, two or three stakes are recommended: place stakes on opposite sides of the tree. A fabric tie, or any tie with a smooth, flat surface, should be used to carefully attach the tree to the stake; do not use wire or wire covered with hose or tubing, as they may wound the tree's bark. Stakes should be regularly inspected to ensure trees are not being damaged. Stakes should be removed after one year to avoid damage and to allow the tree to sway, which promotes a stronger tree trunk. Note that bare-root trees almost always require staking at planting time.
10. **Mulch the tree**. Mulching a newly planted tree is just as important as other planting steps to ensure your tree gets established and thrives in its new environment. Mulch provides nutrients to the tree's roots; mulch holds moisture and slowly releases it to the roots after a watering or rain event; mulch insulates the tree roots in winter. Mulch can help suppress growth of weeds and limits the competition between trees and turf or other plants. Additionally, mulch can be very useful in preventing damage to the tree's trunk from lawnmowers or string trimmers. Place mulch 2 to 4 inches deep around your planting area but be careful to keep mulch 1 to 3 inches away from

the base of the tree. The mulch should be a donut shape around the tree. If mulch is placed against the tree's root collar, the excess moisture can cause damage or decay at the tree's base. Mulch can decompose quickly, often within one growing season. Mulch levels should be maintained by reapplying mulch when necessary for at least the first two growing seasons, and ideally for the tree's lifetime.

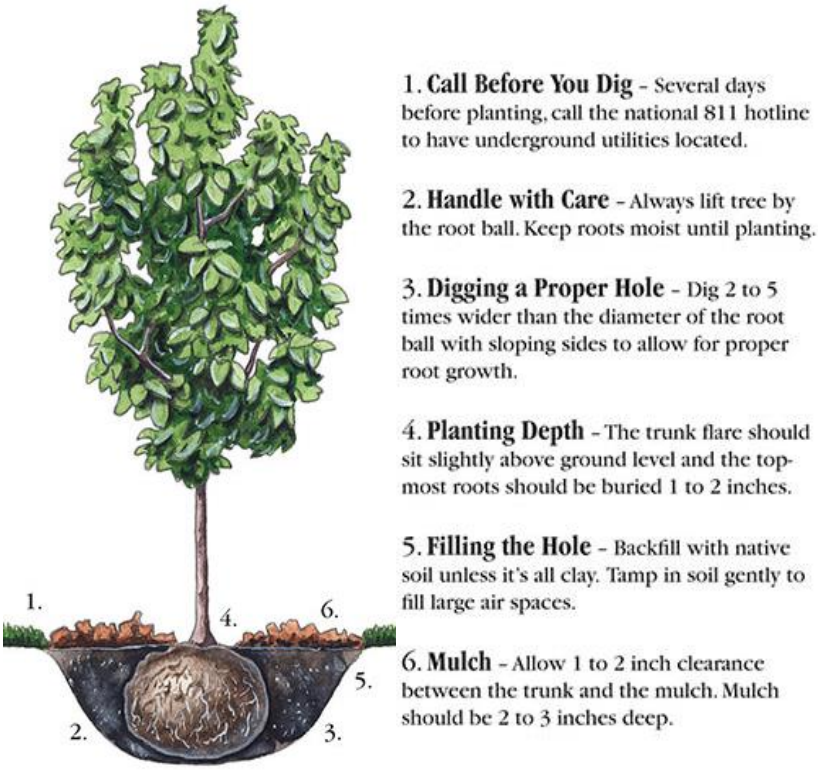


Figure 11. Six things you should know when planting a tree. Source: Arbor Day Foundation



Figure 10. Mulch reduces lawnmower damage, which can cause long-term issues

11. **Water the tree for at least two entire growing seasons**. Newly planted trees should receive water weekly during the first two growing seasons. When watering, ensure water penetrates deep into the tree's root system. Trees are better off with a slow, deep soak than a quick single watering event. Watering bags, a slow trickle from a hose, or slowly poured buckets of water will help water better penetrate the soil. Keep the soil moist, but not soaked. Allow the soil to dry completely between watering events to encourage root growth, but do not allow it to stay dry.

Watering Bags

The City places water bags around the base of many newly planted trees on City properties and has a contractor fill these bags. The City encourages residents to acquire bags and fill them regularly during the growing season. Watering bags are commercially produced plastic bags that come in various sizes and are placed around the base of the tree. Slow, deep waterings are better for tree root establishment and growth than quick, heavy waterings. Watering bags are useful because they release water very slowly through small holes at the base of the bag. They can also serve as a reminder to tree owners or residents to water their trees; when they see the tree bag, they remember young trees need extra care and water to get established. However, the presence of a tree bag can sometimes discourage watering. The tree owner

or resident may assume the tree is receiving enough water simply because the bag is there and forget the bag needs to be refilled. Additionally, watering bags can be very problematic if they are not removed periodically, as moisture and trash may accumulate at the base of the tree. Watering bags are helpful if the following steps are taken:

1. Prioritize using watering bags on newly planted trees during their first two to three growing seasons, or on trees that face harsh conditions, such as following construction activities.
2. Place watering bags around trees at the start of each growing season (Spring) and remove them for the season at the end of the growing season (Fall).
3. Completely fill the watering bag at least once a week (recommended 2-3 times during the heat of summer/heavy drought).
4. It is possible to overwater trees. It is recommended to allow the soil around the tree to fully dry between watering events; the best time to water a tree is right after the soil has been allowed to fully dry. In periods of heavy rainfall, filling the watering bag may be unnecessary.

Pruning Newly Planted Trees

A newly planted tree suffers transplant shock during and following planting. In the dormant and growing seasons following planting, the tree will allocate much of its resources to root establishment as it acclimates to its new environment. To account for this stress and allow for root establishment, trees should be pruned as little as possible at the time of planting.

- At planting time, only prune broken, dead, dying, diseased, crossing, and codominant branches. Remove as few live branches as possible.
- After the tree is established (approximately two growing seasons), it is recommended to start pruning the tree for ideal structure. At this time, the tree should be pruned each dormant season to train the tree to its ideal form. Follow the recommendations outlined in the Young Tree Pruning section (See Chapter 3: Tree Pruning Standards).

Protect Young Trees from Deer and Frost Damage

Newly planted trees are particularly susceptible to damage from deer and other animals. Deer may rub their antlers on newly planted trees, and small mammals may chew on the bark in winter months when live vegetation is scarce. Trees have thinner bark when they are young that can be damaged from repeated freezing and thawing. There are many commercially available tree guards and wraps to minimize this damage. It is recommended to use these guards or wraps where stem damage is expected to be an issue. It is important to remove the tree protection during each growing season. Leaving tree protection on the tree trunk for too long can cause girdling, which may injure or kill the tree. It can also cause excess moisture on the tree trunk, which may lead to fungal infections and decay. The Department of Public Services or their Contracted Arborist places deer protection around newly planted trees and removes the guards when appropriate.

CHAPTER II.
PUBLIC TREE MAINTENANCE: A RISK-BASED APPROACH

The City of Birmingham maintains approximately 25,000 trees on the public right-of-way, as well as the trees in Birmingham's parks and golf courses. For the management of these public trees, the Forestry Division and Contracted Arborist employ a risk-based system for determining when trees require pruning, removal, or other maintenance. This methodology is established by the American National Standards Institute A300 committee and promoted by the International Society of Arboriculture. This tree risk assessment methodology considers the likelihood of a tree or part of a tree to fail within a given timeframe, the potential for that tree or part of that tree to impact a target, and the consequences of impact to that target. Ultimately, the outcome of an assessment is a risk level of low, moderate, high, or extreme. The Department of Public Services or its designee applies this methodology to tree inspections and the City's tree maintenance program when making decisions on individual trees and prioritizing maintenance activities across Birmingham.

TREE CONDITION

A tree's condition is based on an assessment of the health and integrity of an individual tree's root system, trunk, branches, twigs, crown, and foliage or buds. Certified Arborists often use a percentage scale to evaluate and communicate tree condition. Assigning a tree condition is useful for monitoring tree health changes over time and communicating tree health information through the Department of Public Services to the public. Condition ratings are most effective when used in conjunction with tree risk assessments; risk ratings provide a more objective, consistent rating and better inform the prioritization and immediacy of tree work to promote public safety.

Condition Rating	Percentage Healthy Tree	
Excellent	80–100%	Tree is of specimen quality.
Good	60–80%	Tree is of expected health and form.
Fair	40–60%	Tree may have minor issues or defects.
Poor	20–40%	In decline, may recover with cultural practices.
Critical	0–20%	Tree will not recover from observed decline.
Dead	0%	No living tissue is observed.

TREE RISK ASSESSMENTS

The City of Birmingham may perform a Tree Risk Assessment during inspections of public trees. All trees present some level of risk. Assessing tree risks according to industry standards provides an objective way to prioritize tree work and ensure safety to the public. Trees are rated, according to industry standards, as Low, Moderate, High, or Extreme Risk. Low-risk trees typically do not require any maintenance beyond routine pruning. Moderate and High-risk trees are prescribed maintenance activities—typically pruning or removal—to mitigate the risk to the public. Extreme-risk trees are the highest priority and are immediately addressed through tree removal or pruning.

Tree Risk Assessment Steps

1. Identify the tree defect. The defect may be in the roots, stem, or branches. Common defects include: Decay, cavities, fissures or stress fractures, codominance, tight branching or included bark, dead wood, hanging limbs or a split tree.
2. Identify potential targets if tree or part of tree fails.
3. Identify Likelihood of tree or partial tree failure within a given timeframe, typically 1 year (Likelihood of Failure).
4. Identify Likelihood of impacting the target if failure occurs (Likelihood of Impact).
5. Determine severity of impact on target if failure occurs (Consequences of Failure).
6. Assign Risk Rating based on the following Tree Risk Assessment Matrices.
7. Select appropriate action to mitigate risk.
8. Work is prioritized based on Risk Rating.



Figure 12. Split tree. Source: International Society of Arboriculture

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Figure 13. Risk Rating Matrices. Source: International Society of Arboriculture

Recommendations for Reducing Tree Risk

- Trees should be planted in appropriate locations to avoid the need for excessive or improper pruning when the tree reaches its mature size. Follow the tree placement standards outlined in Chapter 1: Tree Planting and Early Care.
- Avoid planting trees with poor branching habits and dysfunction root systems (See Chapter 1: Tree Planting and Early Care for information about choosing tree stock).
- Brittle tree species should generally be avoided; they should be avoiding entirely in moderate to high occupancy areas. Refer to Appendix B for Prohibited Species.
- Trees should be pruned more heavily when young to correct or prevent structural defects that could lead to failure (See Chapter 3: Tree Pruning Standards).
- All mature trees should be pruned when needed as part of the seven-year cycle to correct defects that could lead to decay. Pruning best practices should be followed (See Chapter 3: Tree Pruning Standards).
- Water trees during dry periods to prevent unnecessary stress, especially newly planted trees.
- Follow the Tree Preservation Ordinance standards for tree protection to avoid construction damage (See Chapter 5: Tree Protection and Preservation).

CHAPTER III.
TREE PRUNING STANDARDS

BIRMINGHAM TREE PRUNING GOALS

Birmingham prunes its public trees in order promote public safety and tree health. Pruning trees promotes public safety by managing risk and providing clearance and visibility. Pruning improves tree health by addressing structural defects and dying or diseased limbs. Pruning a tree should only be completed with a specific purpose in mind, an understanding of proper practices, and knowledge of how the tree is expected to respond to pruning. Maintenance performed on trees should be done with a basic understanding of maintenance objectives and tree biology.

Routine Pruning (Block Trimming)

Routine pruning allows for proactive management. The City of Birmingham Department of Public Services has divided the City into seven geographical areas and maintains a seven-year pruning cycle for all public trees. In other words, the City strives to assess, prune, or maintain all public trees on at least a seven-year cycle. Birmingham's routine, seven-year pruning cycle ensures public trees are routinely inspected at regular intervals; this is key to proactive management of the urban forest. Routine pruning allows for structural problems and defects to be addressed in an economic, methodical way; many tree issues can be corrected through routine pruning before they present a significant level of risk to the public.

Birmingham prunes trees year-round and routine block trimming takes place during winter. Most pruning resulting from public requests occurs in the warmer months when the City receives the highest volume of requests.

Young Tree Pruning

Pruning young trees gives them a chance to thrive into maturity. Trees growing in urban areas face harsh conditions that often do not allow them to reach maturity. Addressing issues when trees are young will increase their life expectancy and proves to be more cost-effective by reducing the number of branch failures down the road when the tree is mature. When trees are planted, they often do not have ideal branching habits. Young tree pruning, also known as tree training, is a specific method for pruning trees to give them the ideal structure when young.

When pruning a young tree, the arborist may remove more branches than they would a mature tree, with the goal of visualizing how the tree will look at maturity and addressing problematic branches before they negatively affect the tree's structure. The arborist visualizes which branches will become permanent branches and will systematically remove temporary branches to allow for clearance and provide appropriate branch spacing. Permanent branches should be spaced at least 18 inches apart, as tight branching habits can result in branch failure or splitting.

Pruning trees creates a wound, so trees should be established in their new planting site for two years before tree training begins. Trees have a better chance of sealing wounds and thriving if these branches are removed while they are a small diameter and the trees are young and vigorous.

Public Requests for Pruning

Trees may be pruned or addressed outside of the standard maintenance cycle for a limited number of reasons, including:

- A tree or tree part poses an unacceptable level of risk that cannot wait until the next scheduled cycle as determined by the Director of Public Services or their designee.
- A tree or tree part violates clearance or visibility standards.

Trees with issues or concerns outside of the above listed reasons will receive attention during the next scheduled pruning cycle.

Requests are inspected and work is prioritized based on risk level; higher risk trees are addressed before lower risk trees. Refer to Chapter 2 for more information about tree risk management.

Performing Tree Risk Assessments to Promote Public Safety

When concerns from the public arise, tree risk assessments allow the City to make decisions about what tree work needs to be done and how to prioritize tree work. When addressing a tree concern from the public, the Department of Public Services or the Contracted Arborist inspects the tree and performs a standardized tree risk assessment, following industry standards. Tree risk assessments result in objective risk levels: Low, Moderate, High, or Extreme. Risk levels are associated with a specific tree defect and inform what work should be done and which trees should be addressed first to equitably promote public safety. For example, a High-risk tree with a dead limb may be reduced to Low-risk level if the limb is removed. This High-risk tree should be addressed before any work takes place on Low-risk trees, outside of the routine pruning cycle. Refer to Chapter 2 for more information about tree risk management.

TREE PRUNING BEST PRACTICES

The City follows industry standards for pruning. The following sections outline standards followed by the City.

Reasons for Pruning Trees

There are many reasons for pruning young and mature trees. A pruning objective or purpose shall be clearly established. All pruning shall be performed and specified according to the most recent version of American National Standards Institute A300 Part 1 standards.

- Clearance
- Dead, dying, or decayed branch
- Crown raising

- Improve structure
    - Branch spacing, removal of crossing branches, correct tight branch unions and codominant branches.
    - Trees species are different shapes at maturity, yet often their form when young is very dense. This dense shape is desirable to the nursery industry but should be corrected after planting.
- Infrastructure or utility conflict
- Aesthetics
- Crown reduction for aging trees
- Crown thinning to control disease

Safety

All industry standards should be followed with respect to personal protective equipment, utility clearance, and other safe practices. The appropriate utility must be contacted prior to any pruning operation where any portion of the tree contacts a utility line.

How Much to Remove

- No more than 20% of a tree's living branches should be removed in any one season—less for aging, stressed, or declining trees. There is no limit to the amount of dead, damaged, or diseased limbs which should be removed.
- At a minimum, a pruning operation should remove all dead, damaged, broken, diseased, or dying limbs greater than 2-inches in diameter.

Proper Cuts

- Stubbing and topping, or the indiscriminate cutting back of branches or limbs, is prohibited.
- When only a portion of a branch is to be removed, all pruning cuts shall be made back to a parent limb, or a limb capable of assuming the parent limb role.
- Pruning cuts shall be made at the branch collar (Figure 13). If the growth or form of the tree prevents cutting at the branch collar, pruning cuts should be made just outside the collar. Stubs or flush cuts are not permitted.
- Support limb weight with your hand when pruning to prevent stripping of bark when the branch falls from the tree. Use the 3-cut method. Make your first cut 8 to 16-inches from the branch collar on the underside of the branch to prevent tearing. Cut through the branch 2-inches out from your first to remove to weight of the branch. The branch should fall without tearing or ripping the bark; if tearing occurs, it will only tear down to your first cut rather than into the stem of the tree. Make your third cut at the branch collar, removing the remaining stub.

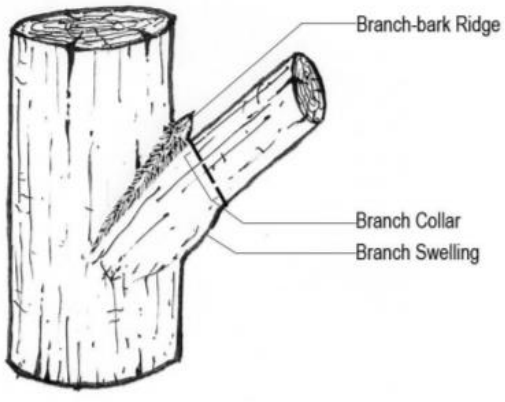


Figure 14. Branch collar. Source: Racine Wisconsin Tree Manual and Standards of Practice

Proper Tools and Equipment

- All pruning equipment shall be kept reasonably sharp and in good working condition.
- All tools used on disease-infested trees shall be thoroughly cleaned and disinfected before being used on any other plant material. Tools shall also be cleaned before being used between infected and uninfected portions of the same tree.
- Use the most precise tool that is appropriate and efficient for the job to reduce wounding, tearing, stubs, and improper cuts. For example, a handsaw can easily be used to remove a 3-inch limb that will result in a clean, precise cut; versus a chainsaw that is harder to control and may result in a messier cut with bark tearing.
- When removing limbs, pruning should be done in a way to prevent damage to infrastructure, property, persons, or the tree itself. This may require the use of ropes, lines, or other supports.
- Pruning wound paint or sealant should not be used, unless specified by the Director of Public Services or their designee.
- Trees shall not be climbed with the use of spikes or spurs to perform pruning.

Timing and Frequency of Pruning

Pruning should be performed during the dormant season. Oak (*Quercus* spp.) and elm (*Ulmus* spp.) should not be pruned during the growing season. Exceptions must be approved by the Director of Public Services or their designee.

Pruning Oaks and Elms

Oak (*Quercus* spp.) and elm (*Ulmus* spp.) should not be pruned during the growing season. Oak trees and elm trees are highly susceptible to fungal diseases, oak wilt and Dutch elm disease, respectively. Both diseases are commonly transmitted by beetles that fly during warmer months and carry the fungus from tree to tree. These beetles are attracted to open pruning wounds unless the tree is dormant (look for an absence of leaves). For this reason, oak and elm trees, whether on public or private property, must not be pruned between April 1 and October 15. If an oak or elm tree is injured during these months, the person in violation must properly prune the tree to remove any jagged cuts and paint the wounded surfaces with tree pruning sealer or latex paint (Tree Preservation Ordinance Sec. 118-29).

CHAPTER IV.
TREE REMOVAL STANDARDS

Like all living things, trees eventually decline and die. In urban environments, aging and declining trees can pose risk to people or property. Further, the maintenance or construction of buildings and infrastructure may sometimes require the removal of trees to facilitate the growth of a community. In these cases, the removal of a tree is weighed against the condition of that tree and the benefits it provides to the community.

Upon receiving a request from the public, reviewing a development plan, or observing a tree issue on site, the Contracted Arborist performs tree health and risk assessments and assigns the tree a risk rating following industry standards. Based on the results, the Department of Public Services or their designee will determine whether a removal is warranted.

The City of Birmingham removes public trees that are diseased, dying, or found to pose a significant risk to the public (trees with a Moderate or High-risk rating). However, risk may be mitigated through pruning, and removal is not always necessary. Extreme-risk trees will be removed immediately. Trees that are assigned a Low-risk rating are not slated for removal unless they are determined to be unlikely to survive or thrive due to disease or damage. A Low-risk tree may also be assigned for removal if a significant infrastructure conflict or safety concern exists. Refer to Chapter 2 for information about tree risk.

Justified reasons for removal of public trees include:

- Moderate, High, or Extreme-Risk rating
- Significant mechanical damage or wounding
- Signs of disease or pest infestation
- Visibility concerns, e.g., tree blocks signage or traffic light and cannot be effective pruned to mitigate concern
- Accessibility concerns, e.g., property's wheelchair ramp cannot be easily accessed due to tree's location
- Conflicts with new construction, e.g., tree location interferes with site design after necessary measures have been taken to reduce the conflict (See Chapter 5: Tree Protection & Preservation).

The City of Birmingham's public tree population benefits the entire community. In an effort to preserve and expand the City's public tree canopy and the benefits it provides, the following reasons are not justifiable reasons for removing a public tree.

NOT a justified reason for public tree removal:

- **Messy trees**: Unlike other units of City infrastructure, trees are living, growing things. Most trees prove to be a slight nuisance at certain times of year. Some trees drop fruit, twigs, or leaves, and leave a mess that often falls on the property owner to clean up. The City of Birmingham recognizes

this inconvenience; however, the City and its residents view trees as essential infrastructure and believe the benefits to the community outweigh this inconvenience in most cases.

- **Shade**: Public trees will not be removed based on a resident's objection to shade cast over gardens, buildings, or solar panels. Shade provided by public trees lowers surface temperatures during hot months, mitigates climate change, and helps reduce energy costs.
- **Species or location preferences**: Public trees will not be removed based on a resident's objection to the species or location. A healthy urban forest exhibits a diverse palette of tree species, genera, and families. Refer to Chapter 1 for information about species diversity.
- **Pollen allergies**: A public tree will not be removed based on a resident's allergy to the tree. Studies indicate that because tree pollen can be carried long distances by the wind, an individual tree's pollen affects both adjacent residents and all other properties in the neighborhood; therefore, an allergenic tree in front of a property is no more of a concern than the other neighborhood trees.
- **Private sewer/water line**: A City tree that is said to interfere with a sewer or water line on private property will not be removed.

CHAPTER V.
TREE PROTECTION AND PRESERVATION

The City of Birmingham views trees as important infrastructure—trees capture storm water, sequester carbon, and improve air quality. Therefore, the City seeks to encourage the growth and retention of large, mature trees as much as reasonable. For this reason, the City has developed tree protection guidelines to help promote tree retention and reduce impacts to trees during construction or maintenance activities that may negatively affect trees or change the environment in which trees grow. Trees in or near construction zones or work areas should receive protection to ensure they are not damaged or otherwise injured and impacted by construction and maintenance activities.

The purpose of this chapter of the manual is to give clear guidance about how the City's tree-related ordinances apply to residents, developers, and City staff in Birmingham. It is meant to summarize key points of the ordinances in simple terms, explain why each provision is important to Birmingham's vision, and how each provision is applied to the management of Birmingham's public trees. This chapter should help all parties better understand their role in the City with respect to protection, maintenance, and planting of the City's public tree population.

The City of Birmingham has two ordinances in place that reference public and private trees: The City of Birmingham Tree Preservation Ordinance and The City of Birmingham Zoning Ordinance. While private trees play a minor role in these ordinances, the ordinances largely focus on the trees over which the City has full jurisdiction—those on the street right-of-way and in parks, golf courses, and other public properties.

Birmingham's Tree Preservation Ordinance (City Code Chapter 118, Articles I through VIII) lays out City policies for protecting existing trees, performing work on public trees to City standards, and the legal consequences for failure to follow the ordinance (including certain private tree situations). The City of Birmingham's Zoning Ordinance outlines specific policies for protecting public trees during construction and development and the consequences for failure to meet these requirements. The Zoning Ordinance provides specific information about how many public trees are to be planted following construction.

BIRMINGHAM TREE PRESERVATION ORDINANCE

CITY CODE CHAPTER 118, ARTICLES I THROUGH VIII

The City recognizes that promoting the long-term health of the urban forest is an integral part of its charge to protect the health, safety, and welfare of its current and future residents. Like roadways, streetlights, and fire hydrants, trees are an important piece of City infrastructure that provide many benefits to the community, including promoting erosion control, wildlife habitat, and water quality.



In 2000, the City of Birmingham adopted Chapter 118 of the City's Municipal Code- its vegetation ordinance. Chapter 118 Articles I through VIII (also called the "City of Birmingham Tree Preservation Ordinance") of the City of Birmingham's Code of Ordinances provides primary guidance for the care and management of trees in the City. This chapter of the manual establishes the City's authority for maintaining public trees, defines the duties and responsibilities of the City staff and Contracted Arborist, establishes penalties and fines for illegal tree work, and establishes the requirement of a tree work permit for any action or activity that impacts public trees. The Tree Preservation Ordinance applies to public trees as well as private trees that are adjacent to construction sites. It establishes standards for appropriate selection, location, and maintenance of those trees.

Tree Preservation Ordinance Policies

Because the City has jurisdiction of public trees, any work on or around a public tree must be approved by the City. Damage is not permitted to any public tree.

This section summarizes the Tree Preservation Ordinance's policies regarding tree maintenance and tree damage.

Rules about Residents Performing Work on Public and Private Trees

Any company performing work on a public or private tree must be a Tree Service registered with the City Clerk's Office. Tree services will be required to pay a registration fee and execute a bond with the City. The Registration fee for a Tree Service Business is $100.00 (Sec. 118-9).

Work on any public trees must be approved by the Director of Public Services or their designee. This includes, but is not limited to, pruning, removals, treatment for pest and disease, and planting (Sec. 118-18). Approvals are granted through a tree work permit.

Tree Work Permits (Required for Work on Public Trees)

The City's tree preservation ordinance prohibits performing tree work on or injuring a public tree (including the pruning of any roots) without first obtaining a tree permit (See Appendix C: Tree and Shrub Work Permit Application). Even if a permit is not required, when working close to public trees or within the canopy of public trees, it may be prudent to consider tree protection measures to avoid fees, fines, or penalties for accidental damage to public trees.

A resident may apply to hire a Tree Service to perform work on trees within the public right-of-way. If the permit is granted, the resident should note they assume all costs of said work. Tree service businesses performing work within City limits, whether on public or private property, must be registered with the City Clerk's Office.

- **How to obtain a Tree Work Permit**: The Tree and Shrub Work Permit Application is found in Appendix C of this manual. The Contracted Arborist will check existing inspection records or perform a site visit to determine whether tree work or planting is approved.
- **Tree Planting Permits**: When planting a permitted tree on public property, the tree should be a minimum of 3"-3 ½" caliper. Approved tree planting permits will indicate the mature size of a tree recommended for a particular planting location. The approved size considers the width of the parkway, location of overhead utilities, and proximity to buildings or other infrastructure. The City will only approve permit applications for tree planting if the site is an appropriate location for a new tree. Refer to the City's tree planting standards and policies in Chapter 1 of this manual to determine if a site is suitable for tree planting.
- **Tree Removal Permits**: Members of the public may apply for a permit to remove a public tree. Removal permits will only be approved when the tree warrants removal; the City will not approve permit applications for removals of healthy trees. Refer to the City's tree removal policies in Chapter 4.
- **Tree Pruning Permits**: Members of the public may apply for a permit to prune a public tree. Pruning permits will only be approved when the tree requires pruning; the City will not approve permit applications for trees that are not in need of pruning. Refer to the City's tree pruning standards in Chapter 3 of this manual.
- **Pest/Disease Treatment Permits**: In special circumstances, members of the public can apply to treat public trees for diseases and pest infestations. Contact the Department of Public Services to perform a tree health inspection to determine if treatment is warranted.
- **Root Pruning Permits**: A permit is required for any pruning or injury to a public tree, including its root system. Common activities which may require a tree permit for root pruning include sidewalk replacement, street reconstruction, curb replacement, maintenance or installation of underground utilities, landscaping private property adjacent to street trees, etc. Please refer to the Root Pruning Standards below.

Root Pruning Standards

At times, a tree's root growth may come in conflict with infrastructure, either by virtue of its growth or the need to cut into a tree's root system to install, manage, or maintain existing infrastructure. However, roots are fragile, and destruction of a tree's root system can have significant impacts on tree health, often several years after the damage has occurred. For this reason, roots should be properly and carefully pruned, not simply dug up or cut. A tree's root system seeks water and nutrients to support the tree's growth. Removal of significant numbers of roots may cause a tree to die or fail catastrophically.

When performing root pruning, the following shall be observed:

- Soil compaction should be avoided. To the extent possible, heavy equipment and equipment traffic should be kept out of the tree's root zone.
- Roots shall be excavated to just outside the trench or work zone.
- Roots shall be cleanly cut cross-sectionally using a carbide-tip saw, blade, or axe prior to removal. Tools shall be maintained, clean, and sharp.

- Root pruning methods shall be approved by the Director of Public Services or their designee.

The Director of Public Services or their designee may determine that the extent of root pruning required may jeopardize the health or structural integrity of the tree. In this case, the Director of Public Services or their designee may require a tree be removed in its entirety and replaced with a tree more suitable for the space.

Preventing Root Pruning

Because root pruning can be detrimental to a tree's health and longevity, the following alternatives should be used whenever possible:

- Route sidewalks around the tree roots
- Grind lifted sidewalk edges
- Ramp sidewalk over roots; a layer of sand can be placed between the root and ramped sidewalk to prevent immediate lifting
- Install flexible sidewalk materials, bricks, or inter-locking pavers instead of concrete around trees that trees that have caused sidewalk lifting

No Damage to a City Tree

It is illegal in the City of Birmingham to injure a public tree in any way. Tree damage incudes, but is not limited to, the following illegal practices:

- Improper or unpermitted pruning, breaking of branches, root pruning and removals
- Attaching or fastening any material or item to a City tree, as it will cause wounding or girdling of the tree
- Materials that limit the flow of water to tree roots; property owners may not install any impermeable surfaces such as concrete or bricks around the base of a City tree (Sec. 118-18)
- Use of toxic substances on or near a public tree
- Electric wires or any other wire in contact with a public tree (Sec. 118-10)

Illegal Tree Work

Any tree work or injury to a public tree without an approved permit is considered a violation of the City's Tree Preservation Ordinance. The Director of Public Services or their designee uses a formula developed by the International Society of Arboriculture to assess condition rating and tree size to determine fines based on extent of damage, which is tripled under the ordinance for blatant violations/negligent behavior. The City will issue the violator a letter with the fine amount. See the penalties section of this chapter for standard amounts for each fine.

No Public Interference with Work on a City Tree

Public trees provide the entire neighborhood and community with environmental, aesthetic, and economic benefits. The Director of Public Services or Contracted Arborist make decisions for tree health to ultimately benefit the safety and well-being of the entire community. Because the City has jurisdiction over public trees and holds a high level of expertise in urban forest management, residents cannot refuse or halt any work that is done on City property. No resident of the City is permitted to interfere with or refuse City tree

work, such as planting, pruning, or removals (Sec. 118-11). Furthermore, residents may not demand tree work simply to suit their own needs.

Regulations Pertaining to Shared Ownership Trees

Some trees are considered shared ownership trees (typically located inside of the sidewalk and/or on the edge of the right-of-way). The City maintains these trees and all the rules and regulations pertaining to public trees still apply. However, the City may be more inclined to allow for shared ownership tree removals in certain situations.

Regulations Pertaining to Trees on Private Property

The City Tree Preservation Ordinance applies mostly to public trees—trees growing in the street right-of-way and in parks, golf courses, or on other public properties. However, private trees that present a danger to the public or health of the urban forest may require action from the property owner.

The Department of Public Services or Contracted Arborist may enter upon private property and require removal or care of private trees that are diseased, are infested with pests, or present a Moderate to High risk to the public. This tree maintenance must be completed at the expense of the property owner, or they will receive a ticket from Code Enforcement. If the property owner refuses to comply, the Department of Public Services will complete the necessary tree work and bill the property owner for time and materials. Companies hired to prune private trees and shrubs must be Tree Services registered with the City Clerk's Office and hired by the property owner.

This section summarizes policies in the Tree Preservation Ordinance that affect trees growing on private property.

Registered Tree Services

Any company performing work on a public or private tree must a Tree Service registered with the City Clerk's Office. Tree services will be required to pay a registration fee and execute a bond with the City. The Registration fee for a Tree Service Business is $100.00 (Sec. 118-9).

Hazardous, Infectious Disease, or Nuisance Plants

The Department of Public Services or Contracted Arborist may enter upon private property and require property owners to remove trees, plants, or parts of plants (Sec. 118-26). Written notice will be given by Code Enforcement requiring the property owner to remove the plant, or part of plant, or otherwise remedy the issue through treatment, within 30 days (Sec. 118-27, 118-28).

Written notice may be given for the following reasons:

- Trees present a Moderate, High, or Extreme risk to the public.
- Plants that are noxious to the public, such as poison ivy.
- Plants that are a host or potential host for insect infestation or disease, including, but not limited to European elm bark beetle, oak wilt fungus, emerald ash borer, boxelder bug, Asian longhorned beetle, gypsy moth caterpillar, and certain basal or stem cankers (Sec. 118-26).

Trees on public or private property that are confirmed to have an infectious disease or pest infestation may be prescribed with the following measures (by the Department of Public Services or Contracted Arborist), to be completed by the property owner for private trees, by the City for public trees, and by the utility company for trees within the utility-right-of way:

- Trees not infected, but potentially root-grafted to a tree that was killed or diseased, should be treated by injection of an approved fungicide by a company licensed within the state and registered with the City.
- In lieu of, or in addition to, fungicide injections for disease management, infected trees may be treated by trenching.
- Dead oak and elm trees must be removed and properly disposed of.
- Stumps left by removal of oak and elm trees must be promptly removed or buried.

If a property owner wishes to treat an infectious tree, they may apply for a permit with 5 days of receiving the written notice. The Department of Public Services or Contracted Arborist will approve or deny the permit for treatment (Sec. 118-29). The City's Tree and Shrub Work Permit Application is found in Appendix C.

Pruning Oak and Elm Trees (Prohibited between April 1 and October 15)

Oak trees and elm trees are highly susceptible to the fungal diseases oak wilt and Dutch elm disease, respectively. Both diseases are commonly transmitted by beetles that fly during warmer months and carry the fungus from tree to tree. These beetles are attracted to open pruning wounds unless the tree is dormant. For this reason, oak and elm trees, whether on public or private property, must not be pruned between April 1 and October 15. If an oak or elm tree is injured during these months, the person in violation must properly prune the tree to remove any jagged cuts and paint the wounded surfaces with tree pruning sealer or latex paint (Sec. 118-29). Refer to Chapter 3 for more information about tree pruning.

Private Trees or Other Vegetation Encroaching on Public Property

Property owners must maintain free passage of streets, alleys, and sidewalks. Any vegetation on private property that prevents or obstructs safe and free passage of streets and sidewalks must be removed or pruned by the property owner. This applies to both trees and shrubs located on private property.

To maintain public safety and accessibility for all Birmingham residents, Code Enforcement or the City's Contracted Arborist may enter upon private property issue violations for private trees or shrubs that encroach on public property.

Requirements for pruning private trees and shrubs that encroach on public property:

- The tree should not block streetlights or other City infrastructure.
- City streets should have 14-foot clearance for safe passage of vehicles.
- City sidewalks should have 8-foot clearance for safe passage of pedestrians.
- Private trees and shrubs should not block City sidewalks (Sec. 118-19).

When the issue is not addressed by the property owner, the Department of Public Services or their designee may perform the work. In this situation, the Department of Public Services will invoice for the cost of time and materials for the trimming to the property owner. If the property owner fails to pay the invoice, Code Enforcement will issue a ticket.

Protecting Trees During Construction

The City of Birmingham strives to improve livability and enhance property values for its residents through re-development of existing properties and thoughtful reconstruction of roadways. City staff and residents understand a balance must be struck between growth and preservation of the City's existing valuable assets—the tree canopy being one of these important features. Trees provide countless environmental, aesthetic, and health benefits to the entire community. A quick oversight in protection of a mature tree can result in a total loss the tree's benefits to community members.

Trees in urban environments are often damaged, sometimes irreparably, during construction. Construction equipment or activities commonly damage trees in the following ways:

- Compacting soils
- Changing soil grade (can cut or suffocate roots)
- Cutting roots
- Improperly pruning limbs
- Mechanically damaging roots, trunks, or branches
- Removal of topsoil (causes nutrient deficiency)
- Altering soil pH
- Releasing toxic chemicals into the soil
- Microclimate change (exposing sheltered trees to sun or wind)

Often, damage caused by construction is not seen until long after construction takes place; a tree may not start show visible signs of decline until years after its roots are cut or its soil environment is altered, leaving property owners wondering what is causing their tree to decline. Because urban trees are sensitive to construction activities, many cities enforce strict regulations for construction sites containing or near existing trees. This section outlines Birmingham's policies to proactively address conflicts between construction and trees.

Construction Site Plans

To ensure City policies regarding tree protection and replacement are adhered to during construction, no private or public construction can take place in the City of Birmingham without an approved site plan. The developer, property owner, or City agency must submit a site plan that includes:

- Public trees: all public trees on the adjacent right-of-way and any public trees within 25-feet of the property.
- Private trees: all private trees on the property and within 25-feet of the property.

- Plan for all existing trees: All trees on the plan should be clearly marked whether they are to be removed or relocated.
- Plan for replacement trees: All new tree plantings should be clearly marked on the plan (Sec. 118-13).
- The **Root Protection Zone** (often referred to as the Critical Root Zone) should be clearly marked on the Construction Site Plan. The root protection zone is generally the same as the tree's dripline in Birmingham. During site plan review, the Department of Public Services or Contracted Arborist may expand the root protection zone to improve the chances that the tree will not be damaged during construction and to permit construction to take place. The arborist's decision to expand the zone is based on the species, age, or health of the trees or on site-specific conditions.

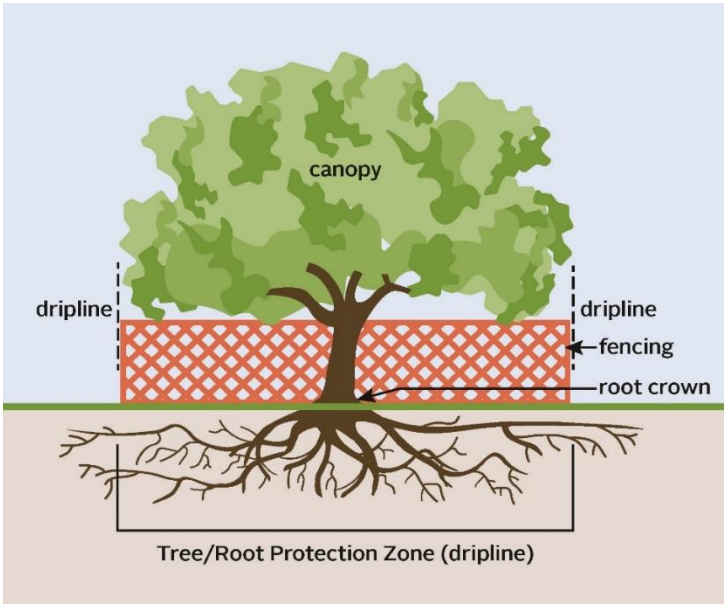


Figure 15. Root Protection Zone. Source: halifax.ca

Tree Protection Plans

In conjunction with the Construction Site Plan, a tree protection plan must be submitted and approved before any construction can take place within the City. The Tree Protection Plan must follow industry standards, as established by in International Society of Arboriculture, to ensure trees are properly protected and do not suffer any negative health impacts from construction related activities. A Tree Protection Plan should include:

- Description of how all public trees will be protected during construction
- Description of how private trees within 25-feet of the property will be protected during construction
- Details about size and type of fencing to be used to protect trees
- If relocation of a public tree is necessary, description of how public trees will be relocated
- If removal of a public tree is necessary, description of how tree replacements will be planted and cared for (Sec. 118-14)

Tree Protection Measures

The following measure must be taken during to ensure protection of existing trees during construction:

- Barriers are required to be erected outside of the root protection zone, or as directed by the City's Contracted Arborist, and left in place before and during the construction process.
- If barriers are ineffective to protect the tree roots, the roots need to be covered with a soft protective layer, such as mulch, 4 to 6-inches thick.

- No activities that could harm the tree can take place within the root protection zone of public trees. This includes grade changes, stripping topsoil, and dumping or placing of solvents, building materials, construction equipment, or soil deposits.
- Any pruning of public trees for construction clearance must be approved and performed by a Certified Arborist and Tree Service registered with the City Clerk's Office.
- Any damage caused to a public tree during construction must be reported to the City. Mitigation measures to improve tree health or replace the tree will be prescribed by the Department of Public Services or the Contracted Arborist (Sec. 118-15).
- Additional site or tree specific protection measures may be required to preserve valuable trees, as specified by the Contracted Arborist.
- Removal of tree protection is required when construction is complete.

Excavation and Driveways Near Public Trees

When excavating or constructing a driveway or driveway approach near a public tree, the following rules apply:

- If within 6-feet of a public tree, approval is needed from the City.
- Prior to construction, a wooden frame box must be installed around the City tree if it is within 6-feet of construction; it must be left in place during construction.
- Building material or other debris must be at least 4-feet from public trees (Sec. 118-16). However, no material storage is recommended within the dripline of trees to prevent damage.

Removal and Relocation of Public Trees During Construction

Public trees may be removed or relocated during construction. They must be denoted on an approved site plan or approved by the Contracted Arborist or Director of Public Services. All costs for relocation or removal of trees will be paid by the developer or property owner relocating or removing the tree (Sec. 118-17).

Requirements for Tree Planting after Construction

When replacing a public tree is not feasible at the original site, the Department of Public Services or Contracted Arborist may assign an alternate location to be planted or require the developer to pay into the City's Tree Fund (Sec. 118-21). Refer to Chapter 1 of this manual for best practices for tree planting. Refer to the Zoning Ordinance section for more information about when tree planting is required.

The following are requirements for developers or property owners planting replacement trees.

- As a general rule, trees planted on public property should be spaced 40 feet from existing or other new trees. The Department of Public Services or Contracted Arborist may make an exception if the existing tree will be removed within 5 years, or if site or species considerations allow for tighter spacing
  (Sec. 118-22).
- Deciduous trees should be a minimum 3 to 3.5-inches caliper (measured 6 inches from grade when planted at the proper depth).
- Evergreen trees should be a minimum of 7 to 8-feet in height.

- Tree stock should be State Department of Agriculture Nursery Grade No. One (#1) or better.
- Newly planted trees should be kept mulched for 2 years after planting.
- Newly planted trees should be staked when necessary.
- Trees will be guaranteed for 2 years by the individual who planted them. Newly planted trees that are dead or found to be in poor condition, at the discretion of the City, at the end of the 2-year guarantee period will require replacement.
- When replacing public trees that have been removed per the approved site plan, trees must be planted within 12 months of removal when practical.
- Trees that were indicated to be saved on the approved site plan but have been damaged or removed in violation of the site plan need to be replaced (Sec. 118-20).

Other Vegetation

Article IX of the City's Vegetation Ordinance, not part of the Tree Preservation Ordinance

The City's vegetation ordinance also includes several provisions not related to trees:

- All grass and weeds on public and private property must be kept mowed to 8-inches in height or less.
- Noxious or unhealthful plants, such as, but not limited to, poison ivy and ragweed, are not permitted on public or private property.
- The Department of Public Services will enforce these requirements by publishing violations in a newspaper. If the growth of this vegetation is not remedied within 10 days and by the following October 15, the City may or remove the plants and bill the property owner.

Tree Preservation Ordinance Enforcement and City Roles

The City has jurisdiction and the right to plant, maintain, and remove all trees on public property. This includes trees in the public right-of-way, parks, public golf courses, public easements, and on any other public properties (Sec. 118-5). The City reserves the right to add additional rules that are in line with the provisions of the Tree Preservation Ordinance (Sec. 118-23).

Department of Public Services

While many City agencies and staff play a role in enforcement of the Tree Preservation Ordinance, the Department of Public Services is responsible for the day-to-day management of public trees, and a key component of this is upholding the Tree Preservation Ordinance. Under supervision of the City Manager, the Director of Public Services is ultimately responsible for interpretation and enforcement of the Tree Preservation Ordinance (Sec. 118-5). Within the Department of Public Services, forestry makes up a large portion of the calls and complaints received from the public, indicating the level of investment and concern the residents of Birmingham have for the urban forest in their community.

Contracted Arborist (Staff Arborist, City Arborist)

The Director of Public Services designates enforcement of the Tree Preservation to the Contracted City Arborist (referred to in the ordinance as the "Staff Arborist", also known as the "City Arborist"). Small cities often contract International Society of Arboriculture (ISA) Certified Arborists to provide a level of industry-

specific expertise the City cannot provide with its own staff due to budget constraints, competing City priorities, or lack of experience. The City of Birmingham delegates much of its tree work to an arborist certified by the International Society of Arboriculture. The Contracted Arborist is empowered to implement the ordinance by performing work on City trees, such as planting, pruning, removals, and storm-related tree work. The Contracted Arborist enforces the ordinance by ensuring industry standards of tree care are met on all City trees. The Department of Public Services and Contracted Arborist maintain the Prohibited Trees List, found in Appendix B of this manual (Sec. 118-5).

Birmingham's Department of Public Services are tasked with responding to and managing many important services the City provides to the public that keep the City functioning, safe, and healthy; forestry is just one of the many facets of day-to-day operations in the Department of Public Services; they are also responsible for maintaining many other public services, such as trash and sewers. For this reason, a Certified Arborist is contracted by the City to consistently focus on the health of Birmingham's urban forest and contribute guidance in line with arboricultural best practices that City staff may not have time or expertise to consistently provide. Therefore, determinations made by the Contracted Arborist should be held to the highest regard.

- The City's Contracted Arborist is responsible for caring for City trees and implementing the Tree Preservation Ordinance.
- City residents should understand the Contracted Arborist holds a high level of expertise and plays an important role in the City's operations workflow.
- All decisions made by the Contracted Arborist are signed off by the Director of Public Services, or their designated staff, to ensure they are in line with the City's goals.

Other responsibilities designated the City's Contracted Arborist:

- The Contracted Arborist has the right to enter upon private property during reasonable hours to inspect private trees for disease or pest infestation (Sec. 118-6).
- The Contracted arborist can remove City trees in the event of an emergency, such as high-risk storm-damaged trees, without authorization from the City (Sec. 118-12).

Code Enforcement

Department of Public Services Forestry Staff and Code Enforcement Officials are also empowered to enforce the ordinance. Code Enforcement cites violations when a developer or property owner is found to be in violation of the Tree Preservation and Vegetation Ordinances.

Exceptions to the Tree Preservation Ordinance

The City Commission may grant exceptions to the rules of the City's Tree Preservation Ordinance on a case-by-case basis. An application must be submitted and providing a sufficient reason for an exception to be granted. The applicant must wait for inspection and approval by the City before proceeding with tree work or construction. The City Commission may require additional tree protection measures to be taken when exceptions are made (Sec. 118-24).

Tree Preservation Ordinance Violations

Sanctions, Remedies, & Penalties

The City is empowered to enforce the ordinance using the following penalties:

Municipal Infractions
Violations to the City Ordinance will result in a Municipal Civil Infraction to the violating party.

- For a first offense, a civil fine as set forth in the schedule of fees, charges, bonds, and insurance. The fine for the first offense is $500.00 per tree.
- For a second offense and any subsequent offense, a civil fine as set forth in the schedule of fees, charges, bonds, and insurance. The fine for the second offense is $1,000.00 per tree.

Injunctive relief
The City may file a civil suit against the violating party.

Fees for Illegally Removed Public Trees
In addition to civil fines or sanctions, or civil suits, the City may require payment into the City's Tree Fund and/or planting of a new tree at a location approved by the Contracted Arborist as restitution for the violation. The number of required replacement trees will be calculated on an inch-for-inch basis computed by the diameter 4.5-feet above grade (diameter at breast height, DBH).

Stop Work Order
The City reserves the right to stop construction work or withhold issuance of a certificate of occupancy, permit, or inspections until tree protection requirements are met (Sec. 118-25).

BIRMINGHAM ZONING ORDINANCE

CITY CODE CHAPTER 126

The City of Birmingham undergoes a significant amount of re-development each year. The purpose of the City's Zoning Ordinance is to ensure this development is in line with the community's vision for growth. When used effectively, the Zoning Ordinance can promote public health, livability, and aesthetics in Birmingham's neighborhoods and commercial areas. The City recognizes the urban forest plays a key role in sustainable growth and civic pride. Because the urban forest is highly valued by the community, many provisions in Birmingham's Zoning Ordinance relate directly to tree planting and preservation of existing trees.

Many elements of the Zoning Ordinance affect tree health. The Zoning Ordinance's Landscape Standards section directly affects vegetation in the community. However, many other elements of the Zoning Ordinance also affect trees and can be used to optimize Birmingham's tree canopy cover.

This section of the manual summarizes the Landscape Standards and other elements of Birmingham's Zoning Ordinance that directly impact the health of the urban forest. The Zoning Ordinance should be referred to for more details, as regulations differ between each zoning district. The Tree Preservation Ordinance should be referred to for specifics about Tree Preservation and Construction Site Plan Review with respect to trees.

Who is Affected by the Zoning Ordinance?

All developers, property owners, and City agencies are affected by zoning district regulations. None of the provisions in the Zoning Ordinance apply to properties owned by the state.

Landscape Standards for All Birmingham Properties

Landscaping is an essential part of the design and development of a site. Landscape plantings can benefit the environment, public health, air quality, safety, comfort, convenience, and general welfare of the community. These landscaping standards result in the reduction of storm water runoff and heat buildup. When landscaping is properly designed, vegetation reduces energy costs in structures and will improve the aesthetics of the community. Quality landscaping and the presence of mature trees also increases property values. The Landscaping Standards section of the Zoning Ordinance gives clear guidance on how properties should be landscaped and to which zoning districts it applies.



The following landscaping requirements apply to all properties in the City of Birmingham.

Required Plantings

All properties of the land use types in the table below must maintain the minimum number of trees listed in the table. The Downtown Birmingham Overlay District is exempt from this requirement.

Required Plantings		
Land Use	**Type and Number of Plantings**	**Based on Lot, Building or Number of Dwelling Units**
Commercial	None	None
Mixed Use in MX District	1 Deciduous and 1 Evergreen Tree	Per 2 residential units
Multiple-Family in Residential	1 Deciduous and 1 Evergreen Tree	Per 2 dwelling units
Parking	See Subsection (F)	See Subsection (F)

Vegetation Required for Unpaved Areas

To promote aesthetics and environmental benefits, undeveloped and unpaved areas must be planted with vegetation. This provides an opportunity for tree planting and increased canopy cover. Because landscaping and mature trees increase property values, it is recommended that tree planting be utilized in these unpaved areas whenever possible.

Properly Maintain Vegetation

All landscaped areas must be properly maintained. They should be free from weeds, trash, and other debris. Plants must be disease and pest free and kept healthy through proper watering and maintenance.

Maximum Height for Right-of-Way Vegetation

Non-woody vegetation and shrubs planted in the street right-of-way should not exceed 2-feet in height to eliminate visibility issues. Trees are exempt from this height restriction.

Prohibited Species List

The City maintains a Prohibited Species List (Appendix B) that applies to all public and private properties. The species on this list are not allowed to be planted within City limits. The City may require the property owner to remove these plants at the property owner's expense. It is important to note, these are the common prohibited species, but the Contracted Arborist maintains a complete list of all prohibited species. Prohibited species may be restricted for the following reasons:

- Brittle species that may become dangerous in a storm event
- Host species for common or destructive disease and insect pests
- Excessive root structure that breaks up sidewalks
- Excessive litter, such as fruit, that may be a tripping hazard
- Susceptibility to road salt damage
- Other undesirable traits

Certified Wildlife Areas

Nothing in the City's zoning ordinance shall preclude the use and enjoyment of a wildlife area that is certified by a state or nationally recognized organization.

Landscape Standards for Construction Site Plan Review

The landscaping requirements below apply to all properties that are subject to site plan review for one of the following reasons:

- The construction of one or more new buildings is proposed.
- Improvements are proposed to an existing building which adds 50% or more additional square footage or involves the removal of at least one exterior wall.
- The property has an existing or proposed unenclosed parking facility with 20 or more parking spaces.

Landscaping Standards for construction site plan review are listed below. Landscape Standards that apply to all Birmingham properties also apply to the sites.

Approved Construction Site Plan

Landscaping plans must be approved as part of the Construction Site Plan prior to construction. Review the City's Tree Preservation Ordinance for specifics about trees on construction site plans.

Minimum Plant Sizes

All plantings completed as part of a construction project must meet these minimum size requirements. The City has minimum size requirements because small plants are more susceptible to damage and typically have higher mortality rates.

- Evergreen Trees: 6 feet in height
- Deciduous Trees: 3 inches in caliper
- Evergreen & Deciduous Shrubs: 18 inches in height

Native Species Credit

Developers are encouraged to use species native to the region. Native species are well-adapted to Michigan's climate conditions, provide wildlife habitat, and are less likely to encroach and take over a site. A reduction of 20% of the total number of trees or shrubs required will be granted if 80% or more of the trees and/or shrubs to be planted are native species. The Department of Public Services and their Contracted Arborist maintain a complete list of all native species. See Appendix A: Recommended Tree Species for recommended native species.

Preserve Existing Vegetation

"It takes 100 years to grow a 100-year-old tree."

Existing trees should be preserved whenever possible. The larger the tree, the more environmental benefits it provides. Mature trees can even increase properties values and reduce energy costs.

- Existing significant trees, tree stands, and natural vegetation must be integrated into the landscaping plan to the maximum extent possible.
- Existing healthy trees and shrubs located within required setbacks and areas not required for development must be preserved.
- Preserved trees must be protected according to the measures required by the Tree Preservation Ordinance (See Tree Preservation Ordinance section for details).

Existing Vegetation Credit

Preserving existing trees can reduce the number of required tree plantings following construction. Larger, existing trees provide more benefits to the community than small, newly planted trees. Any existing deciduous tree on site that is to be preserved and is over 6-inches in caliper at DBH may be counted as 3 new deciduous trees. Any existing evergreen tree on site that is to be preserved and is over 10-feet tall may be counted as 2 new evergreen trees.

Waiver for Innovative Landscaping

In order to further encourage innovative site designs that enhance the quality of the environment in Birmingham, the Planning Board may grant a waiver of any landscaping standards outlined in this ordinance where the Planning Board finds that the proposed plans display an innovative use of site design features, open space, or landscaping which will enhance the use and value of neighboring properties.

Removals

Any required landscape element that dies, or is otherwise removed, must be replaced within 1 month; if the violation is issued during the October 1 to March 31 period, the planting shall be completed no later than the ensuing May 31.

Time Period for Completion

All landscaping shall be planted within 3 months, and no later than November 30, from the date of issuance of a temporary Certificate of Occupancy; if the certificate is issued during the October 1 to March 31 period, the planting shall be completed no later than the ensuing May 31. A developer will not be granted a permanent Certificate of Occupancy until after landscaping is inspected and approved by the City.

Parking Lot Landscaping

Parking lots greater than 7,500 square feet must follow these interior landscaping requirements:

- The Downtown Birmingham Overlay District is exempt from this requirement.
- Within the parking lot, there shall be interior landscaping areas that total not less than 5% of the total parking lot interior area.

- Each interior planting area shall be at least 150-square-feet in size, and not less than 8-feet in any single dimension.
- There shall be at least one canopy tree for each 150-square-feet or fraction thereof of interior planting area required.
- The interior planting areas shall be located in a manner that breaks up the expanse of paving throughout the parking lot interior.

Street Trees

All site plans must include at least one street tree for each 40-linear-feet of frontage in the right-of-way along all streets. The Contracted Arborist may waive this requirement if there is not adequate green space in the right-of-way to support such trees. Tree species permitted in the right-of-way are listed in Appendix A; a list is maintained by the Department of Public Services and Contracted Arborist.

Submittal Requirements

A detailed landscape plan depicting the names, both common and botanical, location, spacing, and size of all plantings to be planted and the location and type of all materials proposed to be included in the landscape treatment areas shall be submitted for approval to the Planning Board at the time of Final Site Plan approval. Refer to the Construction Site Plan Requirements of the Tree Preservation Ordinance for more information (see Tree Preservation Ordinance section for details). All ornamental landscape features and landscape lighting must be included on the required landscape plan.

Exceptions to Landscape Requirements

- Required planting numbers and Parking Lot landscaping requirements do not apply to the Downtown Birmingham Overlay District.
- If one or more of the following conditions apply, the Planning Board may approve alternative landscape plans that contain modifications from the required standards of this section, provided that the proposed alternative landscape plan meets the spirit and intent and substantially conforms to this section in terms of quality, effectiveness, durability, hardiness and performance:
    - The site involves space limitations or is an unusual shape.
    - Predominant development patterns in the surrounding neighborhood justify alternative compliance for in-fill projects and redevelopment in older established areas of the City.
    - Topography, soil, vegetation, or other site conditions are such that full compliance with this section is impossible or impractical.

Other Elements of Birmingham's Zoning Ordinance that Affect Trees

Building Height Limits

Refer to the Zoning Ordinance for specific maximum building heights per zoning district. Building height and aspect affect tree health and structure. Tall buildings can prevent the tree from receiving adequate sunlight, especially if the tree is on the north side of the building. Building height should help inform species selection. Consider the tree's size and shape at maturity in relation to the building's proximity and

height. For example, a tall, vase-shaped tree may be able spread and arch its branches over a short building at maturity. For trees planted in tight planting locations close to tall buildings, a tightly branched, columnar, or small or medium-statured tree may be the best choice.

Open Space Requirements & Yard Setback Requirements

Refer to the Zoning Ordinance for specific minimum open space and yard setback requirements per zoning district. For example, parking zoning districts have a minimum open space requirement of 40%. Open space is defined as all areas of a lot that are not occupied by a building, structure, or impervious surface. Open space can be used as a tool for maximizing the benefits of urban trees. Trees face harsh conditions in urban environments, especially when they do not have enough soil volume for their roots to grow, anchor the tree, or access water and nutrients. For this reason, it is encouraged to plant and preserve existing trees in zoning districts with sufficient open space and adequate soil volume for trees to thrive. Additionally, yard set-back requirements require buildings to be set back from the property line. This ensures buildings are spaced apart in some districts, providing enough space between buildings for trees and other vegetation and to generally enhance the aesthetics and livability of a neighborhood.

Paved Surface Limitations

Refer to the Zoning Ordinance for specific minimum paved surface limitations per zoning district. The City sets limits on the amount of area that can be paved because paved surfaces (concrete, blacktop, gravel, brick, or a similar material) cause increased surface temperatures and storm water runoff. Trees grow best in sites without pavement nearby because water can permeate the soil and temperatures are more ideal for roots. Paved surfaces that have vehicular traffic are usually heavily compacted, which can suffocate tree roots. Even paved pedestrian paths and sidewalks can compact soil and injure tree roots.

Traffic Calming in Transition Zones and along Street Rights-of-Way

Transition zones are areas between commercial and residential districts. One goal of these zones is to encourage right-of-way design that calms traffic and creates a distinction between less intense residential areas and more intense commercial areas. Research shows that the presence of trees slows traffic and creates a calmer, safer environment for vehicles, pedestrians, and cyclists. Therefore, it is encouraged to plant trees and protect existing trees in these transition zones and along rights-of-way.

Streetscape Design Requirements

All streets in Birmingham must be constructed to meet the streetscape design (Sec. 3-12)

Sidewalk Width

The City's Zoning Ordinance regulates sidewalk widths. This directly impacts where and which trees can be planted along the street right-of-way. Refer to the Tree Placement Section (Chapter 1: Tree Planting and Early Care) for guidelines about minimum tree bed size.

Examples of minimum sidewalk width include:

- Sidewalks in the Triangle Overlay District shall be a minimum of 12-feet wide.
- Sidewalks along Woodward Avenue shall be a minimum of 7-feet wide.

- The Planning Board may allow the sidewalk along blocks that are occupied by only residential uses to be a minimum of 5-feet wide.

Street Tree Planting Requirements

The City of Birmingham Zoning Ordinance states that one canopy tree must be provided for every 40-feet of frontage planted within tree grates or lawn strips in the sidewalk. Refer to the Landscape Standards section of this manual and the City Zoning Ordinance, as well as the Chapter 1 of this manual (Tree Planting and Early Care).

Visual and Noise Screening

The Zoning Ordinance states that no irritating noise can emanate from air conditioning units or other mechanical equipment, which would adversely affect the peace and tranquility of adjacent residents. The City may require additional yard setbacks to mitigate the noise. When properly designed, vegetated screens and trees can significantly reduce noise levels and should be utilized to do so when designing the landscaping of a site. Trees and other vegetation can also create visual screens and barriers that improve aesthetics and privacy, as well as providing environmental benefits.

Vision Clearance Standards

The Zoning Ordinance requires corner lots to keep vegetation maintained to a height that does not obscure the visions of drivers using the street. Refer to the Tree Preservation Ordinance section of this manual for information about pruning private trees for other clearance standards. Planting trees in the right location will minimize the amount clearance-related maintenance needed (See Chapter 1: Tree Planting and Early Care).

DEFINITIONS

American National Standards Institute (ANSI): ANSI is a private, nonprofit organization that facilitates the standardization work of its members in the United States. ANSI's goals are to promote and facilitate voluntary consensus standards and conformity assessment systems, and to maintain their integrity.

ANSI A300: Tree care performance parameters established by ANSI that can be used to develop specifications for tree maintenance.

Arboriculture: The art, science, technology, and business of commercial, public, and utility tree care.

Benefit: See Tree Benefit.

Caliper Measurement (Caliper): Refers to the diameter of the tree. For trees that are less than 4 inches in diameter, the caliper measurement is taken at 6 inches above ground level, or if purchasing directly from a nursery, at 6 inches above the root flare. For trees that are 4 to 12 inches in diameter, the measurement is taken at 12 inches above ground level, or above the root flare. For trees that are greater than 12 inches in diameter, the measurement is taken at breast height, 4.5 feet above the ground.

Canopy: Branches and foliage that make up a tree's crown.

Canopy Cover: As seen from above, it is the area of land surface that is covered by tree canopy.

Canopy Tree: A deciduous tree which has a mature crown (spread of greater than 15 feet) and a mature height of 40 or more feet in southern Michigan and which has a trunk with at least 5 feet of clear stem at maturity.

Certified Arborist: An individual who has received training and has knowledge in all aspects of arboriculture and is a Certified Arborist through the International Society of Arboriculture. ISA Certified Arborists also adhere to the Code of Ethics that strengthens the credibility and reliability of the workforce.

Compaction (Soil Compaction): Compression of the soil that causes the upper layer to become impermeable to water. Compaction may be caused by heavy machinery, vehicular or pedestrian traffic, storage of vehicles and construction materials, structures, paving, or other activities.

Condition (Tree Condition): The general condition of each tree rated during the inventory or inspection according to the following categories adapted from the International Society of Arboriculture's rating system: Excellent (100%), Very Good (90%), Good (80%), Fair (60%), Poor, (40%), Critical (20%), Dead (0%).

Contracted Arborist ("Staff Arborist"): The designee of the Director of Public Services, who is assigned with the responsibilities of administration and enforcement of the tree preservation ordinance in conjunction with the Community Development Department. The City contracts an ISA Certified Arborist to perform tree work and inspections. Referred to as "Staff Arborist" in Tree Preservation Ordinance. See also: Certified Arborist.

Cycle: Planned length of time between vegetation maintenance activities.

Deciduous Tree: A tree with foliage that is shed annually.

DBH: See Diameter at Breast Height.

Diameter at Breast Height (DBH): The diameter of the tree measured 4.5 feet above the ground.

Dripline: An imaginary vertical line that extends downward from the outermost tips of tree branches to the ground.

Evergreen Tree: A tree with foliage that persists and remains green year-round.

Extreme-risk tree: Trees rated to be Extreme-Risk cannot be cost-effectively or practically treated. Most Extreme-Risk trees have multiple and significant defects present in the trunk, crown, or roots. Defective trees and/or tree parts are most likely larger than 20 inches in diameter and can be found in areas of frequent occupation, such as a main thoroughfare, congested streets, and/or near schools.

Failure: In terms of tree management, failure is the breakage of stem or branches, or loss of mechanical support of the tree's root system.

Genus (*pl. genera*): A taxonomic category ranking below a family and above a species and generally consisting of a group of species exhibiting similar characteristics. In taxonomic nomenclature, the genus name is used, either alone or followed by a Latin adjective or epithet, to form the name of a species.

Grass: Any family of plants with narrow leaves normally grown as permanent lawns in southern Michigan.

Height: Refers to the vertical distance between the collar (the line of junction between the root and its stem/ trunk) and the top of the tree.

High-risk tree: Trees that cannot be cost-effectively or practically treated. Most high-risk trees have multiple or significant defects affecting more than 40% of the trunk, crown, or critical root zone. Defective trees and/or tree parts are most likely between 4–20 inches in diameter and can be found in areas of frequent occupation, such as a main thoroughfare, congested streets, and/or near schools.

Impervious Surface: Any material which prevents the infiltration of surface water, such as concrete, blacktop, asphalt, brick, stone or a similar material, but excluding sidewalks 3 feet or less in width.

Invasive, exotic tree: A tree species that is out of its original biological community. Its introduction into an area causes or is likely to cause economic or environmental harm, or harm to human health. An invasive, exotic tree can thrive and spread aggressively outside its natural range. An invasive species that colonizes a new area may gain an ecological edge since the insects, diseases, and foraging animals that naturally keep its growth in check in its native range are not present in its new habitat.

Inventory: See Tree Inventory.

J-Root: A dysfunctional root system found in nursery tree stock in which the tree roots form a "J" shape, resulting in the absence of a root system and root flare on one side of the tree.

Large Tree (Large-statured Tree): A tree species that can grow to a height of greater than 40 feet at maturity.

Low-risk tree: Trees with minor visible structural defects or wounds in areas with moderate to low public access.

Medium Tree (Medium-statured Tree): A tree species that can grow to a height of 30 to 40 feet at maturity.

Moderate-risk tree: Trees with defects that may be cost-effectively or practically treated. Most Moderate-Risk trees exhibit several moderate defects affecting more than 40% of a tree's trunk, crown, or critical root zone.

Monoculture: A population dominated by one single species or very few species.

Open Space: All area of a lot except the areas occupied by a building, structure or impervious surface, excluding items listed in 4.30(C), Projections into Required Open Spaces. See Open Space, Percent.

Park: A recreational facility which may include playgrounds, playfields, sport courts, and incidental structures associated with such land uses (e.g., bleachers, benches).

Pruning (Trimming): The selective removal of plant parts to meet specific goals and objectives.

Removal (Tree Removal): The elimination, movement, or taking away of any owned tree from its present location.

Right-of-Way (ROW): A strip of land generally owned by a public entity over which facilities, such as highways, railroads, or power lines, are built. A utility right-of-way is owned by the utility company.

Risk: Combination of the probability of an event occurring and its consequence.

Risk Assessment (Tree Risk Assessment): A tree risk assessment is the systematic process to identify, analyze, and evaluate tree risk, based on International Society of Arboriculture industry standards.

Root Protection Zone: The area on a site proposed for development that will not be disturbed by grading, storage of materials, or disturbance of any kind; usually the radius within the tree's dripline. The staff arborist may expand or contract the Root Protection Zone based on the species, age, or health of the trees or on site-specific conditions, to improve the chances that the tree will not be damaged during construction and to permit construction to take place.

Shrub: A woody plant less than 15 feet in mature height, consisting of several small stems from the ground or small branches near the ground, which may be deciduous or evergreen.

Small Tree (Small-statured Tree): A tree species that will grow to a height of less than 30 feet at maturity.

Soil Compaction: See Compaction.

Species: Fundamental category of taxonomic classification, ranking below a genus or subgenus, and consisting of related organisms capable of interbreeding.

Staff Arborist: See Contracted Arborist.

Stem: Trunk; A woody structure bearing buds, foliage, and giving rise to other stems.

Street Tree: A street tree is defined as a tree within the right-of-way.

Street Right-of-Way (ROW): See Right-of-Way.

Structural Defect: A feature, condition, or deformity of a tree or tree part that indicates weak structure and contributes to the likelihood of failure.

Target: Used in risk assessment. Any object that may be hit in the event of a tree or partial tree failure. This may include people, vehicles, buildings, or other structures.

Topping: Characterized by reducing tree size using internodal cuts without regard to tree health or structural integrity; this is not an acceptable pruning practice.

Training: See Young Tree Training.

Tree: A tree is defined as a perennial woody plant that may grow more than 20 feet tall. Characteristically, it has one main stem, although many species may grow as multi-stemmed forms.

Tree Benefit: An economic, environmental, or social improvement that benefits the community and results mainly from the presence of a tree. The benefit received has real or intrinsic value associated with it.

Tree Inventory: Comprehensive database containing information or records about individual trees typically collected by an arborist.

Tree Preservation Ordinance: Tree preservation ordinances are policy tools used by communities striving to attain a healthy, vigorous, and well-managed urban forest. Tree preservation ordinances simply provide the authorization and standards for tree care and tree management activities.

Tree Service: A business offering the service of removing, transplanting or the trimming of trees to the public.

Tree Size: A tree's diameter measured to the nearest inch in 1-inch size classes at 4.5 feet above ground, also known as diameter at breast height (DBH) or diameter.

Tree Survey and Protection Plan: A written plan having text and graphic illustrations indicating the methods that are used to preserve City-owned trees and privately owned trees on adjacent property during development.

Urban Forest: All the trees within a municipality or a community. This can include the trees along streets or rights-of-way, in parks and greenspaces, in forests, and on private property.

Utility Pruning: Selective pruning to prevent the loss of service, comply with mandated clearance laws, prevent damage to equipment, avoid access impairment, and uphold the intended usage of the facility/utility space.

Trimming (Tree Trimming): See Pruning.

Young Tree Training (Young Tree Pruning): Pruning of young trees to correct or eliminate weak, interfering, or objectionable branches to improve structure. These trees can be up to 20 feet tall and can be worked with a pole pruner by a person standing on the ground.

APPENDICES

APPENDIX A
RECOMMENDED TREE SPECIES

Deciduous Trees						
Large Deciduous Trees: Greater than 45 Feet in Height at Maturity						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
baldcypress	*Taxodium distichum*	Pyramidal	Native to adjacent states	Drought and flood tolerant, tolerant of salt spray, prefers acidic soil, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
beech, American	*Fagus grandifolia*	Round	Native	May be difficult to find in nurseries, prefers acidic soil	Currently very few	Parks, Yard tree
beech, European	*Fagus sylvatica*	Pyramidal, Round	Non-native	Drought and flood intolerant, salt intolerant	Currently very few	Residential street tree, Parks, Yard tree
birch, river	*Betula nigra*	Pyramidal, Round	Native	Flood tolerant, intolerant of alkaline soil, ALB host, recommended cultivars 'Dura-Heat' and 'Heritage'	Currently very few	Residential street tree, Parks, Yard tree
corktree, Amur	*Phellodendron amurense*	Open, Round	Non-native	Plant male cultivars only (male trees are fruitless, female trees have invasive potential), moderately tolerant of drought and salt, flood intolerant	Currently very few	Residential street tree, Parks, Yard tree
cucumbertree	*Magnolia acuminata*	Oval, Pyramidal	Native to Ohio and Indiana	Showy flowers, salt intolerant, drought and flood intolerant, no serious pests	Currently very few	Residential street tree, Parks, Yard tree
elm, American	*Ulmus americana*	Vase	Native	Drought and flood tolerant, salt tolerant, highly tolerant of urban conditions, ALB host, plant Dutch elm disease resistant cultivars, recommended cultivars: Jefferson, New Harmony, Princeton, Valley Forge	Currently few	Commercial street tree, Residential street tree, Parks, Yard tree
elm, Chinese	*Ulmus parvifolia*	Round	Non-native	Drought and flood tolerant, salt tolerant, ALB host	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
elms, hybrid	*Ulmus* x	Vase, Arching, Oval, Upright	Non-native, various hybrids between native American elms and European and Asian elm species	Drought and flood tolerant, salt tolerant, highly tolerant of urban conditions, ALB host, resistant to Dutch elm disease, recommended varieties: Accolade, Frontier, Homestead, Patriot, Pioneer, Regal	Currently few	Commercial street tree, Residential street tree, Parks, Yard tree
ginkgo	*Ginkgo biloba*	Broad, Pyramidal, Upright	Non-native	Drought tolerant, no serious pests, plant male trees only, columnar cultivars are available for sites with restricted aboveground space	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
hackberry	*Celtis occidentalis*	Oval, Round, Vase	Native	ALB host, drought and flood tolerant	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
hazel, Turkish	*Corylus colurna*	Oval, Pyramidal	Non-native	Drought tolerant, salt intolerant, no serious pests	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree

Large Deciduous Trees: Greater than 45 Feet in Height at Maturity *(continued)*						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
hickory, bitternut	*Carya cordiformis*	Oval, Round, Upright	Native	May be difficult to find in nurseries, edible fruit	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
hickory, shagbark	*Carya ovata*	Irregular, Oval	Native	May be difficult to find in nurseries, drought tolerant, edible fruit, attractive bark	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
hickory, shellbark	*Carya laciniosa*	Oval	Native	May be difficult to find in nurseries, prefers moist soil, intolerant of alkaline soil, edible fruit	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
honeylocust, thornless	*Gleditsia triacanthos f. inermis*	Broad, Round	Native	Drought and flood tolerant, salt tolerant, no serious pests	Use sparingly, species currently overrepresented	Commercial street tree, Residential street tree, Parks, Yard tree
Japanese pagoda tree	*Styphnolobium japonicum*	Round	Non-native	Drought tolerant, salt tolerant, messy fruit, potentially invasive, avoid planting near natural areas	Currently very few	Commercial street tree, Residential street tree
katsura tree	*Cercidiphyllum japonicum*	Oval, Pyramidal, Round	Non-native	ALB host, flood tolerant, salt tolerant, drought intolerant, plant in protected sites	Currently very few	Residential street tree, Parks, Yard tree
Kentucky coffeetree	*Gymnocladus dioicus*	Irregular, Oval	Native	Drought and flood tolerant, salt tolerant, no serious pests, leaves and seeds are poisonous when ingested, male cultivars are fruitless	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
larch, eastern	*Larix laricina*	Pyramidal	Native	May be difficult to find in nurseries, flood tolerant, prefers wet sites, drops needles in winter	Currently very few	Parks, Yard tree
larch, European	*Larix decidua*	Irregular, Pyramidal	Non-native	Drought and flood intolerant, drops needles in winter	Currently very few	Parks, Yard tree
linden, American	*Tilia americana*	Oval, Pyramidal, Round	Native	Salt intolerant, no serious pests	Currently few	Residential street tree, Parks, Yard tree
linden, littleleaf	*Tilia cordata*	Oval, Pyramidal, Upright	Non-native	Salt intolerant, drought tolerant, no serious pests	Currently few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
linden, silver	*Tilia tomentosa*	Pyramidal	Non-native	Salt tolerant, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
London planetree	*Platanus × acerifolia*	Pyramidal, Rounded	Non-native	Drought and flood tolerant, ALB host, often early leaf drop due to anthracnose	Currently few	Commercial street tree, Residential street tree, Parks, Yard tree
maple, black	*Acer saccharum subsp. nigrum*	Oval, Round, Upright	Native	Salt intolerant, prefers acidic soil, salt intolerant, flood intolerant	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree

Large Deciduous Trees: Greater than 45 Feet in Height at Maturity *(continued)*						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
maple, Freeman's	*Acer freemanii*	Columnar, Oval, Pyramidal, Upright	Native	ALB host, moderately tolerant of salt spray, flood tolerant	Use sparingly, genus currently overrepresented	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
maple, red	*Acer rubrum*	Irregular, Oval, Round, Cultivars come in various forms	Native	ALB host, salt intolerant, flood tolerant	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
maple, sugar	*Acer saccharum*	Oval, Round, Upright	Native	ALB host, salt intolerant, fall color	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
oak, bur	*Quercus macrocarpa*	Upright, Oval, Spreading	Native	Drought and flood tolerant, moderately salt tolerant, no serious pests, some resistance to oak wilt	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
oak, English	*Quercus robur*	Oval, Rounded	Non-native	Drought tolerant, moderately tolerant of salt spray, columnar cultivars are available for sites with restricted aboveground space, some resistance to oak wilt	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
oak, overcup	*Quercus lyrata*	Oval, Rounded	Native to Illinois and Indiana	Drought and flood tolerant, some resistance to oak wilt	Currently very few or none	Residential street tree, Parks, Yard tree
oak, swamp white	*Quercus bicolor*	Upright, Oval, Rounded	Native	Drought and flood tolerant, moderately salt tolerant, no serious pests, some resistance to oak wilt	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
oak, white	*Quercus alba*	Broad, Irregular, Round	Native	Fall color, intolerant of alkaline soil, drought and flood intolerant, some resistance to oak wilt	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
redwood, dawn	*Metasequoia glyptostroboides*	Upright, Pyramidal	Non-native	Flood tolerant, intolerant of alkaline soil, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
sweet-gum, American	*Liquidambar styraciflua*	Pyramidal, Oval	Native to Ohio and Illinois	Recommended cold hardy cultivar 'Moraine', fall color, messy gumball fruit, no serious pests, intolerant of alkaline soil, columnar cultivar 'Slender 'Silhouette' for sites with restricted aboveground space	Currently few	Residential street tree, Parks, Yard tree
tuliptree	*Liriodendron tulipifera*	Pyramidal, Oval	Native	Showy flowers, no serious pests, salt intolerant, weak wood	Currently few	Residential street tree, Parks, Yard tree
tupelo, black	*Nyssa sylvatica*	Pyramidal, Oval	Native	Fall color, intolerant of alkaline soil, no serious pests	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
walnut, black	*Juglans nigra*	Round	Native	May be difficult to find in nurseries, messy fruit, can stunt growth of other trees, plant near trees tolerant of black walnut toxicity	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
zelkova, Japanese	*Zelkova serrata*	Vase	Non-native	Drought and flood tolerant, salt tolerant, no serious pests, cultivars come in various sizes and forms, columnar cultivar 'Musashino' for sites with restricted aboveground space	Currently few	Commercial street tree, Residential street tree, Parks, Yard tree

Medium Deciduous Trees: 31 to 45 Feet in Height at Maturity						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
buckeye, Ohio	*Aesculus glabra*	Round	Native	Moderately drought and flood tolerant, intolerant of soil salt, prefers acidic soil, ALB host	Currently very few or none	Residential street tree, Parks, Yard tree
cherry, amur choke	*Prunus maackii*	Pyramidal, Rounded	Non-native	Drought tolerant, heat intolerant, plant in protected sites	Currently very few or none	Residential street tree, Parks, Yard tree
cherry, Sargent	*Prunus sargentii*	Vase	Non-native	Salt tolerant, showy flowers, susceptible to black knot, columnar cultivar 'Columnaris' for sites with restricted aboveground space	Currently very few or none	Commercial street tree, Residential street tree, Parks, Yard tree
golden rain tree	*Koelreuteria paniculata*	Rounded	Non-native	Drought and flood tolerant, salt tolerant, no serious pests, columnar cultivars 'Fastigiata' and 'Gold Candle' for sites with restricted aboveground space	Currently very few or none	Commercial street tree, Residential street tree, Parks, Yard tree
hardy rubbertree	*Eucommia ulmoides*	Broad, Round	Non-native	Drought and flood tolerant, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
hophornbeam, eastern	*Ostrya virginiana*	Oval, Rounded	Native	Drought tolerant, no serious pests	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
hornbeam, European	*Carpinus betulus*	Oval, Upright	Non-native	Drought and flood tolerant, salt intolerant, columnar cultivar 'Fastigiata' for sites with restricted aboveground space	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
horse-chestnut, red	*Aesculus × carnea*	Upright, Oval	Non-native	Drought and flood intolerant, tolerant of salt spray, prefers acidic soil, ALB host	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
maackia, Amur	*Maackia amurensis*	Round, Vase	Non-native	Drought tolerant, showy flowers, attractive exfoliating bark, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
maple, three-flowered	*Acer triflorum*	Oval, Upright	Non-native	Flood intolerant, intolerant of alkaline soil	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
mountain silverbell	*Halesia tetraptera*	Broad, Rounded	Native	Prefers acidic soil, no serious pests	Currently very few or none	Residential street tree, Parks, Yard tree
parrotia, Persian	*Parrotia persica*	Rounded, Vase	Non-native	Drought tolerant, salt intolerant, flood intolerant	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
smoketree, American	*Cotinus obovatus*	Irregular, Oval, Upright, Shrub	Native to southern United States	Showy flowers, fall color	Currently very few	Parks, Yard tree
yellowwood, American	*Cladrastis kentukea*	Rounded, Vase	Native to adjacent states	Showy flowers, fall color, no serious pests	Currently very few	Residential street tree, Parks, Yard tree

Small Deciduous Trees: 15 to 30 Feet in Height at Maturity						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
cherry, common choke	*Prunus virginiana*	Irregular, Oval, Round, Thicket-forming	Native	Showy flowers, drought tolerant, susceptible to many pests and diseases	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
cherry, Japanese flowering	*Prunus serrulata*	Round, Vase	Non-native	Showy flowers, salt tolerant, drought and flood intolerant, susceptible to many pests and diseases, columnar cultivar 'Amanogawa' for sites with restricted aboveground space	Currently very few or none	Commercial street tree, Residential street tree, Parks, Yard tree
crabapple, flowering	*Malus* spp.	Rounded	Native to region	Drought tolerant, flood intolerant, moderately salt tolerant, prefers acidic soil, choose disease resistant cultivars, columnar cultivars are available for sites with restricted aboveground space	Currently few	Commercial street tree, Residential street tree, Parks, Yard tree
dogwood, cornelian cherry	*Cornus mas*	Multi-stemmed, Oval, Round	Non-native	Showy flowers, showy fruit, fall color	Currently very few or none	Residential street tree (use sparingly), Parks, Yard tree
dogwood, flowering	*Cornus florida*	Round	Native	Showy flowers, drought and flood intolerant, salt intolerant, plant in protected sites with part shade, requires acidic soil, no serious pests	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
dogwood, Kousa	*Cornus kousa*	Round	Non-native	Showy flowers, flood intolerant, plant in protected sites with part shade, prefers acidic soil, no serious pests	Currently very few	Residential street tree (use sparingly), Parks, Yard tree
fringetree, Chinese	*Chionanthus retusus*	Round, Vase	Non-native	Showy flowers, drought and flood intolerant, salt intolerant	Currently very few or none	Residential street tree, Parks, Yard tree
fringetree, white	*Chionanthus virginicus*	Oval, Rounded	Native to Ohio	Showy flowers, drought and flood intolerant, intolerant of salt spray, may have potential to become emerald ash borer host	Currently very few or none	Residential street tree, Parks, Yard tree
hawthorn species	*Crataegus* spp.	Round	Native	Showy fruit and flowers, drought tolerant, salt intolerant, many suitable species and varieties, choose rust resistant varieties or plant away from*Juniperus* spp.	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
hornbeam, American	*Carpinus caroliniana*	Round	Native	Salt intolerant, flood tolerant, no serious pests	Currently very few	Residential street tree, Parks, Yard tree
lilac, Japanese tree	*Syringa reticulata*	Oval, Rounded	Non-native	Showy flowers, moderately drought tolerant, salt tolerant, no serious pests	Currently very few	Commercial street tree, Residential street tree, Parks, Yard tree
lilac, Pekin	*Syringa pekinesis*	Multi-stemmed, Oval, Round, Upright	Non-native	Attractive peeling bark, showy flowers, moderately salt tolerant	Currently very few or none	Commercial street tree, Residential street tree, Parks, Yard tree
magnolia, saucer	*Magnolia* x *soulangeana*	Pyramidal, Round	Non-native	Showy flowers, drought and flood intolerant, salt intolerant, plant in protected sites with full sun or part shade, no serious pests	Currently very few	Residential street tree, Parks, Yard tree
magnolia, star	*Magnolia stellata*	Multi-stemmed, Round	Non-native	Showy flowers, drought and flood intolerant, moderately salt tolerant, plant in protected sites with full sun or part shade, no serious pests	Currently very few or none	Residential street tree, Parks, Yard tree

Small Deciduous Trees: 15 to 30 Feet in Height at Maturity *(continued)*						
Common Name	**Scientific Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
maple, Japanese	*Acer palmatum*	Broad, Multi-stemmed, Round, Weeping, Shrub-like	Non-native	Drought intolerant, plant in protected sites with part shade, rarely ALB host	Use sparingly, genus currently overrepresented	Parks, Yard tree
maple, paperbark	*Acer griseum*	Oval, Round, Upright	Non-native	Flood tolerant, ALB host	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
maple, Shantung	*Acer truncatum*	Oval, Round, Upright	Non-native	Drought tolerant, prefers acidic soil, fall color, ALB host	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
maple, trident	*Acer buergerianum*	Oval, Rounded	Non-native	Drought tolerant, salt tolerant, ALB host	Use sparingly, genus currently overrepresented	Residential street tree, Parks, Yard tree
redbud, eastern	*Cercis canadensis*	Rounded, Irregular, Vase	Native	Showy flowers, sensitive species, drought and flood intolerant, salt intolerant, plant in protected sites with part shade, no serious pests	Currently very few	Residential street tree, Parks, Yard tree
serviceberry, Allegheny	*Amelanchier laevis*	Irregular, Multi-stemmed, Narrow, Round	Native	Flood tolerant, salt intolerant, showy flowers, edible fruit, no serious pests, columnar cultivar 'Cumulus' for sites with restricted aboveground space	Currently very few	Residential street tree, Parks, Yard tree
serviceberry, downy	*Amelanchier arborea*	Upright	Native	Drought and flood tolerant, prefers acidic soil, edible fruit, showy flowers	Currently very few	Residential street tree, Parks, Yard tree
serviceberry, juneberry	*Amelanchier* x *grandiflora*	Multi-stemmed, Round, Upright	Native, hybrid of native *Amelanchier* spp.	Flood intolerant, edible fruit, showy flowers	Currently very few	Residential street tree, Parks, Yard tree
snowbell, Japanese	*Styrax japonicus*	Rounded	Non-native	Drought tolerant, prefers acidic soil, no serious pests	Currently very few or none	Residential street tree, Parks, Yard tree
witch-hazel, common	*Hamamelis virginiana*	Shrub, Irregular, Round, Upright	Native	Drought intolerant, salt tolerant, no serious pests	Currently very few	Parks, Yard tree

Evergreen Trees

Large Evergreen Trees: Greater than 45 Feet in Height at Maturity

Common Name	Scientific Name	Growth shape	Native to Michigan	Additional Information	Species Abundance in Birmingham	Recommended Use
cedar, Atlantic white	*Chamaecyparis thyoides*	Columnar, Narrow	Native to eastern United States	Drought intolerant, prefers acidic soil, no serious pests	Currently very few or none	Residential street tree (use sparingly), Parks, Yard tree
falsecypress, Nootka	*Chamaecyparis nootkatensis*	Columnar, Pyramidal, Upright	Native to western United States	Cold hardy, no serious pests	Currently very few or none	Residential street tree (use sparingly), Parks, Yard tree
fir, balsam	*Abies balsamea*	Mounded, Pyramidal	Native	Cold hardy, salt intolerant	Currently very few	Parks, Yard tree
fir, Douglas	*Pseudotsuga menziesii*	Pyramidal	Native to western United States	Moderately salt tolerant, drought and flood intolerant	Currently very few	Parks, Yard tree
fir, fraser	*Abies fraseri*	Pyramidal	Native to southeastern United States	May be difficult to find in nurseries, prefers acidic soil, no serious pests	Currently very few	Parks, Yard tree
fir, white	*Abies concolor*	Pyramidal	Native to western United States	Cold hardy, drought tolerant, salt intolerant, no serious pests	Currently very few	Parks, Yard tree
hemlock, eastern	*Tsuga canadensis*	Pyramidal	Native	Cold tolerant, salt intolerant, drought and flood intolerant, heat intolerant	Currently very few	Parks, Yard tree
holly, American	*Ilex opaca*	Pyramidal	Native to Indiana and Ohia	Salt tolerant, prefers acidic soil, marginally hardy	Currently very few or none	Residential street tree (use sparingly), Parks (use sparingly), Yard tree (use sparingly)
pine, eastern white	*Pinus strobus*	Broad, Irregular, Pyramidal	Native	Cold tolerant, salt intolerant, drought intolerant	Currently very few	Parks, Yard tree
spruce, Norway	*Picea abies*	Pyramidal	Non-native	Drought and flood intolerant, moderately salt tolerant, susceptible to several diseases and pests	Currently very few	Parks, Yard tree
spruce, Oriental	*Picea orientalis*	Pyramidal	Non-native	Salt intolerant	Currently very few or none	Parks, Yard tree
spruce, Serbian	*Picea omorika*	Narrow, Pyramidal	Non-native	Flood intolerant, moderately drought tolerant, salt intolerant, shelter from strong winds	Currently very few or none	Parks, Yard tree
spruce, white	*Picea glauca*	Pyramidal	Native	Drought and flood intolerant, salt intolerant	Currently very few	Parks, Yard tree

Medium Evergreen Trees: 31 to 45 Feet in Height at Maturity						
Scientific Name	**Common Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
cedar, eastern red	*Juniperus virginiana*	Narrow, Pyramidal, Upright	Native	Salt tolerant, drought tolerant	Currently very few	Commercial street tree (use sparingly), Residential street tree, Parks, Yard tree
pine, lacebark	*Pinus bungeana*	Broad, Pyramidal	Non-native	Flood intolerant, salt intolerant	Currently very few or none	Parks, Yard tree
pine, limber	*Pinus flexilis*	Upright, Pyramidal	Native to western United States	Drought tolerant, no serious pests	Currently very few	Parks, Yard tree
pine, Swiss stone	*Pinus cembra*	Columnar, Narrow, Pyramidal, Upright	Non-native	Tolerant of salt spray, drought tolerant, cold tolerant	Currently very few or none	Parks, Yard tree
arborvitae	*Thuja occidentalis*	Narrow, Pyramidal, Round	Native	Moderately salt tolerant, medium to large tree	Currently very few	Parks, Yard tree
Small Evergreen Trees: 15 to 30 Feet in Height at Maturity						
Scientific Name	**Common Name**	**Growth shape**	**Native to Michigan**	**Additional Information**	**Species Abundance in Birmingham**	**Recommended Use**
pine, mugo	*Pinus mugo*	Mounded, Shrub-like	Non-native	Tolerant of alkaline soil, flood intolerant	Currently very few or none	Parks, Yard tree
yew, Japanese	*Taxus cuspidata*	Broad, Irregular, Pyramidal, Upright	Non-native	Flood intolerant	Currently very few	Parks, Yard tree
juniper, Chinese	*Juniperus chinensis*	Creeping, Narrow, Oval, Pyramidal, Round, Upright	Non-native	Rust host, plant in full sun, moderately salt tolerant, drought tolerant, sizes vary by cultivar	Currently very few or none	Parks, Yard tree

This recommended species list was compiled through the use of the references Dirr's Hardy Trees and Shrubs (Dirr, 2003), Manual of Woody Landscape Plants (5th Edtion) (Dirr, 1998), The Morton Arboretum's Tree Selector (mortonarb.org), Missouri Botanical Garden Plant Finder (missouribotanicalgarden.org), and the USDA Forest Service species fact sheets and website.

APPENDIX B
PROHIBITED SPECIES LIST

Common Name	**Scientific Name**
Ash	*Fraxinus* spp.
Boxelder	*Acer negundo*
Catalpa	*Catalpa* spp.
Common Buckthorn	*Rhamnus cathartica*
Common Privet	*Ligustrum vulgare*
Cottonwood	*Populus deltoides*
Dame's Rocket	*Hesperis matronalis*
Elm (except disease-resistant varieties)	*Ulmus* spp.
English Ivy	*Hedera helix*
Euonymus	*Euonymus* spp.
Garlic Mustard	*Alliaria petiolata*
Honeysuckle	*Lonicera* spp.
Horse Chestnut (nut bearing)	*Aesculus hippocastanum*
Japanese Barberry	*Berberis thunbergii*
Kentucky Bluegrass	*Poa pratensis*
Mulberry Trees	*Morus* spp.
Multiflora Rose	*Rosa multiflora*
Norway Maple	*Acer platanoides*
Orchard Grass	*Dactylis glomerata*
Oriental Bittersweet	*Celastrus orbiculatus*
Periwinkle	*Vinca* spp.
Poison Ivy	*Toxicodendron radicans*
Poplar	*Populus* spp.
Purple Loosestrife	*Lythrum salicaria*
Quack Grass	*Elymus repens*
Ribes (Gooseberry)	*Ribes* spp.
Siberian Elm	*Ulmus pumila*
Soft Maple (Red, Silver)	*Acer rubrum, Acer saccharinum, Acer freemanii*
Succulent fruit bearing trees	
Tree of Heaven	*Ailanthus altissima*
White Clover	*Trifolium repens*
Willow	*Salix* spp.
Winged Wahoo	*Euonymus alatus*

APPENDIX C
TREE AND SHRUB WORK PERMIT APPLICATION

City of Birmingham
A Walkable Community

DEPARTMENT OF PUBLIC SERVICES
851 South Eton Street
(248) 530-1700

TREE AND SHRUB WORK APPLICATION

Tree service businesses performing work within city limits, whether on public or private property, must be registered with the City Clerk's Office.

Address of Work Site: _____ Date: _____

Property Owner of the Work Site specified above, to execute the work described below on trees or shrubs located within the street right-of-way adjacent to the Work Site specified. The name(s) and address(es) of applicant(s) are as follows:

Property Owner of the Work Site

Name: _____

Phone: _____

Email: _____

Applicant (if someone other than the Property Owner)

Name: _____

Phone: _____

Email: _____

Mark the boxes of all tree maintenance categories that represent the work being applied for:

☐ Planting ☐ Pruning ☐ Removal ☐ Root Pruning ☐ Pest/Disease Treatment (specify below) ☐ Other

Description of Work: _____

REPLACEMENT TREES ARE TO BE AT LEAST 3"-3½" CALIPER, BALLED & BURLAPPED, NURSERY STOCK GRADE 1 OR BETTER.

This permit is being issued with the understanding that the work above mentioned would be done in accordance with accepted arboricultural practices and under the following conditions:

1. Any violation of the permit specifications is subject to penalties provided in the Birmingham City Code Chapter 118, Section 118-28.
2. The City of Birmingham is under no contractual obligation and assumes no liability for damages incurred as a result of granting this permit.
3. The owner and/or applicant agree to do the work as stated above and to accept complete financial responsibility for any damages resulting therefrom.
4. Owner agrees that if work is improperly accomplished, the city shall have the right to make the necessary corrections and bill said owner of adjacent property for this work.
5. If permit is not signed by the owner of the adjacent property, the applicant agrees to accept all liability for work done and further states that said work is being done with the expressed permission and approval of the owner.
6. The owner/applicant waives any claim to ownership of the city property under any theory of law.

<u>This Section is for City Use Only</u>

Permit is hereby granted to _____
Applicant

Permit issued on the _____ day of _____ , 20___
Day *Month* *Year*

by _____ at the Department of Public Services.
City Representative

This permit is non-transferable and expires on _____
Expiration Date

Tree Site ID _____