

Sandy Springs Technical Manual

Amendment TA22-0008, 12-2022

N. Sustainable Landscape Practices

1. Applicability

The Sustainable Landscape Practices apply to all City-owned property, to work conducted by City staff and all contracted vendors. It establishes guidelines for the design, installation, and maintenance of landscaping, including plantings and hardscape.

2. Sustainable Design

a. Goals

Sustainable design guiding principles shall be followed to:

- Create appealing landscapes
- Promote the use of plant species native to the Piedmont
- Support wildlife by creating suitable habitats
- Protect existing, desirable plant communities
- Limit landscape maintenance needs
- Improve stormwater management
- Reduce the island heat effect

b. Design Considerations

i. Applicability

When creating new landscape designs or updating existing ones, the designers must implement the following considerations.

ii. Site Planning

- Stormwater should be managed on-site whenever possible
- Whenever possible, hand water instead of installing irrigation
- Whenever possible, use temporary irrigation rather than permanent

iii. Plant Selection

- Favor plant species native to the Piedmont, aim for 75% of species diversity to be native
- Favor plant species that generate multiple benefits, such as:
 - Wildlife support, including pollinators
 - Erosion control
 - Stormwater management
- Selected species should be drought tolerant (except in wet conditions)
- Species that are prone to destructive pests should be avoided
- Consider groundcover alternatives to lawn in areas of low traffic
- Stream buffer plantings are subject to the Technical Manual, Sec. 1.E. State Water Buffers Restoration Standards

Invasive plant species are prohibited

- See GA Exotic Pest Plant Council Category 1 and 1a lists: <https://www.gaepcc.org/list/>
- In addition to those listed under Category 1 and 1a:

- *Miscanthus sinensis* (silvergrass)
- *Nandina domestica* (heavenly bamboo)
- *Vinca major*, *V. minor* (periwinkle)
- *Berberis thunbergia* (Japanese barberry)
- *Euonymus fortunei* (wintercreeper)
- *Liriope spicata*, *L. muscari* (liriope, monkey/mondograss)
- *Mahonia beali* (leatherleaf mahonia)
- Favor plants regionally produced

iv. Hardscape

- Minimize the area covered by impervious surfaces
- Consider the life cycle of materials and prioritize durability
- Favor materials regionally produced

c. Implementation Process

- Planting plans part of the regular permitting process with Community Development will be reviewed with that permit.
- Planting plans that are not linked to another permit must be submitted to Community Development for review as a minor LDP. Only a planting plan will be required for the application unless the scope of work includes more than plantings.
- Changes to approved plans must be resubmitted for review to Community Development.

3. Integrated Pest Management

a. Goals

An integrated pest management program shall be implemented to:

- Maintain healthy, attractive plants, maximize resistance to pests and outcompete weeds
- Monitor for presence of pests and to evaluate pest impact on plant health and appearance and nuisance to the public
- Provide control treatments that have minimal negative effects on all but the pest and that protect air and water quality
- Prevent unnecessary exposure of humans and wildlife, including pollinator species, to toxic substances

b. Overall Strategy

The nuisance level generated by pest insects, disease, and weeds must be assessed prior to consider treating a landscaped area. Environmental, aesthetic or economic damage must be present to qualify the presence of undesirable species as a nuisance. Different areas of the City will have different thresholds for aesthetics: the planting bed in front of a landmark building should be maintained with higher standards than a remote patch of forest.

When selecting a correcting measure, the following criteria should be applied:

- Least disruptive of naturally occurring controls;
- Least hazardous to human health;
- Least toxic to non-target organisms;
- Least damaging to the general environment, surface and ground water, and overall ecosystem function and stability;
- Most likely to produce a permanent reduction in the environment's ability to support target pests;

- Economic and environmental cost-effectiveness in the short- and long-term.

c. Implementation

- The Landscape Manager in the Recreation and Parks Department is the designated IPM Coordinator.
- The Landscape Manager will work with other departments to implement the IPM in all City landscaping activities.
- Each City department is responsible for keeping accurate records and results of all IPM treatments, to include how, when, by whom, where and why the treatment was applied – see Recordkeeping and reporting section below.
- The IPM requirements will be incorporated into all new and existing City landscaping contracts as they come up for renewal or bid.

d. Pest Insects and Disease Management

The City of Sandy Springs seeks to control pests without harming non-target organisms, or negatively affecting air and water quality and public health. An Integrated Pest Management program uses a range of cultural, mechanical, physical, and biological control methods before using pesticides.

i. Target plants and pests

The Contractor shall identify the problematic plant species and cultivars in the landscape (target plants) and the pests that commonly cause significant harm to these plants (target pests).

ii. Monitoring

The Contractor shall monitor landscape areas regularly to identify presence of beneficial insects and pests, determine populations, life stage, and degree of damage to plants. Target plants and pests must be monitored closely during normal periods of pest activity. This information will be the basis on which pest control methods are initiated. Records of monitoring activity shall be kept.

iii. Controls

Chemical controls are applied only when monitoring indicates that preventative and non-chemical methods are not feasible (for example, not keeping pests below acceptable levels. When pesticides are required, the least toxic and the least persistent pesticide that will provide adequate pest control is applied.

1. Cultural/mechanical/physical methods

A number of maintenance practices or modifications of them can make the environment unfavorable for pest reproduction, movement, or survival. Often simply modifying an existing maintenance practice, such as timing of pruning or fertilization, can produce positive results. Other mechanical or physical practices may specifically combat plant pests or increase host resistance. Key treatments include:

- Fostering a healthy soil, judicious fertilization only when needed, and managing irrigation appropriately
- Pruning to remove infected or infested branches and shoots; time pruning to avoid periods of insect infestation, for example prune pines in winter (December-February) when bark beetles and borers are inactive
- Removing fallen twigs, leaves, and fruit that contains disease inoculums
- Mulching soil surface to reduce weeds and to reduce splashing and the drops of mud that would protect spores deposited on plant surfaces
- Trapping insects using sticky surfaces (also used for monitoring)
- Bringing to attention of the City Representative 'target plants' that are disease or insect prone and suggesting resistant plant replacements or those better suited to the site and microclimate

2. Biological methods

Biological controls are pesticides of natural origin that have limited or no adverse effects on the environment or beneficial organisms. Determining the effective biological control and proper timing of application are critical to success in pest control. The Contractor shall consider the following biological control methods when cultural/mechanical/physical methods are not adequate to lower pest populations to the target level.

- *Bacillus thuringiensis* (bt)
- Parasitic nematodes
- Pheromone traps
- Beneficial insect release and conservation

3. Pesticides (chemical methods)

The term pesticide applies to insecticides, fungicides, and other substances used to control pests. Antimicrobial agents are not included in this definition of pesticides.

- When cultural, mechanical, physical and biological controls resulted in inadequate pest control, the Contractor may select and apply an appropriate least-toxic pesticide as a last resort. Least-toxic pesticides have a high LD-50, low residual and narrow range of toxicity. Application must be timed to the appropriate life stage of the pest and when environmental conditions allow.
- Examples include:
 - Insecticidal soaps
 - Horticultural oils
 - Herbicidal soaps
 - Neem
 - Pyriproxyfen insect growth regulator (e.g. Distance IGR)
- Restricted chemicals: Organophosphate-containing pesticides are prohibited. Common active ingredients of organophosphate products include acephate, chlorpyrifos, diazinon, dicofol, ethion, malathion, phorate, phosmet, terbufos, tribufos. They have been found to persist in the environment and cause water quality impairment of creeks, streams, and rivers.
- Pyrethroids and pyrethrins containing piperonyl butoxide (PBO) should be avoided. They are toxic to birds, fish, and beneficial insects. Their application should carefully avoid runoff and contact with non-target plants. Use of pyrethroids and pyrethrins may only be allowed upon approval of the City Representative with a written request.
- Contractor shall not apply any pesticide marked with the “Danger” warning on the label.
- All chemical applications shall be performed by a licensed, trained technician. The Contractor (or subcontractor) must hold a Class 24 Pesticide Applicator’s License from the Georgia Department of Agriculture, and strictly adhere to all laws.
- The Contractor shall submit to the City Representative a list of all product selections proposed for the season for approval prior to use.
- Pesticides shall be applied before 8:00am, and preferably outside of blooming periods, to avoid conflict with pollinator insects. Areas to be treated shall be blocked off and warning signs posted.
- The Contractor shall take precautions to keep persons away from pesticide and herbicide-treated areas until the applied material is fully dry and the treated area is safe for entry. Follow the recommendations of the pesticide manufacturer and all applicable governmental and industry regulations.
- Avoid spray drift by using a low-pressure, large-droplet sprayer.

A. Notice of pesticide use

- Signs shall be posted at time of application of the pesticide product following the rules of the Georgia Pesticide Use and Application Act of 1976 – Section 40-21-9-.02 Posting and Notification.
- The Contractor shall not be required to post signs in right-of-way locations that the general public does not use, but shall notify the City Representative in writing at least prior to the application.

B. Recordkeeping and reporting

- The Contractor shall maintain records of all pest management activities. Each record shall include the

following information:

- Date the pesticide was used
 - Name of the pesticide applicator
 - Target pest
 - Name and quantity of pesticide used
 - Location and area of the pesticide application
 - Application equipment used
 - Prevention and other non-chemical methods of control used
- The Contractor shall submit monthly the pest management record to the Representative.

e. Weed management

i. Target weeds

The Contractor shall identify target weeds (pests) present and plan a weed management program to target those species.

ii. Priority areas

Landscapes shall be maintained in a healthy and attractive manner according to the scope of work outlined under the appropriate Sandy Springs contract. Weeds with invasive tendencies in planted areas, sidewalks, curbs, gutters, or pavement shall be removed or killed weekly within the priority areas defined in the contract. Weeds shall be removed (not just killed) if they are larger than 2 inches (5 cm) in height or diameter. Dispose of weeds off-site.

iii. Invasive Plant Species

Exotic invasive plant species might be present in the landscape, whether as volunteers or deliberately planted. Those plants shall be removed by the Contractor. Refer to <http://www.gainvasives.org/> for a list of invasive species.

Invasive plants control activities covered under a separate contract, such as City parks maintenance, are exempt from the provisions of the IPM.

iv. Controls

- A. Cultural/mechanical/physical methods shall be used as the first choice in weed management.
 - Monitor planting areas frequently to identify and eradicate weeds early in the growth stage prior to their setting seed.
 - Cut or pull weeds using hand operated equipment where possible.
 - Mow large areas according to schedule to reduce weed growth, and eliminate species that are not tolerant of mowing. Mowing is especially effective when done prior to seed set. Mowing also reduces fire hazard in open space.
 - Mulch shall be maintained at all times over soil surface that is not covered by vegetation.
 - Flame weeding may be used in winter and spring with approval by the Fire Marshal to kill early-season, non-grass weeds by heating the cells until they burst. With this method, the weed quickly wilts and dies.
- B. Least toxic herbicides may be employed by the Contractor as a last resort. Least toxic herbicides may contain natural or organic ingredients with minimal environmental impact.
- C. In no case will soil pre-emergent or other types of weed killers be permitted, unless otherwise stated in the contract, and without prior approval of the City Representative.
- D. The Contractor shall submit to the Representative a list of all product selections proposed for the season for approval prior to use.

4. Installation & Maintenance

a. Irrigation

- Irrigation systems must be inspected against leaks, time malfunction and other problems quarterly
- If available, use rainwater harvesting systems rather than potable water

- For further information, refer the Sandy Springs Technical Manual Section 1.L.5

b. Mulching

- Mulch should be applied and maintained at a minimum depth of 2”
- Colored mulch is prohibited outside of high priority areas
- Additional information can be found in the Sandy Springs Technical Manual Section 1.L.2

c. Debris Management

- Whenever possible, healthy tree material that is removed should be mulched and reused on-site

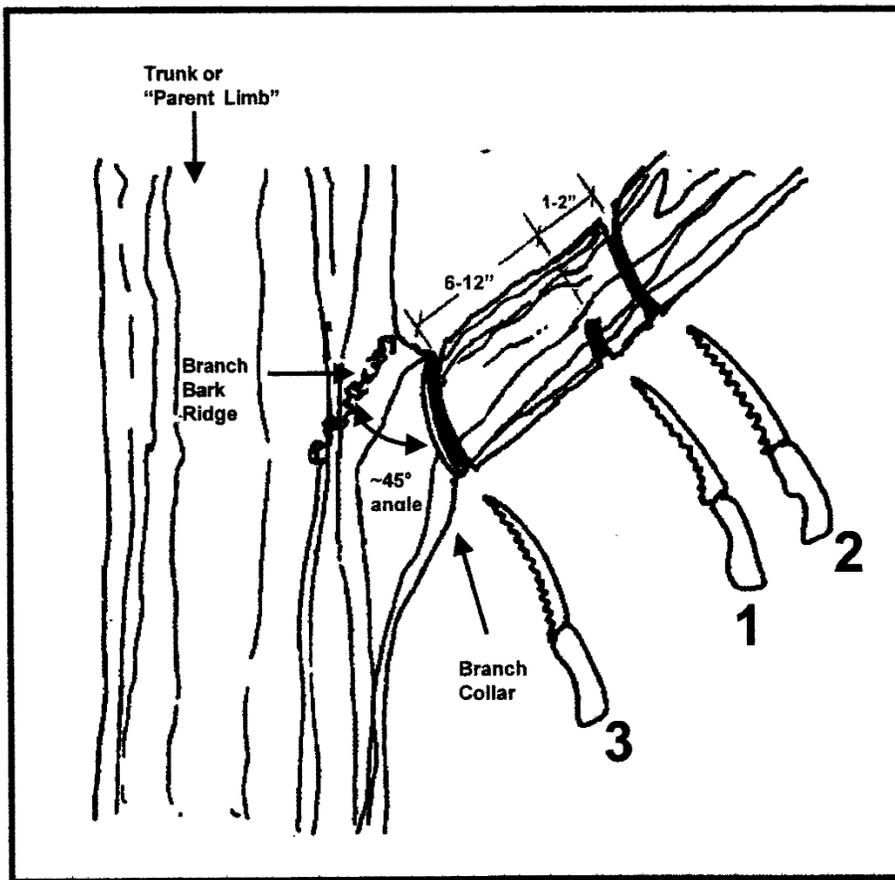
d. Soil Amendments

- Whenever possible, use local compost rather than chemical amendments (such as fertilizers) to add nutrients to the native soil.
- When chemical amendments are needed, refer to the Sandy Springs Technical Manual Section 1.L.3 and Section 1.L.4

e. Equipment

- The purchase of new and replacement motorized equipment must consider energy sources other than fossil fuels
- Batteries for electric tools cannot be recharged with gas-powered generators

Figure 5. Three Cut Pruning Method



3. Soil Environment

- a. Maintaining healthy soils reduces tree stress and improves tree the survival, growth, and longevity; improves root structure, and reduces the potential for tree failure.
- b. Adequate soil volume shall be maintained throughout the life time of tree. In a normal surface planting environment with average soil depths greater than or equal to 3 feet, soil volume calculations can be based on surface areas as follows:
 - i. Small tree = 25 square feet
 - ii. Medium tree = 150 square feet
 - iii. Large tree = 300 square feet
- c. Soil organic matter content shall be maintained at 5 percent volume.
- d. Mulching trees will increase soil nutrient levels, organic matter content and improve soil structure.
- e. Root barriers shall be used to redirect root growth away from sidewalks, curbs and driveways.
- f. Avoid soil compaction within the critical root zone of trees. Soil compaction results in an increase in soil bulk density, reduces soil pore space, decreases soil oxygen, and limits the availability of water.
- g. Parking, driving, and the temporary storage of construction material within a tree's critical root zone will result in soil compaction.

4. Fertilization

- a. Trees that are in an urban growing environment with limited natural nutrient cycling shall be fertilized on a regular basis.
- b. If trees are exhibiting symptoms of nutrient deficiency, soils shall be tested prior to fertilization, and the fertilizer formulation shall be adjusted to address the specific deficiency.

- c. Newly planted, drought stressed or severely damaged or injured trees shall not be fertilized.
- d. Fertilizer shall be applied when roots are actively growing. The best times are late winter, early spring through early summer.
- e. Nitrogen, phosphorus, and potassium (NPK) in a ratio of 3:1:1 is most desirable.
- f. Slow release nitrogen shall be applied at a rate of 2 to 4 pounds (of elemental nitrogen) per 1,000 square feet of rooting area.
- g. Fertilizer shall be applied within the entire root zone of trees. Sub-surface applications to a depth of 4 to 12 inches are ideal.
- h. The use of trunk fertilizer injections or implants is not recommended.

5. Irrigation

- a. Adequate soil moisture levels result in better tree growth, reduced stress, and reduced susceptibility to insect or disease problems.
- b. Excessive soil moisture can result in anaerobic conditions, nutrient deficiencies, and tree decline.
- c. Tree species shall be matched to anticipated soil conditions.
- d. Mulching trees helps conserve water.
- e. In the absence of adequate rainfall trees shall be irrigated at the rate of 1 inch of water every 5 to 7 days. Refer to Approximate Watering Time chart below for approximate water application times.
- f. Water shall be applied evenly throughout the outer 75% of a tree's critical root zone; runoff shall be avoided.

**Approximate Watering Time to Apply One Inch of Water Across
Various Sized Critical Root Zones**

| Radius of CRZ (ft) | Volume of Water (gals) to Equal 1" | Total Application Time (minutes and hours) at a delivery rate of 5 gallons per | | | | |
|--------------------|------------------------------------|---|-------------|-------------|--------------|--------------|
| | | 5 Sec | 15 Sec | 30 Sec | 45 Sec | 60 Sec |
| 5 | 37 | 1 min | 2 min | 4 min | 6 min | 7 min |
| 10 | 147 | 3 min | 7 min | 15 min | 22 min | 30 min |
| 15 | 330 | 6 min | 17 min | 33 min | 50 min | 1 hr |
| 20 | 587 | 10 min | 29 min | 1 hr | 1 hr 30 min | 2 hrs |
| 25 | 917 | 15 min | 46 min | 1 hr 30 min | 2 hr 30 min | 3 hrs |
| 30 | 1,322 | 22 min | 1 hr | 2 hrs | 3 hr 30 min | 4 hrs 30 min |
| 35 | 1,799 | 30 min | 1 hr 30 min | 3 hrs | 4 hr 30 min | 6 hrs |
| 40 | 2,349 | 39 min | 2 hrs | 4 hrs | 6 hrs | 8 hrs |
| 45 | 2,973 | 50 min | 1 hr 30 min | 5 hrs | 7 hrs 30 min | 10 hrs |

| Radius of CRZ (ft) | Volume of Water (gals) to Equal 1" | Total Application Time (minutes and hours) at a delivery rate of 5 gallons per | | | | |
|--------------------|------------------------------------|---|--------|--------|--------|--------|
| | | 5 Sec | 15 Sec | 30 Sec | 45 Sec | 60 Sec |
| 50 | 3,670 | 1 hr | 3 hrs | 6 hrs | 9 hrs | 12 hrs |

M. Recommended Species List

The Sandy Springs Tree Species List is intended to support site planning and design activities for tree conservation and establishment, and tree maintenance planning and decision-making. In the list, trees are arranged alphabetically by the tree's common name with the "genus" listed first. For example, red maple is listed as "Maple, Red" (maple is the genus name). The Latin name is also listed for more definitive species identification. In some cases, the commonly planted variety or cultivar of the species has also been included apart from the species.

Canopy Credit: Unaccepted Species List

| Trees <u>not acceptable</u> for planting/canopy credit: | |
|---|-----------------------------------|
| Boxelder | <i>Acer negundo</i> |
| Silver maple | <i>Acer saccharinum</i> |
| Ailanthus/Tree of Heaven | <i>Ailanthus altissima</i> |
| Mimosa | <i>Albizia julibrissin</i> |
| Catalpa | <i>Catalpa bignonioides</i> |
| Ginkgo - female | <i>Ginkgo biloba</i> - female |
| Ornamental Pear | <i>Pyrus calleryana</i> varieties |
| Princeton Elm | <i>Ulmus Princeton</i> |

Cultivars and varieties may not qualify in the same manner as the species for canopy credits.

Large and medium-sized canopy species are considered shade trees; small-sized canopy species are considered understory or ornamental trees.

Table 1-3. Recommended Species List

(Species not listed may be considered for City Arborist approval)

Large Canopy Shade Trees (1,000 sf credit)

| Common Name | Botanical Name | Height | Width | Native | EvGrn | Urban | Riparian | Utility |
|-------------|----------------|--------|-------|--------|-------|-------|----------|---------|
|-------------|----------------|--------|-------|--------|-------|-------|----------|---------|

| | | | | | | | | |
|-------------------------|-------------------------------------|----|----|---|---|---|---|--|
| Maple, Sugar | <i>Acer saccharum/A. barbatum</i> | 60 | 30 | y | | | y | |
| Hickory, Bitternut | <i>Carya cordiformis</i> | 50 | 50 | y | | | | |
| Hickory, Pignut | <i>Carya glabra</i> | 60 | 40 | y | | | | |
| Hickory, Shagbark | <i>Carya ovata</i> | 70 | 50 | y | | | | |
| Hickory, Mockernut | <i>Carya tomentosa</i> | 60 | 40 | y | | | | |
| Chestnut, Chinese | <i>Castanea mollissima</i> | 50 | 50 | | | y | | |
| Ash, White | <i>Fraxinus americana</i> | 60 | 40 | y | | | y | |
| Ash, Green | <i>Fraxinus pennsylvanica</i> | 50 | 30 | y | | | y | |
| Ginkgo (male only) | <i>Ginkgo biloba</i> | 60 | 40 | | | y | | |
| Sweetgum | <i>Liquidambar styraciflua</i> | 75 | 50 | y | | | y | |
| Poplar, Tulip or Yellow | <i>Liriodendron tulipifera</i> | 70 | 40 | y | | | y | |
| Southern Magnolia | <i>Magnolia grandiflora</i> | 70 | 40 | y | y | | | |
| Dawn Redwood | <i>Metasequoia glyptostroboides</i> | 75 | 25 | | | y | | |
| Blackgum or Tupelo | <i>Nyssa sylvatica</i> | 50 | 30 | y | | y | y | |
| Pine, Shortleaf | <i>Pinus echinata</i> | 60 | 20 | y | | | y | |
| Pine, Slash | <i>Pinus elliotii</i> | 60 | 20 | | | | | |

| | | | | | | | | |
|-------------------|------------------------------|----|----|---|--|---|---|--|
| Pine, Longleaf | <i>Pinus palustris</i> | 60 | 20 | | | | | |
| Pine, Loblolly | <i>Pinus taeda</i> | 80 | 20 | y | | | y | |
| Sycamore | <i>Platanus occidentalis</i> | 75 | 75 | y | | | y | |
| Planetree, London | <i>Platanus x acerifolia</i> | 75 | 60 | | | y | | |
| Oak, Swamp White | <i>Quercus bicolor</i> | 60 | 50 | y | | | y | |
| Oak, Scarlet | <i>Quercus coccinea</i> | 60 | 40 | y | | | | |
| Oak, Overcup | <i>Quercus lyrata</i> | 50 | 50 | y | | | y | |
| Oak, Nuttall | <i>Quercus nuttalli</i> | 50 | 40 | y | | | | |
| Oak, Willow | <i>Quercus phellos</i> | 60 | 50 | y | | y | y | |
| Oak, Shumard | <i>Quercus shumardii</i> | 50 | 40 | y | | | | |
| Elm, American | <i>Ulmus americana</i> | 50 | 60 | y | | | y | |
| Zelkova, Japanese | <i>Zelkova serrata</i> | 50 | 40 | | | y | | |

Medium Canopy Trees (500 sf credit)

| Common Name | Botanical Name | Height | Width | Native | EvGrn | Urban | Riparian | Utility |
|-----------------------|--------------------------|--------|-------|--------|-------|-------|----------|---------|
| Maple, Trident | <i>Acer buergerianum</i> | 35 | 30 | | | y | | |
| Maple, Red | <i>Acer rubrum</i> | 40 | 25 | y | | | y | |
| Maple, Southern Sugar | <i>Acer barbatum</i> | 40 | 25 | y | | | y | |

| Common Name | Botanical Name | Height | Width | Native | EvGrn | Urban | Riparian | Utility |
|---------------------------|--------------------------------|--------|-------|--------|-------|-------|----------|---------|
| Hornbeam, European | <i>Carpinus betulus</i> | 35 | 20 | | | y | | |
| Hornbeam, American | <i>Carpinus caroliniana</i> | 30 | 30 | y | | | y | |
| Cedar, Deodar | <i>Cedrus deodora</i> | 50 | 25 | | y | | | |
| Honeylocust | <i>Gleditsia triacanthos</i> | 70 | 20 | y | | | | |
| Silverbell, Carolina | <i>Halesia caroliniana</i> | 35 | 25 | y | | | y | |
| Holly, American | <i>Ilex opaca</i> | 30 | 15 | y | y | y | | |
| Holly, Foster's | <i>Ilex x attenuata</i> | 30 | 15 | | y | y | | |
| Goldenrain Tree | <i>Koelreuteria paniculata</i> | 35 | 35 | | | | | |
| Magnolia, Sweetbay | <i>Magnolia virginiana</i> | 35 | 15 | y | y | | y | |
| Pistache, Chinese | <i>Pistacia chinensis</i> | 35 | 25 | | | y | | |
| Hophornbeam or Musclewood | <i>Ostrya virginiana</i> | 30 | 20 | y | | | y | y |
| Oak, Georgia | <i>Quercus georgiana</i> | 30 | 30 | y | | | | |
| Oak, English | <i>Quercus robur</i> | 45 | 12 | | | | | |
| Sassafras | <i>Sassafras albidum</i> | 30 | 20 | y | | | y | |
| Cypress, Bald | <i>Taxodium distichum</i> | 60 | 30 | y | | y | y | |
| Lacebark Elm | <i>Ulmus parvifolia</i> | 50 | 40 | | | y | | |

Small Canopy Trees (250 sf credit)

| Common Name | Botanical Name | Height | Width | Native | EvGrn | Urban | Riparian | Utility |
|-------------------------|-----------------------------------|--------|-------|--------|-------|-------|----------|---------|
| Maple, Amur | <i>Acer ginnala</i> | 20 | 25 | | | | | y |
| Alder, Hazel | <i>Alnus serrulata</i> | 15 | 15 | y | | y | y | y |
| Serviceberry | <i>Amelanchier aroborea</i> | 25 | 20 | y | | | | y |
| Redbud, Eastern | <i>Cercis canadensis</i> | 20 | 15 | y | | | y | y |
| Fringetree | <i>Chionanthus virginicus</i> | 20 | 10 | y | | | | y |
| Dogwood, Kousa | <i>Cornus kousa</i> | 15 | 15 | | | | | y |
| Hawthorn, Washington | <i>Crataegus phaenopyrum</i> | 20 | 20 | | | | | y |
| Witchhazel | <i>Hamamelis virginiana</i> | 20 | 20 | y | | | y | y |
| Winterberry | <i>Ilex verticillata</i> | 10 | 10 | y | | | y | y |
| Holly, Yaupon | <i>Ilex vomitoria</i> | 20 | 12 | y | | y | | y |
| Crape Myrtle | <i>Lagerstroemia indica</i> | 15 | 15 | | | y | | y |
| Orange, Osage | <i>Maclura pomifera</i> | 30 | 25 | | | y | | |
| Saucer Magnolia | <i>Magnolia x soulangeana</i> | 25 | 25 | | | | | y |
| Star magnolia | <i>Magnolia stellata</i> | 20 | 20 | | y | | | y |
| Ironwood, Persian | <i>Parrotia persica</i> | 25 | 20 | | y | | | y |
| Oak, Turkey | <i>Quercus laevis</i> | 25 | 25 | y | | | | |

| Common Name | Botanical Name | Height | Width | Native | EvGrn | Urban | Riparian | Utility |
|-----------------------------------|-----------------------|--------|-------|--------|-------|-------|----------|---------|
| Sumac, Flameleaf or Shining | <i>Rhus copallina</i> | 15 | 15 | | | y | | |

N. Sustainable Landscape Practices

1. Applicability

The Sustainable Landscape Practices apply to all City-owned property, to work conducted by City staff and all contracted vendors. It establishes guidelines for the design, installation, and maintenance of landscaping, including plantings and hardscape.

2. Sustainable Design

a. Goals

Sustainable design guiding principles shall be followed to:

- Create appealing landscapes
- Promote the use of plant species native to the Piedmont
- Support wildlife by creating suitable habitats
- Protect existing, desirable plant communities
- Limit landscape maintenance needs
- Improve stormwater management
- Reduce the island heat effect

b. Design Considerations

i. Applicability

When creating new landscape designs or updating existing ones, the designers must implement the following considerations.

ii. Site Planning

- Stormwater should be managed on-site whenever possible
- Whenever possible, hand water instead of installing irrigation
- Whenever possible, use temporary irrigation rather than permanent

iii. Plant Selection

- Favor plant species native to the Piedmont, aim for 75% of species diversity to be native
- Favor plant species that generate multiple benefits, such as:
 - Wildlife support, including pollinators
 - Erosion control
 - Stormwater management
- Selected species should be drought tolerant (except in wet conditions)
- Species that are prone to destructive pests should be avoided
- Consider groundcover alternatives to lawn in areas of low traffic
- Stream buffer plantings are subject to the Technical Manual, Sec. 1.E. State Water Buffers Restoration Standards

Invasive plant species are prohibited

- See GA Exotic Pest Plant Council Category 1 and 1a lists: <https://www.gaeppc.org/list/>
- In addition to those listed under Category 1 and 1a:
 - *Miscanthus sinensis* (silvergrass)
 - *Nandina domestica* (heavenly bamboo)
 - *Vinca major*, *V. minor* (periwinkle)
 - *Berberis thunbergia* (Japanese barberry)
 - *Euonymus fortunei* (wintercreeper)
 - *Liriope spicata*, *L. muscari* (liriope, monkey/mondograss)
 - *Mahonia beali* (leatherleaf mahonia)
- Favor plants regionally produced

iv. Hardscape

- Minimize the area covered by impervious surfaces
- Consider the life cycle of materials and prioritize durability
- Favor materials regionally produced

c. Implementation Process

- Planting plans part of the regular permitting process with Community Development will be reviewed with that permit.
- Planting plans that are not linked to another permit must be submitted to Community Development for review as a minor LDP. Only a planting plan will be required for the application unless the scope of work includes more than plantings.
- Changes to approved plans must be resubmitted for review to Community Development.

3. Integrated Pest Management

a. Goals

An integrated pest management program shall be implemented to:

- Maintain healthy, attractive plants, maximize resistance to pests and outcompete weeds
- Monitor for presence of pests and to evaluate pest impact on plant health and appearance and nuisance to the public
- Provide control treatments that have minimal negative effects on all but the pest and that protect air and water quality
- Prevent unnecessary exposure of humans and wildlife, including pollinator species, to toxic substances

b. Overall Strategy

The nuisance level generated by pest insects, disease, and weeds must be assessed prior to consider treating a landscaped area. Environmental, aesthetic or economic damage must be present to qualify the presence of undesirable species as a nuisance. Different areas of the City will have different thresholds for aesthetics: the planting bed in front of a landmark building should be maintained with higher standards than a remote patch of forest.

When selecting a correcting measure, the following criteria should be applied:

- Least disruptive of naturally occurring controls;
- Least hazardous to human health;
- Least toxic to non-target organisms;
- Least damaging to the general environment, surface and ground water, and overall ecosystem function and

stability;

- Most likely to produce a permanent reduction in the environment's ability to support target pests;
- Economic and environmental cost-effectiveness in the short- and long-term.

c. Implementation

- The Landscape Manager in the Recreation and Parks Department is the designated IPM Coordinator.
- The Landscape Manager will work with other departments to implement the IPM in all City landscaping activities.
- Each City department is responsible for keeping accurate records and results of all IPM treatments, to include how, when, by whom, where and why the treatment was applied – see Recordkeeping and reporting section below.
- The IPM requirements will be incorporated into all new and existing City landscaping contracts as they come up for renewal or bid.

d. Pest Insects and Disease Management

The City of Sandy Springs seeks to control pests without harming non-target organisms, or negatively affecting air and water quality and public health. An Integrated Pest Management program uses a range of cultural, mechanical, physical, and biological control methods before using pesticides.

i. Target plants and pests

The Contractor shall identify the problematic plant species and cultivars in the landscape (target plants) and the pests that commonly cause significant harm to these plants (target pests).

ii. Monitoring

The Contractor shall monitor landscape areas regularly to identify presence of beneficial insects and pests, determine populations, life stage, and degree of damage to plants. Target plants and pests must be monitored closely during normal periods of pest activity. This information will be the basis on which pest control methods are initiated. Records of monitoring activity shall be kept.

iii. Controls

Chemical controls are applied only when monitoring indicates that preventative and non-chemical methods are not feasible (for example, not keeping pests below acceptable levels. When pesticides are required, the least toxic and the least persistent pesticide that will provide adequate pest control is applied.

4. Cultural/mechanical/physical methods

A number of maintenance practices or modifications of them can make the environment unfavorable for pest reproduction, movement, or survival. Often simply modifying an existing maintenance practice, such as timing of pruning or fertilization, can produce positive results. Other mechanical or physical practices may specifically combat plant pests or increase host resistance. Key treatments include:

- Fostering a healthy soil, judicious fertilization only when needed, and managing irrigation appropriately
- Pruning to remove infected or infested branches and shoots; time pruning to avoid periods of insect infestation, for example prune pines in winter (December-February) when bark beetles and borers are inactive
- Removing fallen twigs, leaves, and fruit that contains disease inoculum
- Mulching soil surface to reduce weeds and to reduce splashing and the drops of mud that would protect spores deposited on plant surfaces
- Trapping insects using sticky surfaces (also used for monitoring)
- Bringing to attention of the City Representative 'target plants' that are disease or insect prone and suggesting resistant plant replacements or those better suited to the site and microclimate

5. Biological methods

Biological controls are pesticides of natural origin that have limited or no adverse effects on the environment or beneficial organisms. Determining the effective biological control and proper timing of application are critical to success in pest control. The Contractor shall consider the following biological control methods when cultural/mechanical/physical methods are not adequate to lower pest populations to the target level.

- *Bacillus thuringiensis* (bt)
- Parasitic nematodes
- Pheromone traps
- Beneficial insect release and conservation

6. Pesticides (chemical methods)

The term pesticide applies to insecticides, fungicides, and other substances used to control pests. Antimicrobial agents are not included in this definition of pesticides.

- When cultural, mechanical, physical and biological controls resulted in inadequate pest control, the Contractor may select and apply an appropriate least-toxic pesticide as a last resort. Least-toxic pesticides have a high LD-50, low residual and narrow range of toxicity. Application must be timed to the appropriate life stage of the pest and when environmental conditions allow.
- Examples include:
 - Insecticidal soaps
 - Horticultural oils
 - Herbicidal soaps
 - Neem
 - Pyriproxyfen insect growth regulator (e.g. Distance IGR)
- Restricted chemicals: Organophosphate-containing pesticides are prohibited. Common active ingredients of organophosphate products include acephate, chlorpyrifos, diazinon, dicofol, ethion, malathion, phorate, phosmet, terbufos, tribufos. They have been found to persist in the environment and cause water quality impairment of creeks, streams, and rivers.
- Pyrethroids and pyrethrins containing piperonyl butoxide (PBO) should be avoided. They are toxic to birds, fish, and beneficial insects. Their application should carefully avoid runoff and contact with non-target plants. Use of pyrethroids and pyrethrins may only be allowed upon approval of the City Representative with a written request.
- Contractor shall not apply any pesticide marked with the "Danger" warning on the label.
- All chemical applications shall be performed by a licensed, trained technician. The Contractor (or subcontractor) must hold a Class 24 Pesticide Applicator's License from the Georgia Department of Agriculture, and strictly adhere to all laws.
- The Contractor shall submit to the City Representative a list of all product selections proposed for the season for approval prior to use.
- Pesticides shall be applied before 8:00am, and preferably outside of blooming periods, to avoid conflict with pollinator insects. Areas to be treated shall be blocked off and warning signs posted.
- The Contractor shall take precautions to keep persons away from pesticide and herbicide-treated areas until the applied material is fully dry and the treated area is safe for entry. Follow the recommendations of the pesticide manufacturer and all applicable governmental and industry regulations.
- Avoid spray drift by using a low-pressure, large-droplet sprayer.

A. Notice of pesticide use

- Signs shall be posted at time of application of the pesticide product following the rules of the Georgia Pesticide Use and Application Act of 1976 – Section 40-21-9-.02 Posting and Notification.
- The Contractor shall not be required to post signs in right-of-way locations that the general public does not use, but shall notify the City Representative in writing at least prior to the application.

B. Recordkeeping and reporting

- The Contractor shall maintain records of all pest management activities. Each record shall include the following information:
 - Date the pesticide was used
 - Name of the pesticide applicator
 - Target pest
 - Name and quantity of pesticide used
 - Location and area of the pesticide application
 - Application equipment used
 - Prevention and other non-chemical methods of control used
- The Contractor shall submit monthly the pest management record to the Representative.

e. Weed management

i. Target weeds

The Contractor shall identify target weeds (pests) present and plan a weed management program to target those species.

ii. Priority areas

Landscapes shall be maintained in a healthy and attractive manner according to the scope of work outlined under the appropriate Sandy Springs contract. Weeds with invasive tendencies in planted areas, sidewalks, curbs, gutters, or pavement shall be removed or killed weekly within the priority areas defined in the contract. Weeds shall be removed (not just killed) if they are larger than 2 inches (5 cm) in height or diameter. Dispose of weeds off-site.

iii. Invasive Plant Species

Exotic invasive plant species might be present in the landscape, whether as volunteers or deliberately planted. Those plants shall be removed by the Contractor. Refer to <http://www.gainvasives.org/> for a list of invasive species.

Invasive plants control activities covered under a separate contract, such as City parks maintenance, are exempt from the provisions of the IPM.

iv. Controls

- E. Cultural/mechanical/physical methods shall be used as the first choice in weed management.
 - Monitor planting areas frequently to identify and eradicate weeds early in the growth stage prior to their setting seed.
 - Cut or pull weeds using hand operated equipment where possible.
 - Mow large areas according to schedule to reduce weed growth, and eliminate species that are not tolerant of mowing. Mowing is especially effective when done prior to seed set. Mowing also reduces fire hazard in open space.
 - Mulch shall be maintained at all times over soil surface that is not covered by vegetation.
 - Flame weeding may be used in winter and spring with approval by the Fire Marshal to kill early-season, non-grass weeds by heating the cells until they burst. With this method, the weed quickly wilts and dies.
- F. Least toxic herbicides may be employed by the Contractor as a last resort. Least toxic herbicides may contain natural or organic ingredients with minimal environmental impact.
- G. In no case will soil pre-emergent or other types of weed killers be permitted, unless otherwise stated in the contract, and without prior approval of the City Representative.
- H. The Contractor shall submit to the Representative a list of all product selections proposed for the season for approval prior to use.

4. Installation & Maintenance

a. Irrigation

- Irrigation systems must be inspected against leaks, time malfunction and other problems quarterly
- If available, use rainwater harvesting systems rather than potable water
- For further information, refer the Sandy Springs Technical Manual Section 1.L.5

b. Mulching

- Mulch should be applied and maintained at a minimum depth of 2"
- Colored mulch is prohibited outside of high priority areas
- Additional information can be found in the Sandy Springs Technical Manual Section 1.L.2

c. Debris Management

- Whenever possible, healthy tree material that is removed should be mulched and reused on-site

d. Soil Amendments

- Whenever possible, use local compost rather than chemical amendments (such as fertilizers) to add nutrients to the native soil.
- When chemical amendments are needed, refer to the Sandy Springs Technical Manual Section 1.L.3 and Section 1.L.4

e. Equipment

- The purchase of new and replacement motorized equipment must consider energy sources other than fossil fuels
- Batteries for electric tools cannot be recharged with gas-powered generators

SECTION II: It is the intention of the City Council and it is hereby ordained by the authority of the City Council that the provisions of this Ordinance shall become and be made a part of the City of Sandy Springs Development Code, and the codifier is authorized to make the specified deletions, insertions, additions, and to insert headings, article numbers and section numbers as and where appropriate.

SECTION IV: All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed to the extent of such conflict.

SECTION V: If any section, subsection, provisions, or clause of any part of this Ordinance shall be declared invalid or unconstitutional, or, if the provisions of any part of this Ordinance as applied to any particular situation or set of circumstances shall be declared invalid or unconstitutional, such invalidity shall not be construed to affect the portions of this Ordinance not so held to be invalid, or the application of this Ordinance to other circumstances not so held to be invalid. It is hereby declared as the intent of the City Council that this Ordinance would have been adopted in its current form without the invalid or unconstitutional provision contained therein.

SECTION VI: This Ordinance shall become effective immediately upon adoption.

APPROVED AND ADOPTED this the 1st day of November, 2022.

Approved:

Russell K. Paul, Mayor

Attest:

Raquel Gonzalez, City Clerk

(Seal)