

Concord Public Works Tree Planting Guide

Many residents, institutions, and businesses have expressed a willingness to fund, plant, or maintain climate hardy trees throughout the Town of Concord. Planting trees today ensures shade tree coverage for successor generations. In an effort to foster collaboration and support to develop a robust tree canopy in Concord, this publication of Concord Public Works will be distributed online and in print to the following constituents of Town Boards, Commissions, and Departments of Concord Town Government:

- Agriculture Committee
- Board of Health
- Buildings and Inspections Department
- Cemetery Committee
- Climate Action Advisory Board
- Community Preservation Committee
- Comprehensive Sustainability and Energy Committee
- Economic Vitality Committee
- Historic Districts Commission
- Municipal Light Board
- Natural Resources Commission
- Planning Board
- Pollinator Health Advisory Committee
- Public Works Commission
- School Board
- Select Board
- Town Manager
- Trails Committee

Special appreciation is given to Friends of Concord Trees and Brian Rosborough for their support in advancing this initiative and Robert O'Brien who contributed his art, illustrations, and graphic design.



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For Urban Forest Preservation and
Climate Resilience in the Town of Concord





This brochure is intended to serve as a guide for all members of the community, including residents, businesses, contractors, public works, and other stakeholders, to achieve a shared vision for the future of the urban forest in Concord — a vision that focuses on sustainably managing the tree canopy through consistent information sharing and best management practices.

A Tree Planting Guide for Concord

As our climate changes, so too, will our urban forest. The Town of Concord has established a tree management program that includes the selection, planting, and maintenance of public and private shade trees that will help sustain our canopy. All residents and other stakeholders in the Town of Concord have the opportunity to be part of planting new trees. It is imperative for everyone in the community to understand the importance of trees and to have access to information that aligns Concord's tree planting initiative with climate change resilience.

Climate change will affect Concord's urban tree canopy, but adding more trees can help the community better adapt to a changing climate in specific ways. A combined effort from the Town and the community is necessary in order to plant new urban trees that are more resilient and can adapt to increasing environmental stress. Additionally, the Town has developed a plan for future urban tree planting that includes proper tree selection for the micro-environment in which the tree will be

planted as well as a process for planting new trees each year. The addition of new trees in the urban forest will aid in addressing the following specific climate concerns:

- Reduce the urban heat island effect
- Increase resilience to flooding and drought
- Mitigate storm water runoff
- Protect and enhance groundwater quality
- Reduce greenhouse gas emissions and sequester carbon

Tree canopies can also reduce emissions by reducing energy demands. In the winter they can lower wind speeds, while in the summer they contribute to shading direct sunlight and lowering local temperature. While the primary goal of tree planting in Concord focuses on adding new trees to mitigate climate change, there are ancillary benefits to adding trees to the community, such as aesthetics, traffic calming, and habitat creation for wildlife.

Understand the Microclimate of Your Planting Site
Consideration should be given to the microclimate where the tree will be planted. Information about the soil type, elevation, wind exposure, sunlight, shade, snow loads, salt tolerance, mature height and shape are all factors to consider when planting a tree.

Water: How will you water your tree in the first year? Is the site wet, average or is minimal water available?

Sunlight: Know if your site has partial or full sunlight.

Temperature: Select a tree that will thrive in Concord's temperature extremes.

Soil: Ensure the soil type and drainage are compatible with the tree you choose.

Plant with a Purpose

Trees in the landscape can help conserve water. Drought tolerant or native plants also help to conserve water.

Plant deciduous shade trees to cool your house in the summer. In the winter, the bare trees will allow the warmth of the sun to pass through.

Shading the west and south sides of your house is best for lowering utility bills.

Plant trees to attract birds and other wildlife.



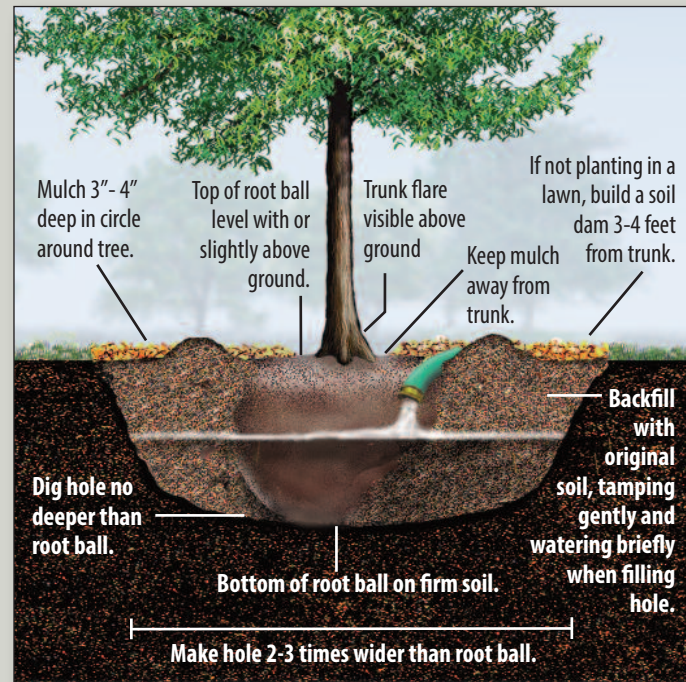
Concord Tree Planting Program

Increasing and improving the urban tree canopy in Concord has the benefit of reducing the urban heat island effect. This is especially true with strategic tree plantings that target vulnerable areas where impervious structures dominate the landscape. In making tree planting decisions, we recommend trees that are best adapted to survive and thrive in specific microclimates.

We also recommend trees that contribute to the capture of precipitation on leaf and branch surfaces to moderate soil erosion and evapotranspiration, and to reduce demand on our storm water infrastructure. An important part of the planting program is knowing what species of tree to plant and where to plant it.

Planting Your Tree

1. Mark out the planting area 2 to 3 times wider than the root ball diameter (the wider, the better). Loose soil around the root ball promotes early root growth.
2. The depth of the hole should equal the depth of the root ball. The bottom of the root ball should sit on firm soil.*
3. Place the tree in the hole. Be sure the container or root wrapping is removed before planting.
4. Place the root ball in the center of the hole and adjust the tree so that it is straight and at the proper depth. After planting, the top of the root ball should be level with or slightly higher than the surrounding ground.
5. Backfill the hole with the original soil. Fill until the hole is half-full of soil. Tamp gently with your foot to firm the soil. Flood the hole with a slowly running hose to settle the soil around the root ball and eliminate air pockets. Add soil until it is even with the root ball, but do not cover the root ball with soil.
6. Construct a ring of soil 3 to 4 inches high at the edge of the root ball to hold water in the area near the tree's roots. The soil berm should be removed, without letting this additional soil cover the root ball, after the tree is established. The period for establishment for a new tree is dependent upon the size of the tree at the time of planting but usually occurs within one growing season.
7. Add 3 to 4 inches of mulch in an area equal to 2 feet per inch of trunk diameter. This will retain moisture, reduce competition from weeds and avoid mechanical damage from planting. The top of the root ball should be level with or slightly higher than the surrounding ground. Mulch should be kept 2-4 inches away from the stem.



Call before you dig!

* Massachusetts law requires calling for utility locations 72 hours before digging, not including weekends or holidays. The Dig Safe service is free and a request for service is initiated by calling 811. More information is available at www.digsafe.com.



Caring for Your Tree

After the first growing season, light pruning and removal of dead branches can be done at any time. With winter usually being the best time to prune, it is not recommended to remove more than 20 percent of live foliage or growth in any given year unless necessary.

Prune spring flowering trees, like redbuds and fruit trees, after the bloom. Note that pruning fruit trees after blooming will inhibit fruit production.

Always use clean and sharp pruning equipment. Never prune trees near a power line. Contact Concord Municipal Light and Power at **978-318-3101** for questions or assistance with pruning trees near overhead utility wires.

How to Prune

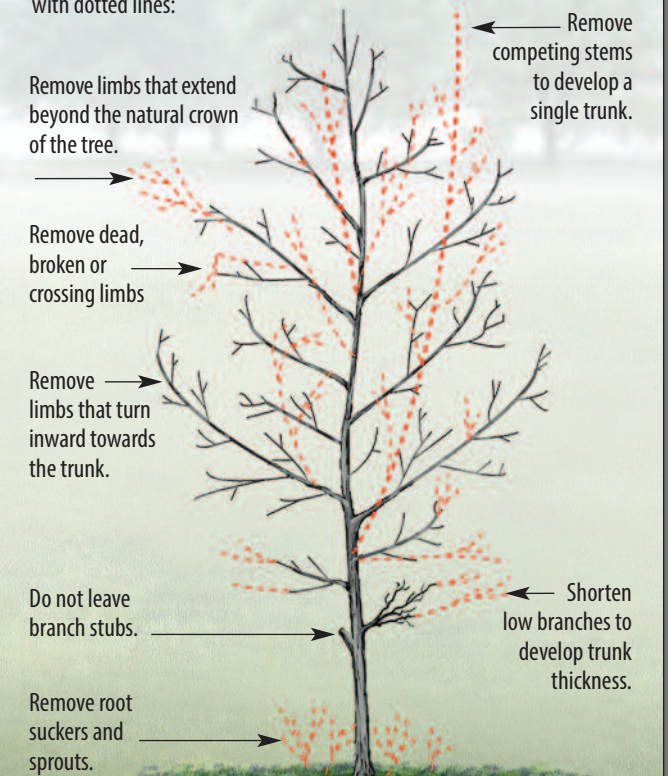
Inspect the tree first to determine what needs pruning. Some examples of limbs to remove include the following: crowded, rubbing, crossing and narrow branch angles, double leaders, root suckers and water sprouts.

When removing these branches, always prune back to the main trunk or the next largest branch, being careful not to prune into the branch collar or bark branch ridge, nor leave a pronounced stub. The branch collar is the swollen area near the base of the limb.

Always make a clean cut to accelerate wound closure. Wound dressings (paint) have been proven to inhibit wound closure. Lopping shears should only be used on branches smaller than 3/4" in diameter. To avoid peeling bark, remove larger branches with a saw utilizing the three-cut method. Incorrect pruning methods can cause costly problems. It is important to discuss the maintenance of your trees with a certified arborist and, when hiring a tree care company, always seek out professionals who can provide references and proof of insurance.

Young Tree Pruning

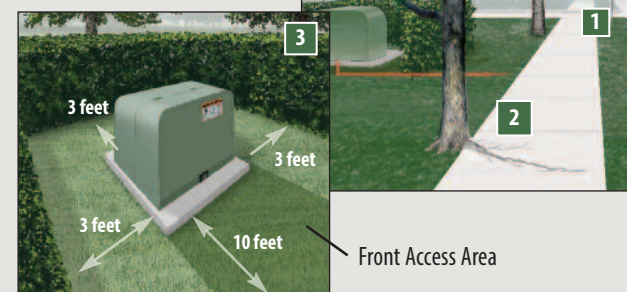
Remove branches shown with dotted lines:



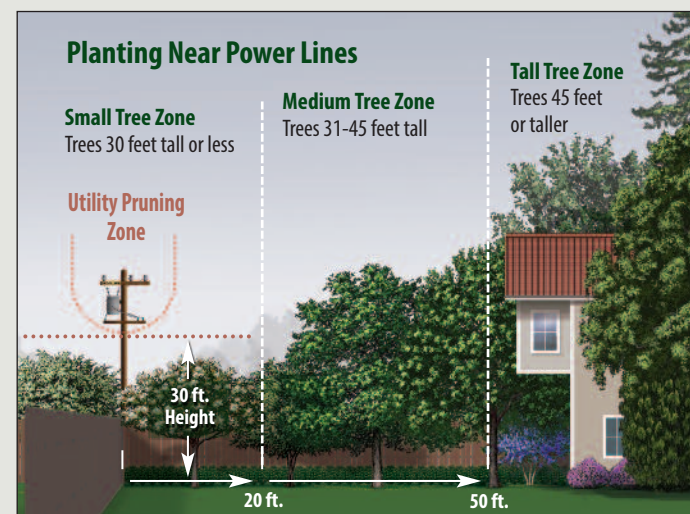
Tree Planting Precautions

What to Avoid When Planting:

1. Avoid blocking vision at street corners. Plant at least 10 feet from the curb at corners.
2. Avoid planting too close to sidewalks, streets or driveways.
3. Avoid planting closer than 3 feet from underground utilities or pad-mounted transformers. Plant trees and shrubs well away from ground-level equipment to allow utility workers direct access.



Planting Near Power Lines

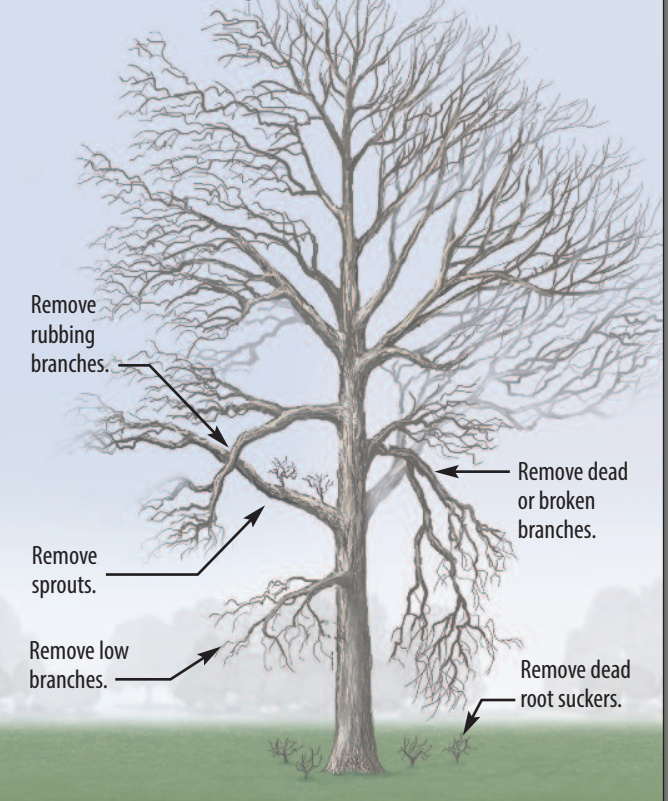


- Plant large trees (greater than 45 feet tall) at least 50 feet from power lines.
- Plant medium trees (31-45 feet tall) at least 20 feet from power lines.
- Plant only small trees (less than 30 feet tall) near power lines and within 10 feet of power poles.

Three-Cut Pruning Method for Mature Trees

1. Undercut 12" to 24" up from the branch collar. (This stops the bark from peeling.)
2. Make the second cut from the top all the way through the branch, 2" to 3" above the first cut.
3. The final cut should be just beyond the branch collar. Support the stub so that it does not tear the bark.

Mature Tree Pruning

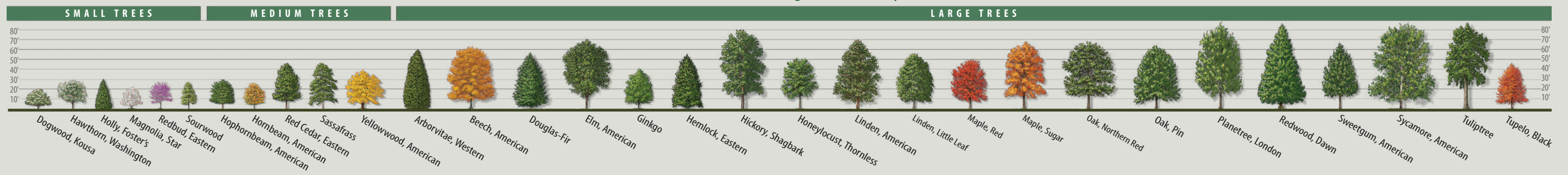


Recommended Trees for Concord

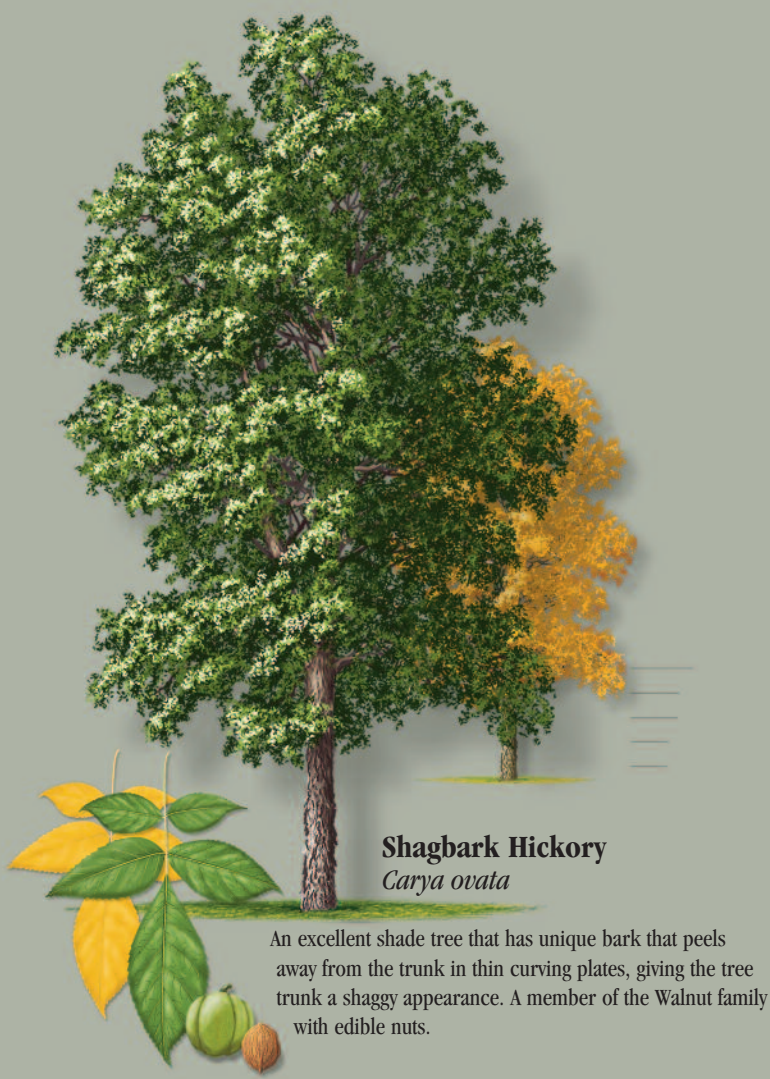
SMALL TREES	Scientific Name	Preferred Cultivar(s)	Mature Height	Spread	Description
Dogwood, Kousa	<i>Cornus kousa</i>	—	15-25 feet	25 feet	Known for their colorful white petals in spring, this hardy urban shade tree also has attractive bark patterns that are visible in winter. Foliage is bright red in fall.
Hawthorn, Washington *	<i>Crataegus phaenopyrum</i>	'Winter King'	25-30 feet	25 feet	Produces showy white flowers in late spring with deep green foliage in summer that becomes orange, scarlet and purple in fall. A very dense plant that develops thorns for protection.
Holly, Foster's	<i>Ilex attenuata</i> 'Foster's'	—	15-25 feet	8-12 feet	A great hedge or screening tree, this evergreen holly produces white flowers in the spring and deep red berries that persist through the winter months.
Magnolia, Star	<i>Magnolia stellata</i>	'Centennial'	15-20 feet	10-15 feet	Popular landscape tree with bright white, fragrant flowers in early spring. Best planted in full sun areas and can be maintained in tree or shrub form.
Redbud, Eastern	<i>Cercis canadensis</i>	'Forest Pansy'	20-30 feet	25-35 feet	Redbuds are fast growing, understory trees with dramatic early spring color. Vibrant purplish pink flowers appear before the leaves do. Redbuds attract birds, deer, and honeybees.
Sourwood	<i>Oxydendrum arboreum</i>	'Mt. Charm'	25-30 feet	20 feet	Sourwood is a small-sized tree with showy white flower clusters that bloom in mid-summer and attract pollinators. Sourwood also produces a popular flavor of honey.
MEDIUM TREES					
Hophornbeam, American	<i>Ostrya virginiana</i>	—	20-35 feet	15-30 feet	Hophornbeam is a rugged tree, tolerant of urban soil conditions. A hop-like, papery sack (the origin of the common name) encases a nutlet that provides winter food for birds and wildlife.
Hornbeam, American	<i>Carpinus caroliniana</i>	—	20-30 feet	20-30 feet	Hornbeams, also known as ironwood or musclewood, have distinctive smooth, sinewy bark. Its fruit attracts birds and it serves as a host plant for several native butterflies.
Red Cedar, Eastern	<i>Juniperus virginiana</i>	—	40-50 feet	8-20 feet	A sun-loving evergreen with a high tolerance of wind, salt and heat. It grows in a columnar or pyramidal shape with deep roots. Best used in open spaces away from buildings or structures.
Sassafras	<i>Sassafras albidum</i>	—	30-60 feet	40 feet	An attractive shade tree with brilliant fall foliage and a strong, sweet aroma at different times of the year. Can grow as a single trunk or bushy thicket. Fruits attract a variety of wildlife.
Yellowwood, American	<i>Cladrastis kentukea</i>	'Rosea'	30-50 feet	40-55 feet	Wide spreading shade tree known for its smooth gray bark and nice framework of branches in winter. Branches can be brittle and susceptible to ice and heavy snow damage.
LARGE TREES					
Arborvitae, Western	<i>Thuja plicata</i>	—	50-70 feet	15-20 feet	This large evergreen is popular in urban settings since it's one of the few arbovitae with deer-resistant foliage. A great hedge or screening species that is well adapted to shaded environments.
Beech, American	<i>Fagus grandifolia</i>	—	50-70 feet	40 feet	A sturdy shade tree with attractive, smooth bark and bright yellow leaves in the fall. Beechnuts are important to wildlife. Beeches contain a high concentration of nitrogen, key to plant growth.
Douglas-Fir	<i>Pseudotsuga menziesii</i>	—	40-70 feet	12-20 feet	An evergreen tree that flourishes in full sun to partial shade and well drained, acidic soils. It features spiral shaped needles that are very durable. Commonly used for Christmas trees.
Elm, American **	<i>Ulmus americana</i>	'Jefferson', 'Princeton'	60-80 feet	40-70 feet	Elms are sturdy, long-lived shade trees with a distinctive form. Its wafer-like seed pods are popular with birds and wildlife. 'Princeton' and 'Homestead' cultivars are resistant to Dutch elm disease.
Ginkgo *	<i>Ginkgo biloba</i>	—	25-50 feet	25-35 feet	One of the oldest tree species on Earth, the Ginkgo is known for its fan-shaped leaves that turn bright yellow in early fall. Both a shade tree and an ornamental, it prefers full sun to partial shade.
Hemlock, Eastern	<i>Tsuga canadensis</i>	—	40-70 feet	50 feet	Large evergreen often used for screening or hedging that is easily shaped through pruning. Well adapted to full sun environments, but will tolerate light shade. Does not grow well in heavy soils.
Hickory, Shagbark	<i>Carya ovata</i>	—	60-100 feet	30-50 feet	An excellent shade tree that has unique bark that peels away from the trunk in thin curving plates, giving the tree trunk a shaggy appearance. A member of the Walnut family with edible nuts.
Honeylocust, Thornless *	<i>Gleditsia triacanthos inermis</i>	'Shademaster'	30-70 feet	30-70 feet	A commonly used street tree known for its excellent salt tolerance and filtered shading from its lacy foliage. Tolerates a variety of soil conditions. Native to North America
Linden, American	<i>Tilia americana</i>	'Redmond'	60-80 feet	30-60 feet	Also known as American basswood, this tree's buds provide important winter food for birds and deer. The cavities of older trees create nesting space for birds and small mammals.
Linden, Littleleaf *	<i>Tilia cordata</i>	'Greenspire'	50-60 feet	40 feet	A good pollinator with dense green foliage that produces fragrant, yellow flowers in summer. Can be extremely sensitive to salt and drought conditions, especially at a young age.
Maple, Red	<i>Acer rubrum</i>	various	40-60 feet	40 feet	A fast growing North American native that is well adapted to many different soil types. It features red flowers in spring and striking deep red, orange or yellow fall color depending on cultivar.
Maple, Sugar	<i>Acer saccharum</i>	—	60-75 feet	40-50 feet	A native species that prefers well drained, but moderately moist soils and will tolerate moderate shade. Deep green leaves turn bright yellow to orange in the fall.
Oak, Northern Red	<i>Quercus rubra</i>	'Splendens'	60-75 feet	45 feet	A good street tree that tolerates pollution and compaction. The foliage turns bright orange to red in the fall. Does not produce a heavy acorn crop until well into maturity.
Oak, Pin	<i>Quercus palustris</i>	—	60-70 feet	25-45 feet	A native, fast growing species with a strong pyramidal form. Downward growing lower branches require continual maintenance.
Planetree, London	<i>Platanus × acerifolia</i>	'Yarwood'	75-100 feet	80 feet	With olive to cream colored bark, it's more resistant to anthracnose than the sycamore. Needs lots of room; self pruning. Can tolerate air pollution and urban conditions better than any other tree.
Redwood, Dawn	<i>Metasequoia glyptostroboides</i>	'Emerald Feathers'	70-100 feet	25 feet	An ancient deciduous conifer that is popular in landscaped settings. Grows well in full sun as well as in moist, but well drained soils.
Sweetgum, American **	<i>Liquidambar styraciflua</i>	'Rotundiloba'	60-70 feet	45 feet	A popular shade tree known for its deep green, star-shaped, glossy leaves that turn yellow, purple, and red in fall. The spiny red fruit can present maintenance challenges in some environments.
Sycamore, American	<i>Platanus occidentalis</i>	—	75-100 feet	50 feet	A very large street tree that is known for its attractive bark. Bark color varies from a rough reddish brown to a smooth grayish white.
Tuliptree	<i>Liriodendron tulipifera</i>	'Fastigiatum'	70-90 feet	40 feet	North America's tallest eastern hardwood. Grows rapidly but can live for many hundreds of years. Fruits are an important food source for small mammals in late fall and winter.
Tupelo, Black	<i>Nyssa sylvatica</i>	—	30-50 feet	20-30 feet	Flowers are an excellent nectar source for bees, which produce a light, mild-tasting honey. Fruits attract local and migrating birds. Leaves turn brilliant red, yellow, and orange in autumn.

Native trees in bold type | * Hardy in stressed areas. | ** Maintenance issues

Relative Tree Heights at Maturity



RECOMMENDED
Trees for Concord
 MASSACHUSETTS



Shagbark Hickory
Carya ovata
 An excellent shade tree that has unique bark that peels away from the trunk in thin curling plates, giving the tree trunk a shaggy appearance. A member of the Walnut family with edible nuts.



Foster's Holly *Ilex x attenuata*
 A great hedge or screening tree, this holly also produces white flowers in the spring and deep red berries that persist through the winter months. One of the few trees where a female specimen can produce fruit without a male counterpart nearby.



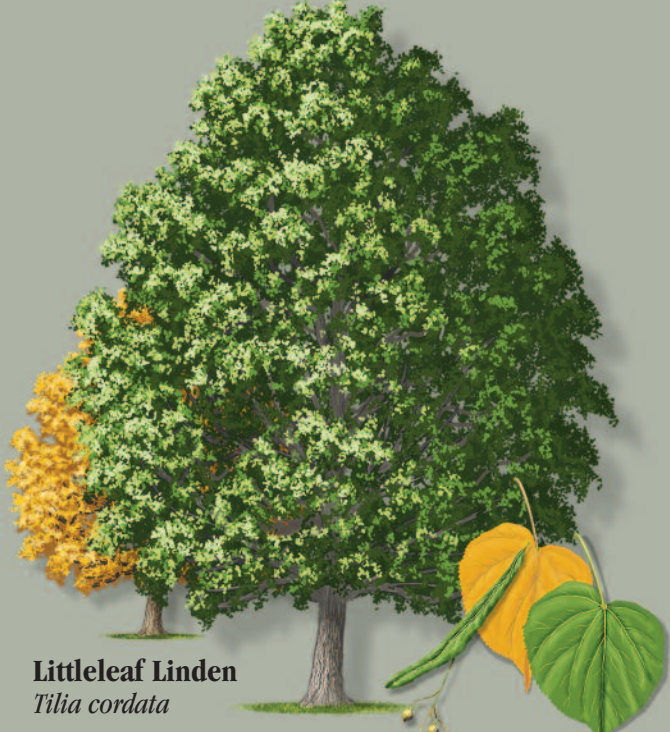
Washington Hawthorn
Crataegus phaenopyrum
 This hawthorn produces showy white flowers in late spring with deep green foliage in summer that becomes orange, scarlet and purple in fall. A very dense plant that develops thorns for protection. Traditionally used for hedges.



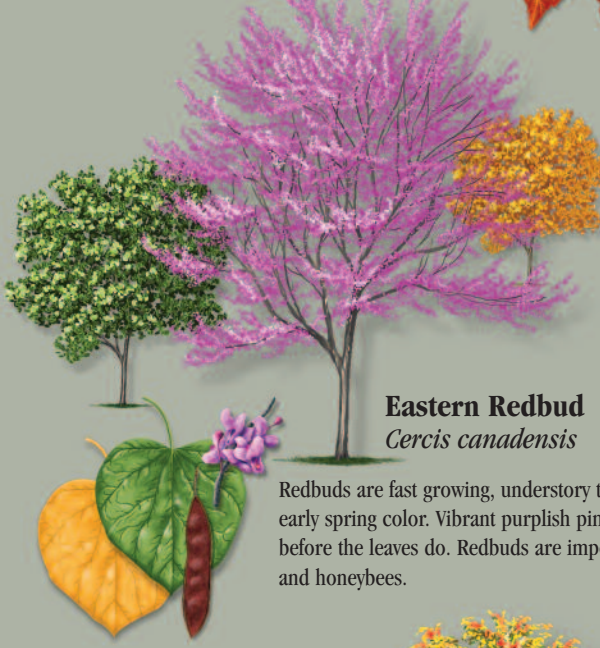
Sugar Maple
Acer saccharum
 A native species that prefers well drained, but moderately moist soils and will tolerate moderate shade. Deep green leaves that turn bright yellow to orange in fall.



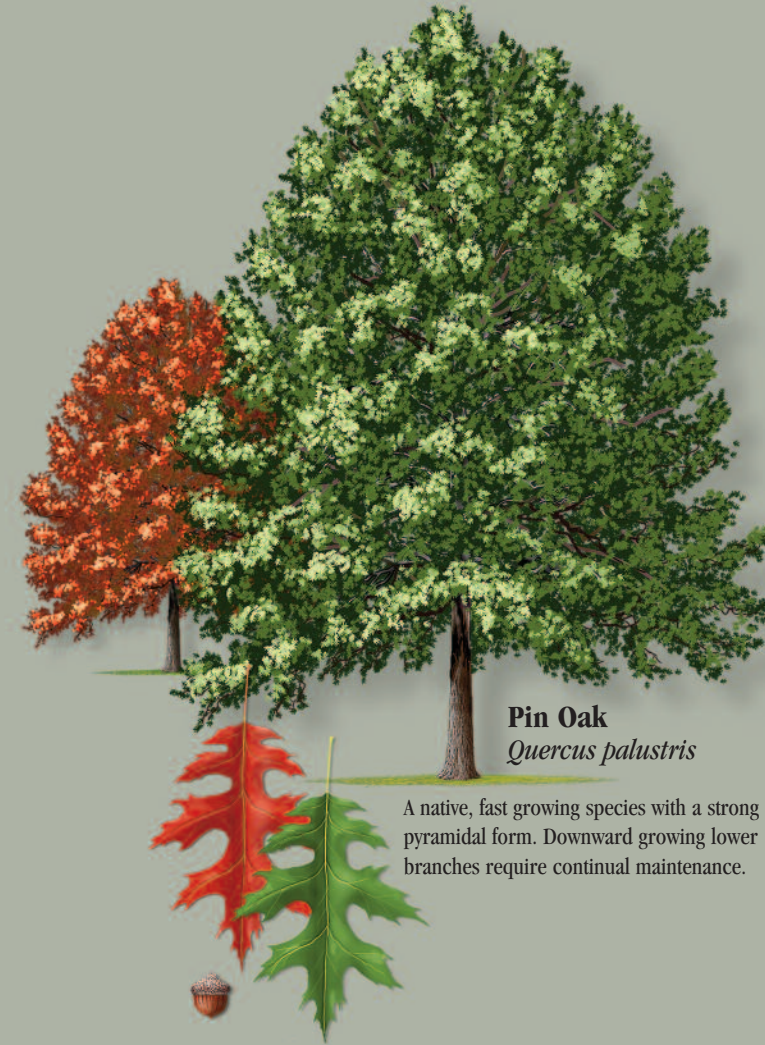
Eastern Hemlock *Tsuga canadensis*
 Large evergreen often used for screening or hedging that is easily shaped through pruning. Well adapted to full sun environments, but will tolerate light shade. Does not grow well in heavy soils.



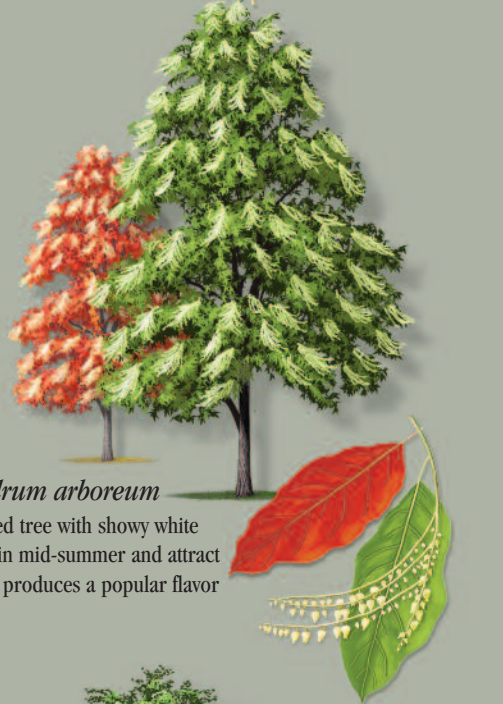
Littleleaf Linden
Tilia cordata
 A good pollinator with dense green foliage that produces fragrant, yellow flowers in summer. Can be extremely sensitive to salt and drought conditions, especially at a young age.



Eastern Redbud
Cercis canadensis
 Redbuds are fast growing, understory trees with dramatic early spring color. Vibrant purplish pink flowers appear before the leaves do. Redbuds are important for birds, deer, and honeybees.



Pin Oak
Quercus palustris
 A native, fast growing species with a strong pyramidal form. Downward growing lower branches require continual maintenance.

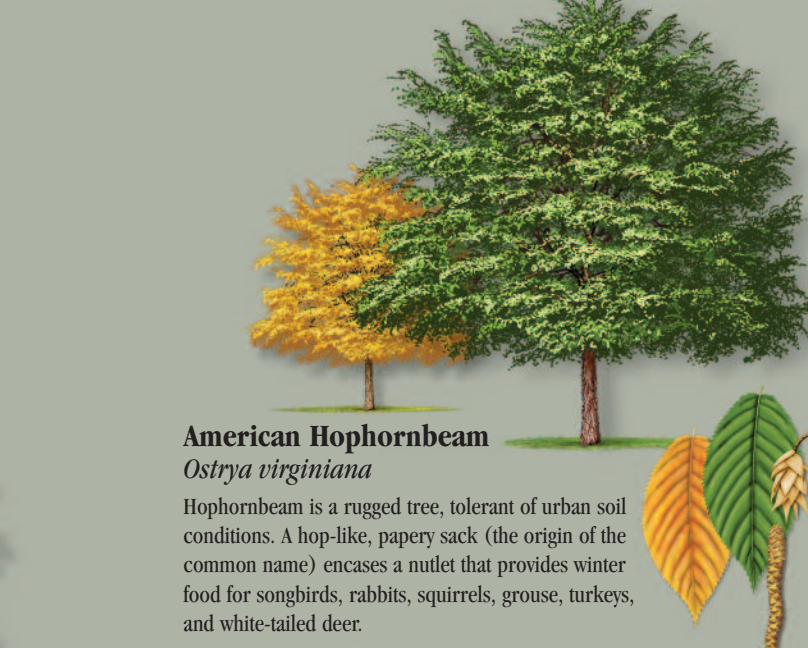


Sourwood *Oxydendrum arboreum*
 Sourwood is a medium-sized tree with showy white flower clusters that bloom in mid-summer and attract pollinators. Sourwood also produces a popular flavor of honey.



American Linden
Tilia americana

Also known as American basswood, this tree's buds provide important winter food for birds and deer. The cavities of older trees create nesting space for pileated woodpeckers, wood ducks, and small mammals. This tree is a prolific nectar producer and pollination by honeybees produces a choice grade of honey.



American Hophornbeam
Ostrya virginiana
 Hophornbeam is a rugged tree, tolerant of urban soil conditions. A hop-like, papery sack (the origin of the common name) encases a nutlet that provides winter food for songbirds, rabbits, squirrels, grouse, turkeys, and white-tailed deer.



American Hornbeam
Carpinus caroliniana

Hornbeams, also known as ironwood or musclewood, have distinctive smooth, silvery bark. Its fruit is important for birds and it serves as a host plant for several native butterflies including the Eastern Tiger Swallowtail and the Striped Hairstreak.



Sassafras *Sassafras albidum*
 An attractive shade tree with brilliant fall foliage and a strong, sweet aroma at different times of the year. Can grow as a single trunk or bushy thickets and produces fruit that is eaten by a variety of wildlife.



American Elm *Ulmus americana*

Elms are sturdy, long-lived shade trees with a distinctively arched form. The tree's water-like seed pods are popular with birds and wildlife. 'Princeton' and 'Homestead' cultivars have shown good resistance to Dutch elm disease, which is a threat to elms in stressful environments.



Kousa Dogwood
Cornus kousa
 Known for their colorful white petals in spring, this hardy urban shade tree also has attractive bark patterns that are visible in winter. Foliage is bright red in fall.



Thornless Honeylocust
Gleditsia triacanthos inermis
 A commonly used street tree known for its excellent salt tolerance and filtered shading from the lacy foliage. It is native to North America and tolerates a variety of soil conditions.



Douglas-fir
Pseudotsuga menziesii

An evergreen tree that flourishes in full sun to partial shade and in well drained, acidic soils. It features spiral shaped needles that are very durable and do not easily fall off. Commonly used for Christmas trees due to its uniform pyramidal shape.



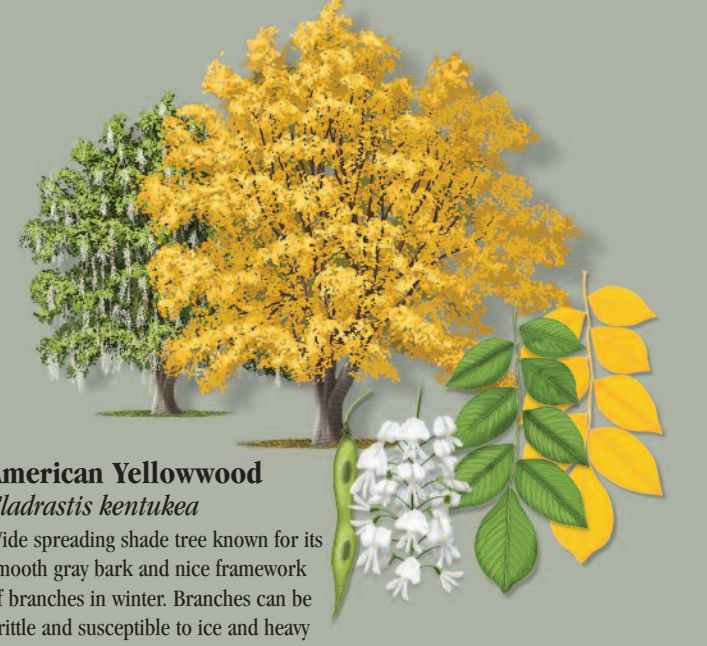
Tuliptree
Liriodendron tulipifera

The tuliptree is North America's tallest eastern hardwood. It grows rapidly but can live for many hundreds of years. The tree's fruits are an important food source for small mammals in late fall and winter. Some cultivars may produce flowers in alternate years.



London Planetree
Platanus x acerifolia

A very large street tree that is known for its attractive bark. Bark color varies from a rough reddish brown to a smooth grayish white.



American Yellowwood
Cladrastis kentuckea

Wide spreading shade tree known for its smooth gray bark and nice framework of branches in winter. Branches can be brittle and susceptible to ice and heavy snow damage.



Dawn Redwood
Metasequoia glyptostroboides

An ancient deciduous conifer that is popular in landscaped settings. Grows well in full sun as well as in moist, but well drained soils.



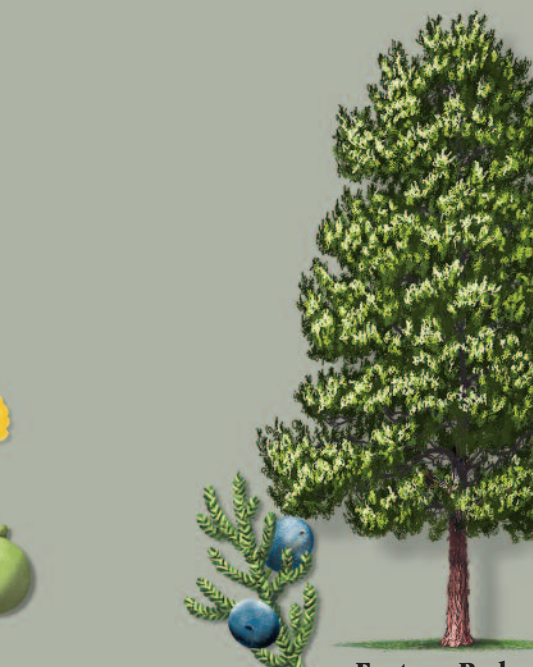
American Sweetgum
Liquidambar styraciflua

A popular shade tree known for its deep green, star-shaped, glossy leaves that turn yellow, purple, and red in fall. The spiny red fruit can present maintenance challenges in some environments.



Ginkgo
Ginkgo biloba

One of the oldest living tree species found on Earth, the Ginkgo is known for its fan-shaped leaves that turn bright yellow in early fall. It is considered both a shade tree and an ornamental and prefers full sun to partial shade.



Eastern Redcedar
Juniperus virginiana

A sun-loving evergreen with a high tolerance of wind, salt and heat. Grows in a columnar or pyramidal shape with deep roots. Best used in open spaces away from buildings or structures.



Black Tupelo *Nyssa sylvatica*

Black tupelo flowers are an excellent nectar source for bees, as they produce a light, mild-tasting honey. Fruits, which mature to dark blue, are popular with small birds, and are an important food for migrating birds in fall. Leaves turn brilliant red, yellow, and orange in autumn.



American Beech
Fagus grandifolia

A sturdy shade tree with attractive, smooth bark and bright yellow leaves in the fall. Beechnuts are important to wildlife. Beech trees are critical components in the ecology of forests since their leaves contain the highest concentration of nitrogen of all North American trees, a key ingredient for plant growth.



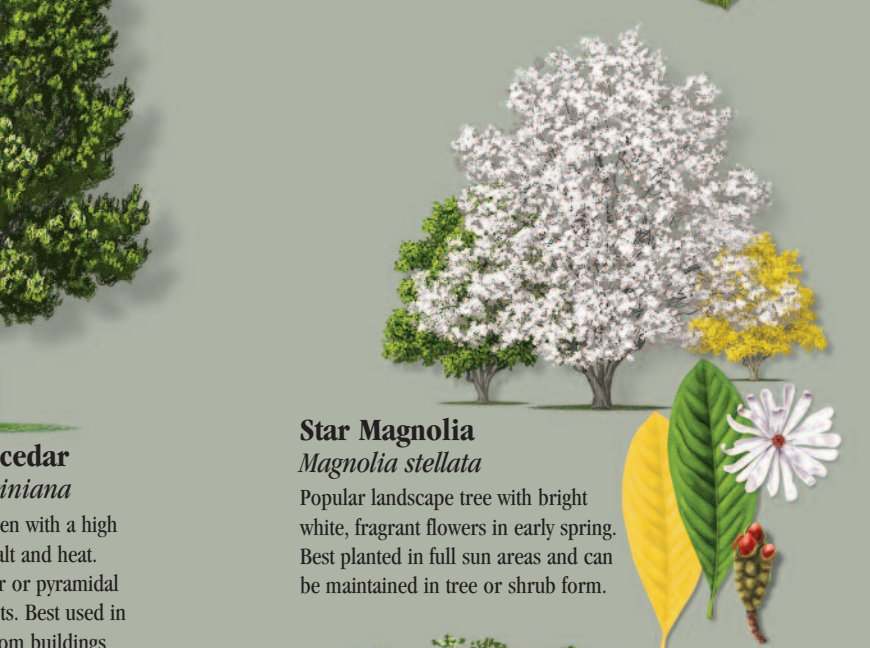
Red Maple *Acer rubrum*

A fast growing North American native that is well adapted to many different soil types. Red flowers in spring; striking deep red, orange or yellow fall color depending on cultivar.



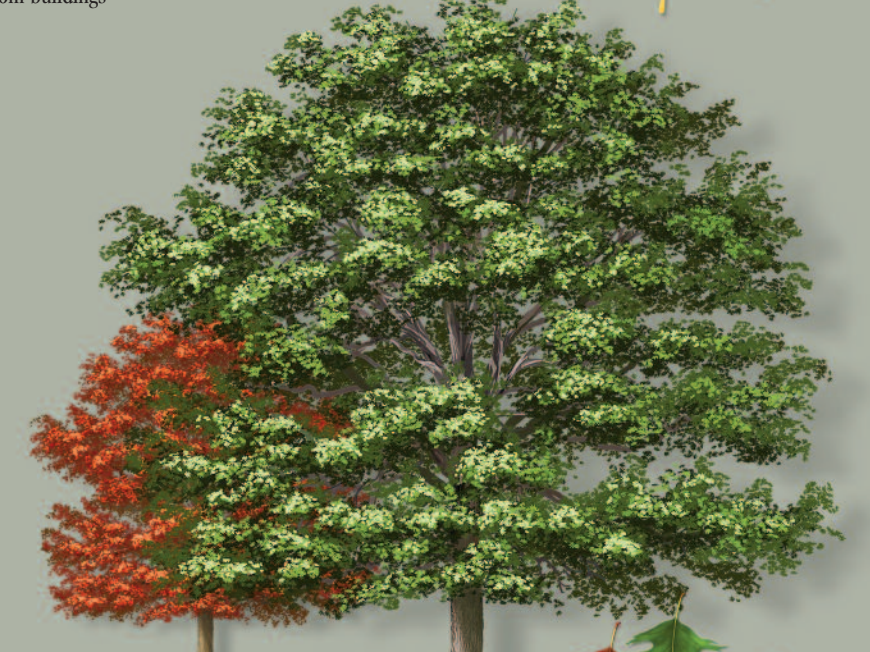
American Sycamore
Platanus occidentalis

A very large street tree that is known for its attractive bark. Bark color varies from a rough reddish brown to a smooth grayish white and, when bare, can be striking in the winter landscape.



Star Magnolia
Magnolia stellata

Popular landscape tree with bright white, fragrant flowers in early spring. Best planted in full sun areas and can be maintained in tree or shrub form.



Northern Red Oak *Quercus rubra*

A good street tree that tolerates pollution and compaction. Bright orange to red foliage in fall. Does not produce a heavy acorn crop until well into maturity.

Relative Tree Heights at Maturity

