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Prince George's County
DEPARTMENT OF THE
ENVIRONMENT

Urban Tree Canopy

What is an urban tree canopy?

The canopy of a tree or group of trees is the area of leaves and branches that create shade under the tree(s). Like umbrellas, trees reduce the amount of sunlight and rain reaching the ground. Trees in urban environments are particularly important for intercepting rainfall before it becomes stormwater runoff. Tree leaves, branches, stems, and roots catch falling rain, filter out pollutants, and absorb stormwater.

What are the benefits to property owners and communities?

Planting trees in urban areas benefits residents, communities, and the environment in many ways. Tree planting is relatively inexpensive and does not need to be performed by a paid professional. Trees located within 50 feet of a structure can boost property values. Compared with unshaded buildings, those shaded by trees have significantly lower air conditioning costs. If the urban tree canopy is large enough, its shade has the potential to lower the temperature of entire communities during the summer. In winter months, evergreen trees can protect buildings from heat loss by providing a buffer against cold winds. Trees also clean polluted air and make communities quieter by absorbing sound. Some studies even show that trees are correlated with reduced crime rates.

By reducing and slowing the flow of stormwater entering streams, trees help stabilize stream banks, lessen water pollution, and reduce the frequency and severity of flash flooding. Estimates suggest that one tree with a 60-foot diameter crown (or canopy) captures more than 700 gallons of rainwater each year. Trees play a crucial role in protecting water quality. Leaves and needles break the force of rain, slowing the movement of water, while the roots act like sponges absorbing rainwater which would otherwise fall onto and flow across impervious surfaces (such as sidewalks and driveways), carrying pollutants to local streams, sometimes in surges that result in flooding and stream bank erosion. Tree roots also help the ground soak up stormwater and replenish aquifers (natural underground water storage areas). Shade from the urban tree canopy also cools impervious surfaces; this helps reduce the temperature of stormwater that enters natural streams, protecting the habitat of aquatic animals that rely on cool water to thrive.

How can your tree planting project quality for a rebate?

Planting urban trees can be very affordable for private property owners by taking advantage of Prince George's County's Rain Check Rebate Program. To alleviate costs, the Rain Check Rebate Program provides a rebate of $150 per tree up to $4,000 for residential properties, and up to $20,000 for commercial businesses, homeowner associations, condominium associations, civic associations, multi-family dwellings, and nonprofit or not-for-profit organizations.

To be eligible for a rebate, the following criteria must be met by all tree planting projects:

- New trees must be planted on private property (not in the public right-of-way).

rain check
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- Trees must be planted between October 1 and May 1.
- Trees must be native species (see the For More Information section for native species lists).
- At the time of the planting, trees must be
  - at least 5 feet tall;
  - at least 1/2 caliper inch (that is, the trunk of the tree at 6 inches above the soil must be at least 1/2 inch thick; and
  - planted in a 5-gallon (or larger) container or bailed and burlapped.

Shade trees, which provide the greatest benefits, are generally defined as trees greater than 25 feet tall at maturity with wide, spreading branches. Planting such large trees is strongly recommended; however, where larger trees are not appropriate due to spacing and property size, you may use smaller native trees.

Because of the unwanted spread of the emerald ash borer, an insect that kills ash trees within one to three years after infestation, the Department of the Environment (DoE) does not recommend planting any ash species (Fraxinus species).

How can you determine if your property is suitable for a tree-planting project?

To determine if tree planting is appropriate for your property, you will need to take into consideration the location of underground and overhead utilities as well as the space needed to accommodate tree growth.

Prior to starting your tree planting project, find existing underground utilities, such as water mains, telecommunication lines, and gas lines, so you can avoid them. Call Miss Utility at 811 or 1-800-257-7777, or visit their website at www.missutility.net/maryland/for assistance.

To give your new tree enough room for healthy growth and to avoid interference with utilities and structures, be sure to plant it:

- at least 3 feet from underground utilities, as marked by Miss Utility;
- at least 10 feet from overhead utilities;
- at least 15 feet from structures;
- at least 3 feet from fences, walkways, driveways, decks, and patios;
- at least 10 feet from the trunks of other large trees; and
- at least 7 feet from the stems of small trees and shrubs.

In addition to these space considerations, you may want to consider how to maximize environmental and monetary benefits. For the greatest stormwater benefit, plant trees in areas where they will intercept rainwater before it reaches impervious surfaces, such as roofs, driveways, sidewalks, and patios. Planting trees on the southern side of buildings can reduce cooling costs by shading the structure from morning sun from the southeast, and afternoon sun from the southwest. Shading air conditioning units can help increase a building's energy efficiency. Planting evergreens on the northern and northwestern sides of buildings can reduce the loss of heat from winter winds.

Which other techniques work well with planting urban trees?

Tree planting works well with most other stormwater reduction techniques, such as rain barrels, cisterns, and rain gardens.

What are the costs?

Tree planting is a relatively inexpensive stormwater reduction method, especially if you do it yourself. The cost of the tree itself depends on the species and size of tree chosen. For example, an 8-12 foot tree can range in cost from $75-$200 per tree, including mulch. If opting for contractor installation, prices will differ considerably based on the company, tree size, and number of trees. Approval of your urban tree canopy project through the Rain Check Rebate Program can help reduce costs.

Can you do this project yourself?

Yes. Tree planting can be a great opportunity for outdoor activity with family, friends, or neighbors.

Once you have chosen a native tree and a location that maximizes benefits to your property, you can plant your new tree. If you don't plant your tree immediately, be sure to keep it watered and protected until you are ready. Also, be sure to remove all tags, twine, and wire when you plant it. Dig the hole as deep as the soil in the pot, and three times the width of the pot. As you dig, pile the soil on a tarp so it is easier to shovel up when it's time to fill the hole in. Carefully slide the tree out from the pot. Wiggle your fingers in the soil until you can gently spread out the bottom-most roots. If roots have encircled the pot, make 4 shallow vertical grooves around the rootball with a soil knife or other sharp tool. Place the tree in the hole, making sure the base of the tree is level with the surrounding ground. To check, lay a shovel across the hole. This will help you see if the tree is too high or too low. Once the tree is level, backfill the soil, firming the soil gently as you go. Check periodically to make sure the tree remains straight. Water thoroughly and you're done!

Some soils surrounding buildings are compacted and lack healthy soil organisms that trees require to thrive Soil that is hard and dense may not contain the tiny air pockets that tree roots need to grow and take in water and nutrients. It may be necessary to amend the soil in and around the new tree pit by adding compost to provide looser soil and re-establish the soil ecology.

See the For More Information section for websites providing guidance for properly planting trees.

A quick way to assess compaction is to take a large screwdriver and see how far

cut and remove all sisal and synthetic twine

remove top one-third of wire basket

remove burlap from top one-third of rootball

rootball on undisturbed soil

root collar should be level or slightly above surrounding grade

2-4" of organic mulch— avoid mounding mulch onto the trunk

grade

backfill with soil removed from the hole

2 to 3 x rootball diameter

you can push it into the soil without pounding. Perform this test when the ground is dry, since wet soil is easier to penetrate. Next ,you want to see what soil texture you have. Do you have sandy soil or heavy clay? To learn how to perform your own simple soil texture analysis visit these sites: https://www.the-compost-gardener.com/soil-texture-testing.html; www.finegardening.com/how-is-your-soil-texture. Finally, consider the moisture. Is your soil dry? (water does not remain after a rain) Is your soil wet? (soil holds water for days after a rain) Or, is it in between? (moist) Now that you know what kind of soil you have, you can select trees that like those conditions. See the For More Information section for websites about soil health and amendments.

Although some guides recommend staking a newly planted tree (that is, securing the trunk to tall wooden stakes next to the tree), research has shown that this practice can actually reduce the strength of the trunk and root system as it grows. Rather than securing your tree to stakes, DoE recommends placing several stakes about 18 inches from the trunk of your new tree (without securing them to the trunk) to provide protection against damage from weed trimmers, lawn mowers, or other lawn and gardening equipment.
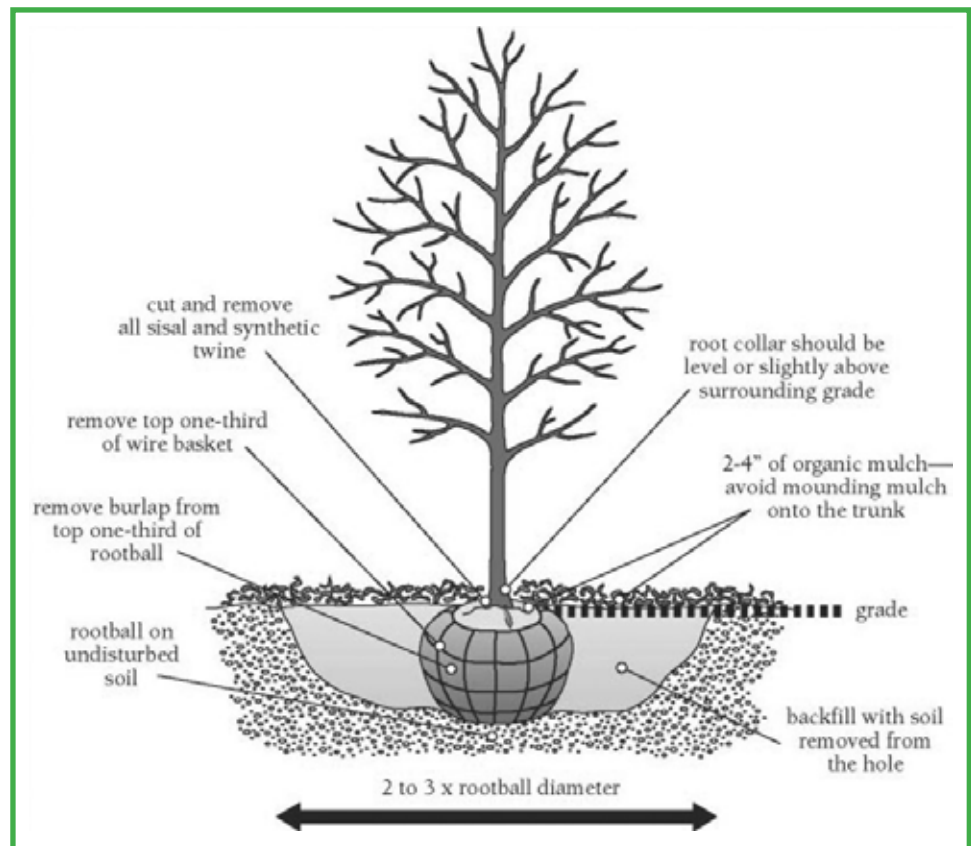
How should you choose a contractor?

If you decide to have a contractor develop a planting plan and install your urban trees(s), choose carefully. Ask potential contractors how much experience they have installing trees, especially in an urban setting. Experienced contractors should be able to supply references from past clients. Find out if they are insured or bonded, or if they have any tree-related certifications or licenses, such as an International Society of Arboriculture certified arborist, licensed landscape architect, or Maryland licensed tree expert. Ask potential contractors to explain what is included in their services (such as mulching), how long it should take to complete the project, whether they will work with other subcontractors if needed, and whether their work would be guaranteed. Ask them to describe the types of trees and the configuration they would recommend for your property and whether they provide tree maintenance services. Inquire whether they charge by the tree or by the hour. Request a written estimate, in advance, that includes materials and labor.

Licensing and certification

Neither the County nor the State requires tree planting on private property to be performed by a tree care professional. However, hiring a certified arborist, licensed landscape architect, or Maryland licensed tree expert, for example, may provide some assurance that the tree planting will be done correctly.
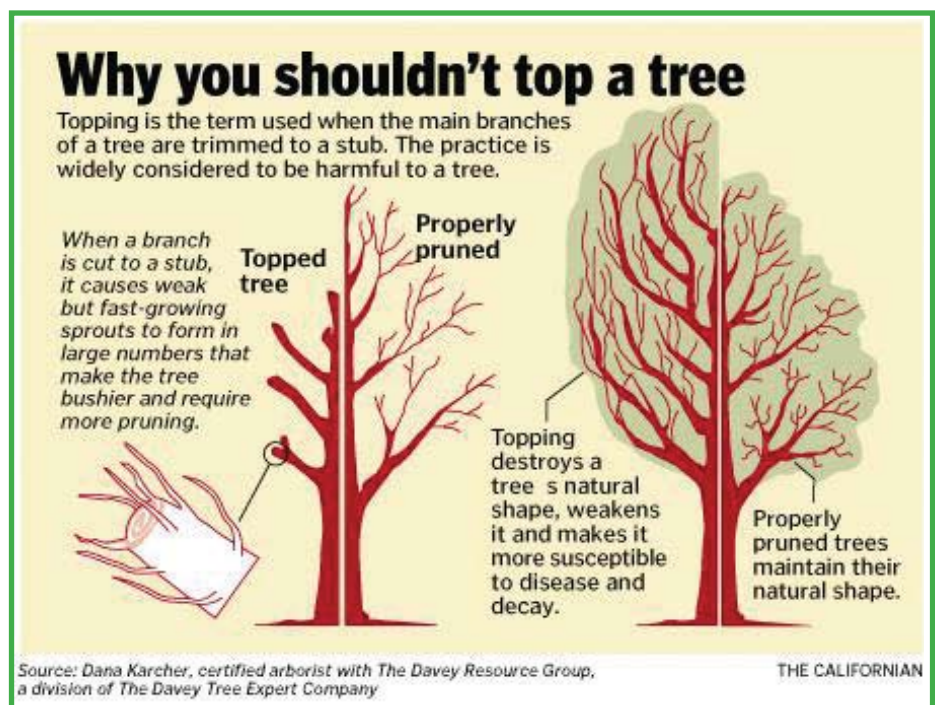
Is a permit required?

No. A permit is not required for planting trees on private property.

What maintenance will be required?

Aside from watering, trees require minimal maintenance. As part of installation, newly planted trees should be watered and mulched. Continue watering your trees at a rate of 25 gallons per week throughout the growing season (April through September) during dry spells. You may want to use a slow-release watering bag to make watering easier. If you are unsure when to water your trees, follow Casey Trees weekly watering recommendations from http://caseytrees.org/get-involved/water/. Each week they consult the previous week's precipitation and streamflow data to determine the condition—dry, normal or wet—and appropriate action to take. Watering recommendations are posted on their homepage and Facebook and Twitter accounts.

To ensure longterm success, this watering regime should continue throughout the first three growing seasons after installation. Mulching your tree seasonally—and even connecting the area around your tree with a nearby mulched area or planted bed—not only has a beautifying effect, but also provides your tree with a number of sustaining benefits. Be sure, however, to keep mulch and other debris from touching the trunk of the tree. Soil and mulch piled against the top of the root ball and the trunk can invite pests and rot the bark. Correctly applied mulch helps maintain the temperature of the soil, encourages retention of moisture in the root zone, provides important nutrients, and suppresses grass and weeds

Why you shouldn't top a tree

Topping is the term used when the main branches of a tree are trimmed to a stub. The practice is widely considered to be harmful to a tree.

When a branch is cut to a stub, it causes weak but fast-growing sprouts to form in large numbers that make the tree bushier and require more pruning.

Topped tree

Properly pruned

Topping destroys a tree s natural shape, weakens it and makes it more susceptible to disease and decay.

Properly pruned trees maintain their natural shape.

Source: Dana Karcher, certified arborist with The Davey Resource Group, a division of The Davey Tree Expert Company

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that can take water and nutrients from your tree. Mulching also creates a barrier that can protect your tree from damage by lawn maintenance machines.

Basic tree care practices such as watering and mulching can be properly done by anyone; however, some tree care is best left up to trained professionals. Examples include work that cannot be performed from the ground; work that cannot be performed with hand tools like pruners, loppers, and pole saws; and any work within 10 feet of any kind of overhead utility line. In addition, pruning or removing trees, especially large trees, can be dangerous work. This type of work should only be completed by those trained and equipped appropriately. Improper pruning can cause more harm than good by introducing disease, causing weak growth, making the tree more vulnerable to storms, and/or creating wounds that weaken or kill your tree.

MAINTENANCE SCHEDULE FOR URBAN TREE CANOPY													
		Spring			Summer			Fall			Winter		
New Plantings	Trimming, Pruning, and Thinning	Orange						Orange	Orange	Orange	Orange	Orange	Orange
	Fertilizing	Light Blue	Light Blue					Light Blue	Light Blue	Light Blue			
	Watering	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue			
	Plant Replacement	Orange	Orange	Orange				Orange	Orange	Orange	Orange	Orange	Orange
Established Trees	Trimming, Pruning, and Thinning	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange
	Fertilizing	Light Blue	Light Blue					Light Blue	Light Blue	Light Blue			
	Watering	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange			
	Plant Replacement	Orange	Orange	Orange				Orange	Orange	Orange	Orange	Orange	Orange

Legend:
- Blue — Required
- Light Blue — Required at Low Frequency
- Orange — Required as Necessary

For more information

While Prince George's County does not endorse any one method or vendor for tree planting projects, the following information is provided for your consideration.

General Information

Maryland Department of Natural Resources, Urban & Community Forestry
https://dnr.maryland.gov/forests/Pages/Urban-Community.aspx

Center for Watershed Protection, Urban Watershed Forestry
https://www.cwp.org/2013-04-05-16-15-03/urban-watershed-forestry

University of Maryland Extension, Home & Garden Information Center, Trees - Shrubs
https://extension.umd.edu/hgic/topics/trees-shrubs

Philadelphia Water and the Partnership for the Delaware Estuary, Homeowner's Stormwater Handbook
http://www.delawareestuary.org/publications-2/booklets-and-brochures/

Native Tree Information

Maryland Department of Natural Resources, Marylanders Plant Trees
https://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Recommended-Tree-List.aspx

Arbor Day Foundation, arborday.org Tree Guide
https://www.arborday.org/trees/treeguide/index.cfm

U.S. Fish & Wildlife Service Chesapeake Bay Field Office, Native Plant Nurseries in the Chesapeake Bay Watershed
https://www.fws.gov/chesapeakebay/BayScapes/bsresources/bs-nurseries.html

Chesapeake Bay Native Plant Center (searchable database)
http://www.nativeplantcenter.net/

North America Native Plant Database (searchable)
https://www.wildflower.org/plants/

Tree Planting and Tree Care Guidance
District Department of the Environment, RiverSmart Homes – Shade Tree Planting
https://doee.dc.gov/service/riversmart-homes-shade-tree-planting

Casey Trees®, Right Tree, Right Space
https://caseytrees.org/resources/right-tree-right-space/

International Society of Arboriculture, Trees are Good
http://www.treesaregood.com/home.aspx

Maryland Department of Natural Resources – Forest Service, Planting & Care of Your Tree-Mendous Trees
https://dnr.maryland.gov/forests/Pages/treemendous/default.aspx

Maryland Department of Natural Resources - Marylanders Plant Trees
https://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx

Montgomery County, Maryland, Department of Environmental Protection, How to Plant and Care for Trees
https://www.montgomerycountymd.gov/green/trees/plant-a-tree.html

USDA Forest Service, Watershed Forestry
https://www.fs.fed.us/spf/coop/programs/wf/

Soil Amendment Information
University of Maryland Extension Home & Garden Information Center, How to Collect a Soil Sample (includes video)
http://extension.umd.edu/hgic/topics/soil-testing

University of Maryland Extension Home & Garden Information Center, Selecting and Using a Soil Testing Laboratory
http://extension.umd.edu/hgic/soils/selecting-and-using-soil-testing-laboratory-hg-110

University of Maryland Extension Home & Garden Information Center, Soil Amendments and Fertilizers, Fertilizing Guidelines Included by Plant Group
http://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/hgic/HGIC_Pubs/
Soil_Amendments_Compost/HG42_Soil_Amendments_and_Fertilizers_2.pdf

Related Information
National Tree Benefit Calculator
http://www.treebenefits.com/calculator/

Maryland Department of Natural Resources, Wildlife and Heritage Service, Habitat for Wildlife: Conservation Reserve Enhancement Program (CREP)
http://dnr.maryland.gov/wildlife/Pages/habitat/milo.aspx

Maryland Department of Natural Resouces, Emerald Ash Borer
http://dnr.maryland.gov/forests/Documents/EmeraldAshBorer.pdf

For more information, call 410-974-2941 or visit The Chesapeake Bay Trust (cbtrust.org).