DELAWARE DEPARTMENT OF
**NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**

Tree planting event (Source: DNREC Trees for Every Delawarean Initiative)

Tree Planting

Trees are an invaluable resource and are essential for the well-being of humans and the environment. Trees can absorb much more water than typical plants, so they can help reduce stormwater runoff.

Homeowners and professionals should plant native tree species when possible. The Delaware Post Construction Stormwater BMP Standards & Specifications manual includes a list of tree species native to Delaware. Consult the University of Delaware's Plants for a Livable Delaware guide to avoid choosing an invasive species; if it is, choose an alternative species that satisfies the particular aesthetic function(s) you're seeking. Invasive species have few (or no) predators or environmental controls and can spread quickly, choking out native species and reducing habitat for birds and mammals.

Design Considerations

When selecting tree species, consider the site and its environmental factors, including:

- Size of planting space.
- Presence of overhead and underground utilities.
- Typical amount of heat and drought stress.
- Expected amount of road salt used in winter.
- Exposure to high volumes of wind.
- Available soil volume. Larger trees offer more shade and rainwater absorption, but they need a greater soil volume to be healthy, a tree with a 30-foot canopy generally requires 1,000 cubic feet of uncompacted soil.
- Location of sun and wind. The careful siting of urban trees can increase their benefits:
  – Trees planted on a building's south or southwest side provide natural shade and help reduce energy use for summer cooling.
  – Trees planted on a building's windy side can provide a wind buffer and reduce energy use for winter heating.

Benefits

- Reduces stormwater runoff and flooding by intercepting and storing rainwater.
- Improves water quality by slowing and filtering surface runoff.
- Improves air quality by absorbing pollutants through the leaves.
- Provides shade and buffers the wind, reducing energy demand for seasonal cooling and heating.
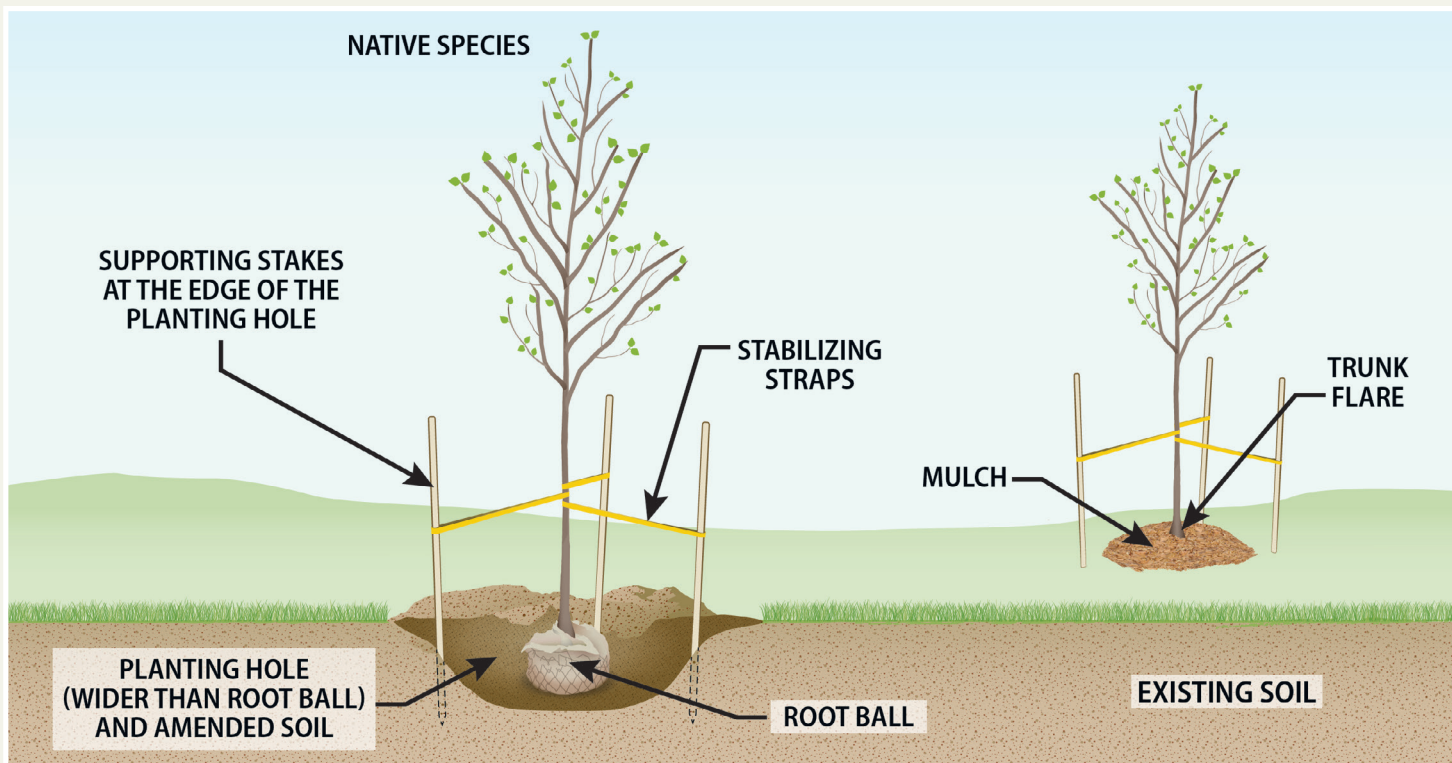- Captures carbon dioxide from the atmosphere and stores it in tissues and soil.

- Reduces soil erosion by diminishing the volume and velocity of rainfall as it falls through the canopy, lessening the impact of raindrops on bare surfaces.
- Ehances aesthetic value and increases property values.
- Provides habitat for wildlife and increases biodiversity.
- Helps fight climate change.

Maintenance

- Control invasive species.
- Mow to control weeds and competing undergrowth.
- Replant trees that have not survived.
- Water newly planted trees during the first year and as needed to avoid drought stress.
- Monitor for diseases and/or insect damage.
- Use mulch to retain moisture.
- Have trees pruned by an International Society of Arboriculture-certified arborist.
- Prune established trees (after 3 to 5 years) as needed to remove diseased, dead, or damaged branches.
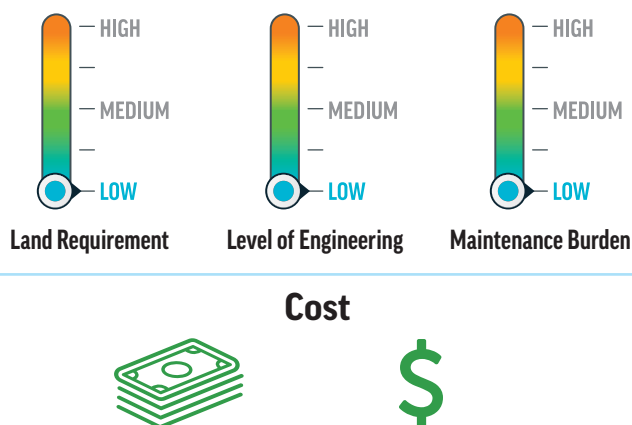
Limitations

- Urban trees are often exposed to difficult growing conditions, including pollutants, high temperatures, drought, and inundation.
- Constrained growth space can stress urban trees and make the roots more susceptible to insects and diseases.
- Tree health can be impaired by physical damage (e.g., vehicle impact), a lack of growth space, tree stakes or grates left on too long, compacted and poor-quality soils, and a lack of water.

Tips for tree planting (Source: Tetra Tech)

Implementation Considerations

HIGH
MEDIUM
LOW
Land Requirement

HIGH
MEDIUM
LOW
Level of Engineering

HIGH
MEDIUM
LOW
Maintenance Burden

Cost

$

Environmental and Homeowner Benefits

Air Quality Improved

Flood Control/Reduction

Beautification/ Property Values Increased

Shade Increased/ Noise Pollution Reduced

Biodiversity/Habitat Improved

Stormwater Runoff Reduced

Contaminants Reduced

Stream Health Improved

Erosion Control

Additional Resources:

Coastal Municipalities Impervious Surface Coverage Report, August 2019. https://documents.dnrec.delaware.gov/coastal/Documents/ResilientCommunityPartnership/Coastal%20Municipalities%20Impervious%20Surface%20Coverage%20Report.pdf

Delaware Post Construction Stormwater BMP Standards & Specifications, February 2019. https://documents.dnrec.delaware.gov/Watershed/Sediment-Stormwater/Regulatory-Guidance/BMP%20Stds%20and%20Specs%20-%20EFF%20FEB%202019.pdf

Green Infrastructure Primer A Delaware Guide to Using Natural Systems in Urban, Rural, and Coastal Settings, January 2016. https://documents.dnrec.delaware.gov/GI/Documents/Green%20Infrastructure/Green_Infra_Primer2016_FINAL%20web%20version.pdf

Healthy Yards for Rural Homes, Nanticoke Watershed Alliance. https://nanticokeriver.org/wp-content/uploads/2022/08/Healthy-Yards-for-Rural-Homes.pdf

Plants for a Livable Delaware. University of Delaware. https://www.udel.edu/content/dam/udelImages/canr/factsheets/plants-livable-delaware.pdf

Standard Guidelines for Operation and Maintenance of Stormwater BMPs, February 2019. https://documents.dnrec.delaware.gov/Watershed/Sediment-Stormwater/Maintenance/Std%20Guidelines%20for%20O%20andM%20_EFF%20FEB%202019.pdf