Green Infrastructure Fact Sheet

Urban Trees

ILLUSTRATION: Jeffery Mathison

Planting and maintaining trees in urban settings—from large cities to small towns—provides a wide range of economic, environmental, and social benefits, particularly due to air quality improvements. Adding trees in urban neighborhoods can lead to reductions in particulate matter concentrations and other pollutants. Trees can reduce heat stress by lowering air temperatures and shading buildings and paved surfaces.

For more information:

Green Infrastructure Primer

www.de.gov/greeninfrastructure

Delaware Division of ENERGY & CLIMATE

Delaware Department of Natural Resources and Environmental Control

Benefits:

- Reduce stormwater runoff and flooding by intercepting and storing rainwater
- Improve water quality by filtering surface runoff and improving infiltration
- Improve air quality by absorbing pollutants through the leaves of trees
- Shade buildings and pavement, reducing energy demand for cooling in summer
- Buffer buildings from wind, reducing energy demand for heating in winter
- Capture carbon dioxide from the atmosphere and store it in plant tissues and soil
- Reduce soil erosion by diminishing the volume and velocity of rainfall as it falls through the canopy, lessening the impact of raindrops on bare surfaces
- Increase aesthetic value and increase property values

URBAN FOREST, WILMINGTON Volunteer tree planting projects, like this one completed in October 2015 along Wilmington's Matson Run, help to manage storm water and mitigate minor flooding, provide for mature tree canopy in the future, increase species diversity, beautify the neighborhood, and engage the public in promoting green infrastructure solutions.

PHOTO CREDIT: Delaware Center for Horticulture

Site and Design Considerations:

- When selecting tree species, consider site and environmental factors, including:
    - Size of planting space
    - Overhead and underground utilities
    - Heat and drought stress
    - Road salt used in winter
    - Exposure to high volumes of wind
- Successful establishment, growth, and health of trees depend on soil volume. Larger trees provide greater benefit—more shade and rainwater absorption—but need greater soil volume. For example, a tree with a canopy spread of 30 feet generally requires 1,000 cubic feet of uncompacted soil.
- Specific siting of urban trees can increase their benefits:
    - Trees planted on the south or southwest side of a building provides natural cooling and helps reduce energy use for cooling in summer.
    - Trees planted on a side where there is continuous wind can help buffer winter winds and reduce energy use for heating in the winter.

Maintenance:

- Water newly planted trees to alleviate drought stress and monitor for diseases and/or insect damage.
- Use mulch to retain moisture.
- Have trees pruned by an International Society of Arboriculture (ISA) certified arborist. Once trees are established (3-5 years), pruning may be needed to remove unwanted branches and help develop
- Remove any diseased, dead, or damaged branches.
- Control invasive species.

Resources:

Delaware Center for Horticulture
http://urbanforest.dehort.org/download-full-report

US Environmental Protection Agency Stormwater to Street Trees: Engineering Urban Forests for Stormwater
http://water.epa.gov/polwaste/green/upload/stormwater2streettrees.pdf

Watershed Forestry Resource Guide
http://forestsforwatersheds.org/planting-and-maintaining-trees/