AN INTRODUCTION
GREEN INFRASTRUCTURE

N.C. Forest Service Urban and Community Forestry

Green infrastructure is a design process that utilizes trees and other natural elements to capture the ecosystem services that vegetation provides for managing our environment and creating healthier communities.

HOW CAN GREEN INFRASTRUCTURE BE OF SERVICE TO YOU?

Carbon Sequestration

Trees and vegetation naturally absorb carbon dioxide. Therefore, the addition and preservation of trees reduces the amount of carbon dioxide in our atmosphere, especially in urban areas where carbon dioxide concentration is abundant.

Did you know? There are 319.8 million urban trees in North Carolina. These trees sequester 2.1 million tons of carbon which is valued to be $2.8 million! The carbon emissions being avoided is valued at $86.3 million.

Reduce Air Pollution

Trees also clean the air we breathe by intercepting a variety of gaseous pollutants.

Did you know? Annually, urban trees in North Carolina remove 24,720 metric tons of air pollutants valued at $198 million.

Stormwater Management

Trees reduce the amount of runoff from rainfall, recharging our groundwater and reducing flooding.

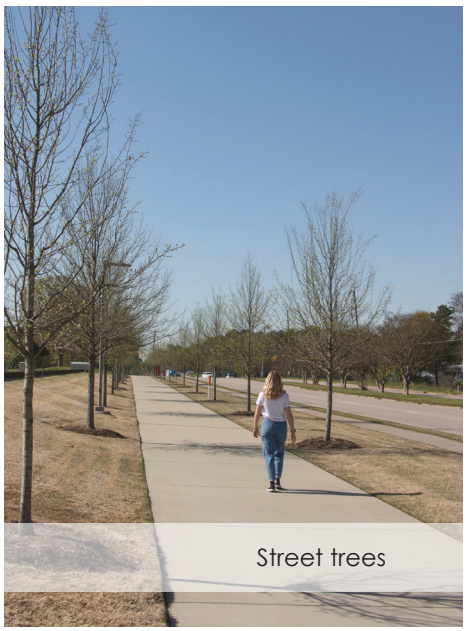
Did you know? One tree can reduce stormwater runoff by more than 4,000 gallons per year.

Temperature Moderation

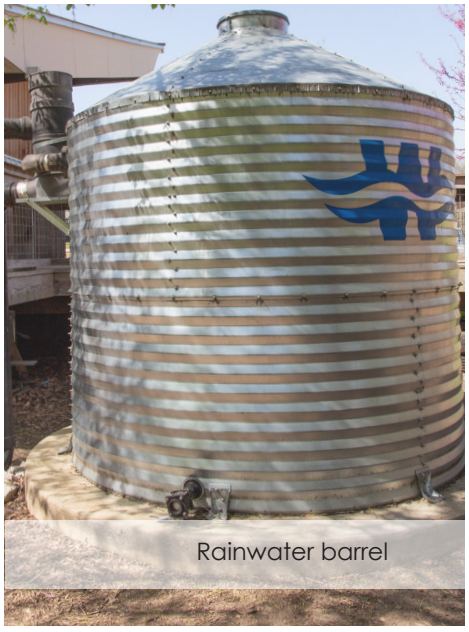
Tree canopies shade our homes and surfaces as well as reduce wind speeds. These services combine to moderate air temperatures, reducing energy costs.

Did you know? In North Carolina, mature large trees located around buildings reduce energy costs by $204.3 million per year. (Nowak et al. 2017)

Did you know? The reduction of carbon emissions from power plants used to meet our cooling and heating needs in North Carolina is valued at $86.3 million.



Street trees



Rainwater barrel

Green infrastructure can be implemented with small, low-cost practices or comprehensive landscape redesigns with specialized infrastructure. Local green infrastructure policies can be enacted to protect ecosystem services and integrate green infrastructure practices into new development.

EXAMPLES OF GREEN INFRASTRUCTURE PRACTICES

Bioswales: Bowl-like depressions in the ground with trees and vegetation to capture rainfall runoff from adjacent streets, sidewalks or buildings.

Tree Boulevards: Trees placed along streets, adjacent to paved areas, such as parking lots and highway medians. These "street trees" reduce ambient air temperatures and stormwater runoff while increasing groundwater infiltration.

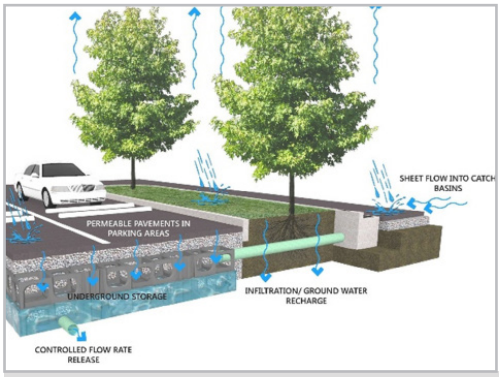
Rainwater Harvest: Collection of rainwater from building rooftops or other impervious surfaces that would otherwise contribute to stormwater runoff. Practices include using rain barrels to store and distribute water from rooftops to below-ground holding tanks or multiple collection points from rooftops to the ground's surface.

Permeable Pavement: Pervious asphalt, concrete, interlocking pavers, plastic grid pavers and gravel are examples of permeable pavement for trails, sidewalks, parking lots and roads. These mediums allow stormwater to infiltrate the soil rather than contributing to runoff.

Comprehensive Green Infrastructure Designs: Many practices can be grouped together to create a unified design that targets specific problems. These are common in heavily paved areas, such as city blocks, in order to direct stormwater.

Bioswale

Permeable Path



Comprehensive design

HOW CAN YOU INTEGRATE GREEN INFRASTRUCTURE IN YOUR COMMUNITY'S WORK?

- Educate yourself on green infrastructure practices and specifications.
- Integrate simple green infrastructure practices into maintenance projects your community is already completing.
- Secure green infrastructure expertise as a team member on capital improvement projects.

Contact your NCFS county ranger. | ncforestservice.gov/contacts

Urban & Community Forestry | 919-857-4801 | ncforestservice.gov

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