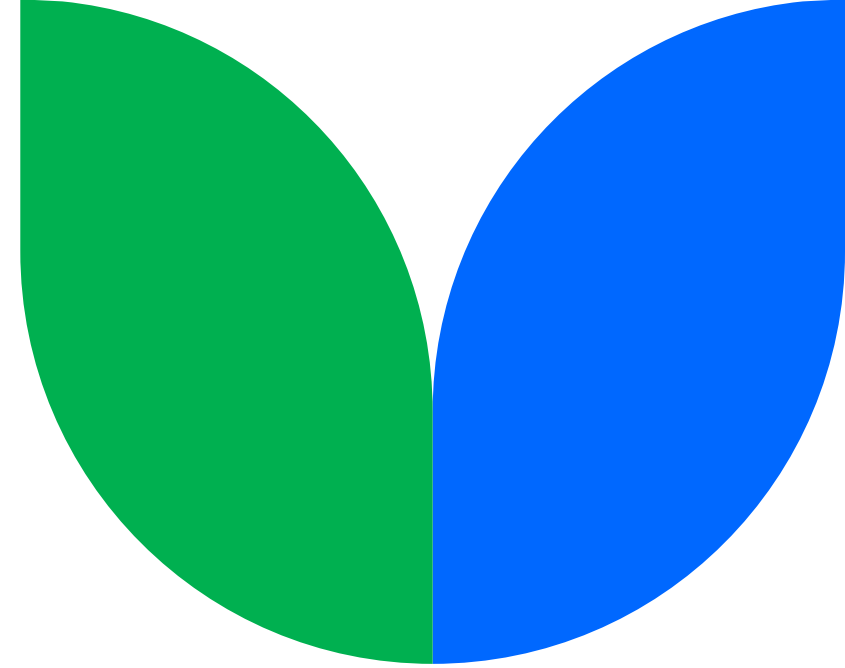


Integration of Community Forest Management in Watershed Protection Strategies

Water Resources Program

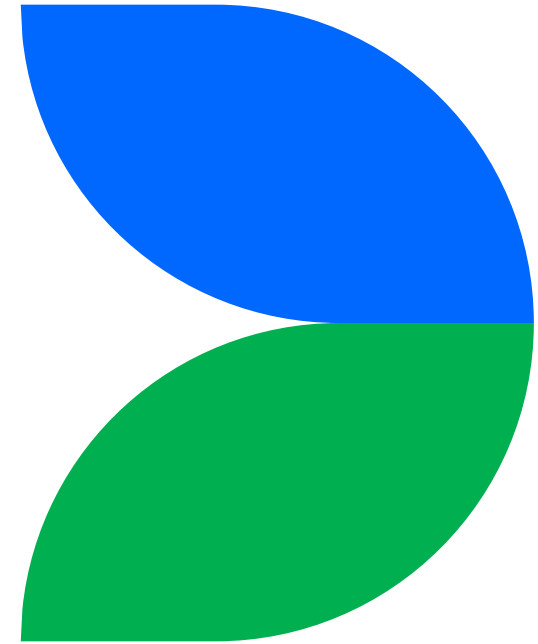
February 20th, Urban Riparian Symposium, Waco Tx.



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Our Goal

Increase understanding and
implementation of trees in watershed
protection strategies



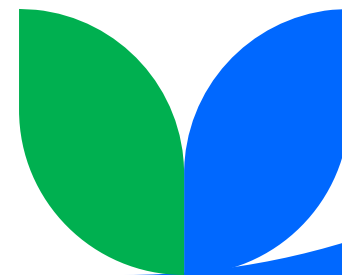
Forest Management effects on Water Quality

- ❖ Forests supply the cleanest water of any land use
- ❖ Trees and vegetation
 - ❖ Slows and filters stormwater runoff
 - ❖ Reduces soil erosion and pollutant loading
 - ❖ Shades waterbodies

Tree Canopy

Benefits of a healthy urban tree canopy

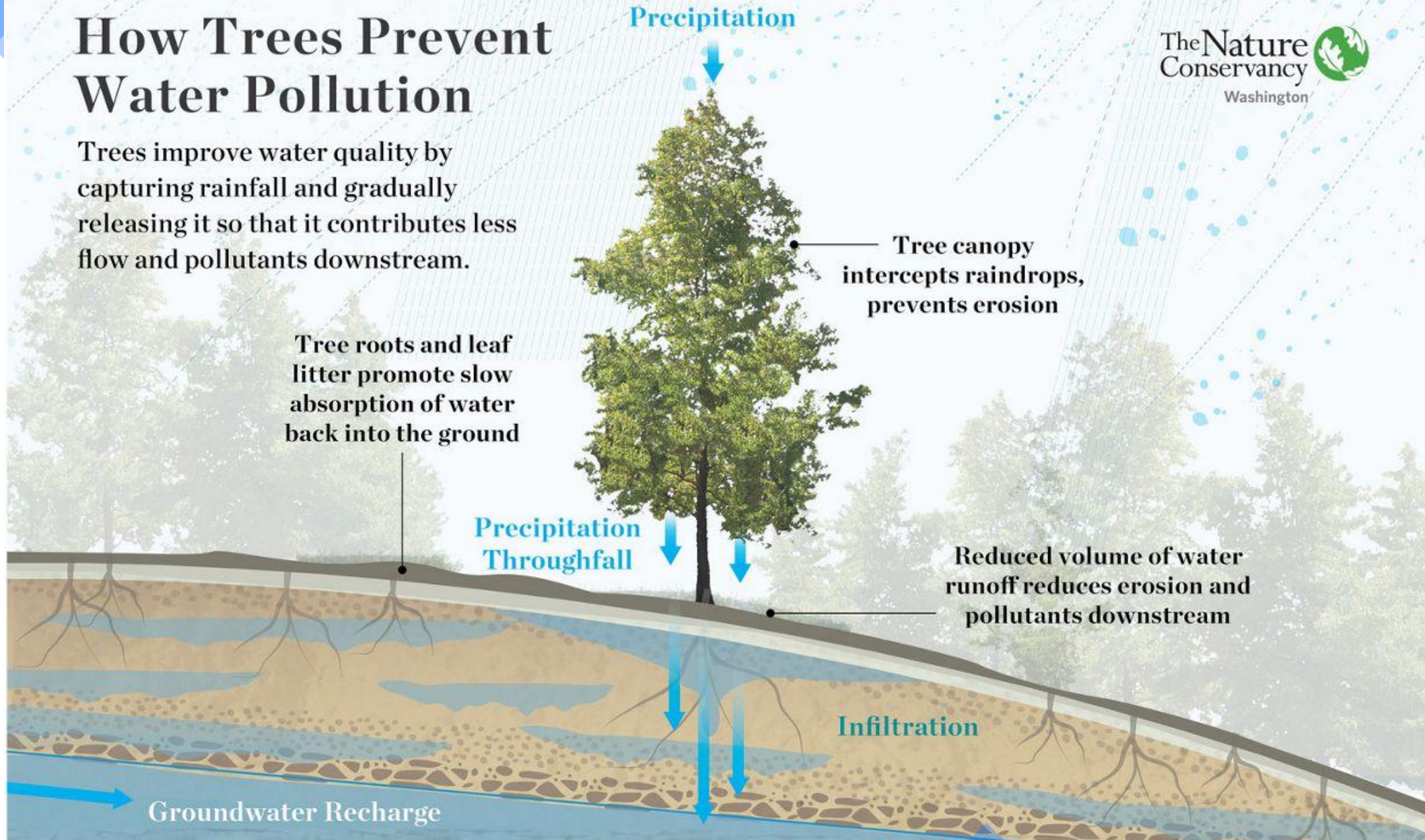
- ❖ Protects watershed health
- ❖ Protects drinking water supplies
- ❖ Protects surface water systems
- ❖ Reduces stormwater runoff volume
- ❖ And many other environmental, economic, and social benefits



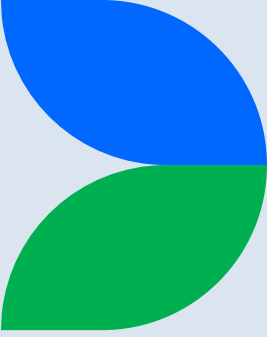
How Trees Prevent Water Pollution

Trees improve water quality by capturing rainfall and gradually releasing it so that it contributes less flow and pollutants downstream.

The Nature Conservancy
Washington



How to prioritize tree canopy for water



Plant trees along streets

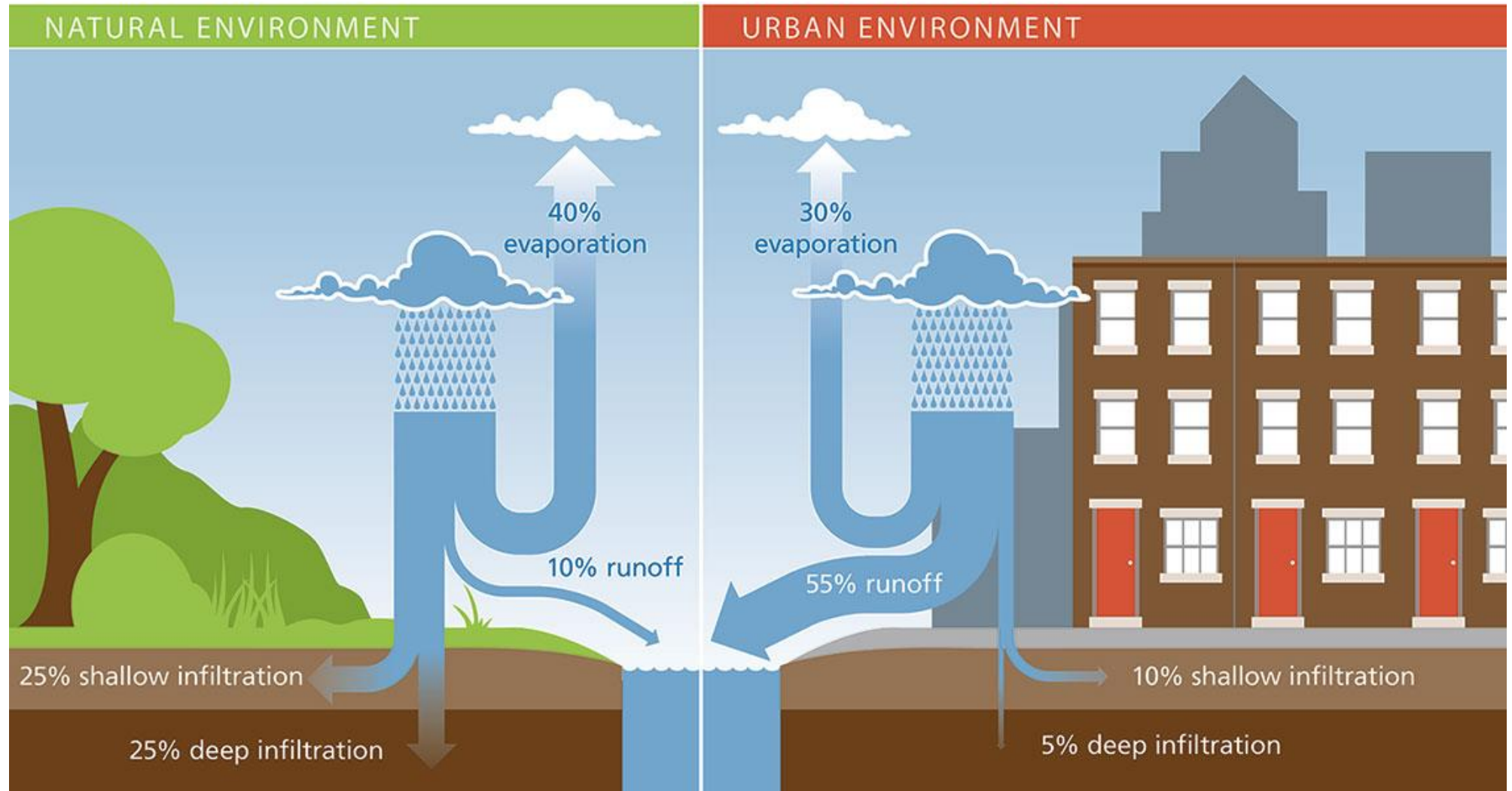
Adding trees to residential and commercial landscaping

Enhancing tree canopy on undeveloped lands

Integrating trees into stormwater facilities

Extending tree canopy over impervious surfaces

Stormwater Management



STORMWATER

ROOF RUNOFF

LAWN RUNOFF

FERTILIZER

PET WASTE

MOTOR OIL

STREET RUNOFF



Grey vs Green infrastructure

Grey infrastructure

- ❖ Systems of
 - ❖ Gutters
 - ❖ Pipes
 - ❖ Tunnels
- ❖ To move stormwater away from residential areas to treatment plants or local water bodies

Green infrastructure

- ❖ The range of measures that use
 - ❖ Plant or soil systems
 - ❖ Permeable surfaces
 - ❖ Stormwater harvest and reuse
 - ❖ Landscaping
- ❖ To store, infiltrate, or evapotranspire stormwater and reduce flow to sewer systems

Green Streets & Alleys

Plant Trees



Planter Boxes

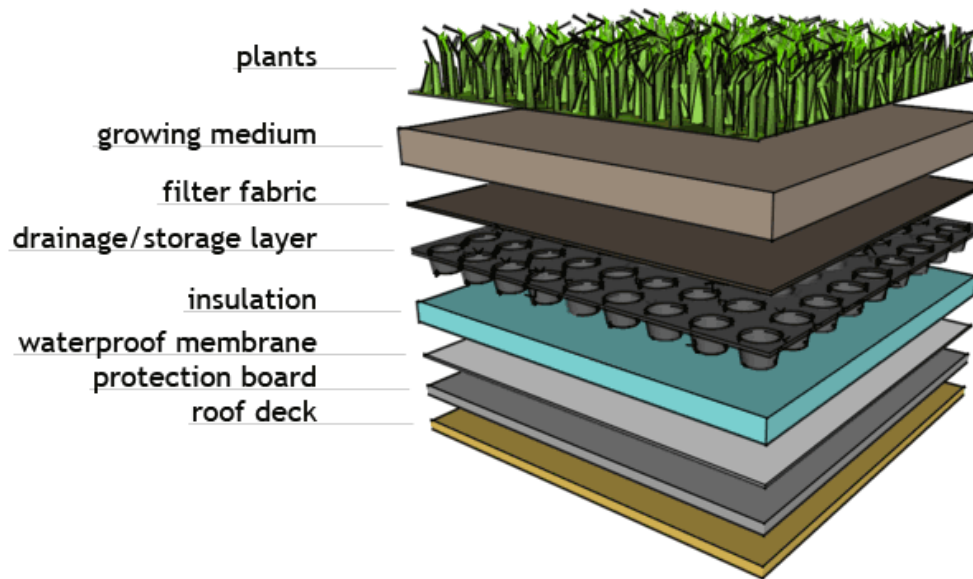


Curb Cut

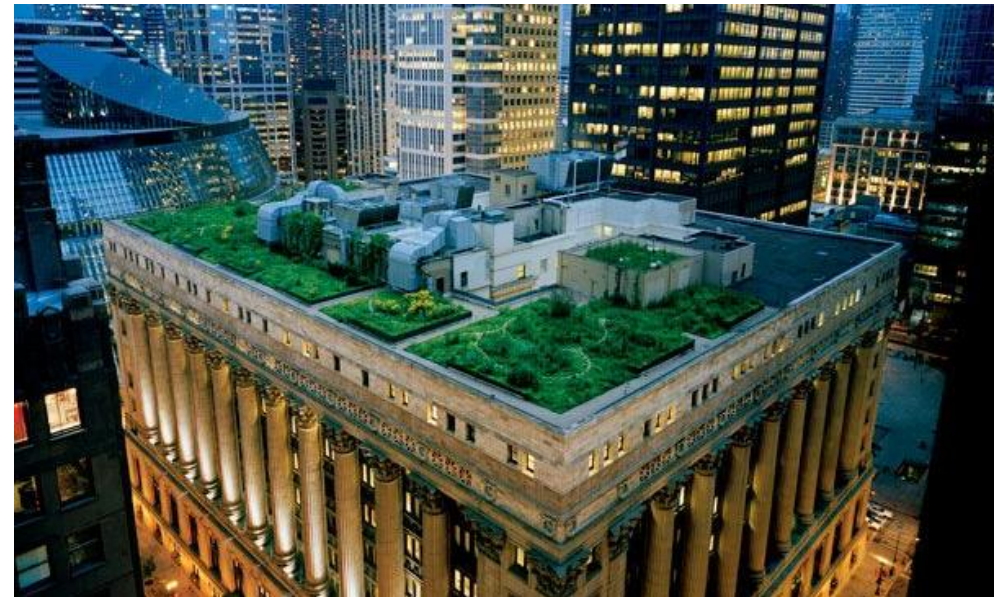


Green Roof

Layers



Chicago City Hall



Green Parking

Rain Garden



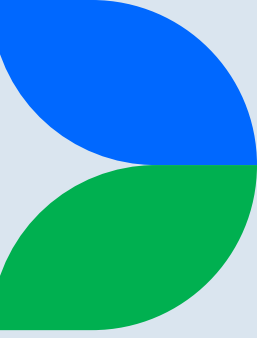
Bioswales



With Curb Cuts

Permeable Pavement





Low Impact Development

Systems/practices that mimic or use natural processes that lead to the infiltration, evapotranspiration or use of stormwater to protect water quality and associated habitat.

- ❖ Rain gardens
- ❖ Bioswales
- ❖ Permeable pavement

Rain Garden



Bioswales

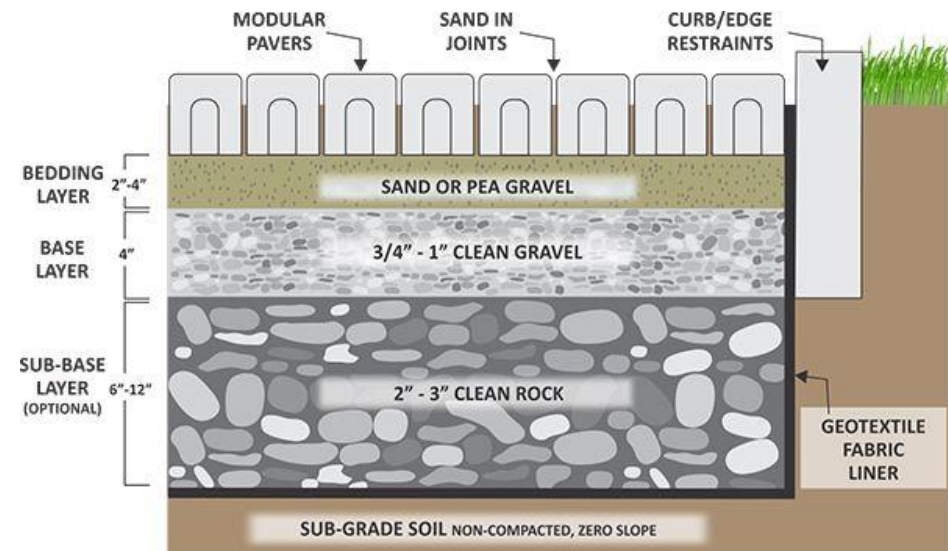


Permeable Pavement

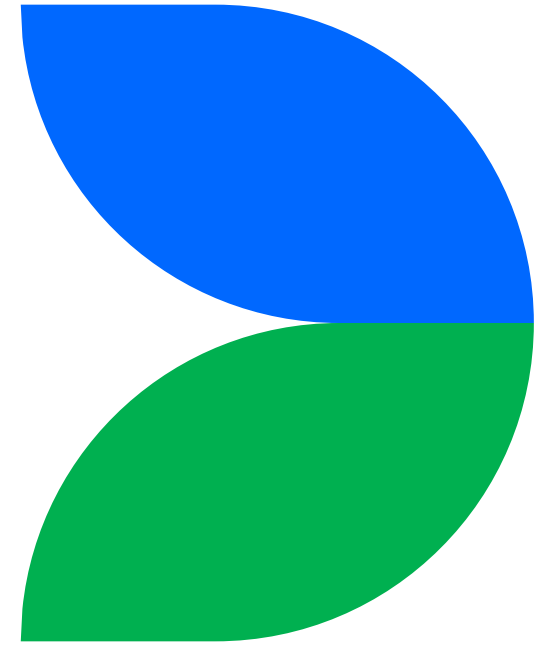
Water flows through the pavement layer into stormwater retention layer of storage



Can use permeable Asphalt, Concrete, or Pavers



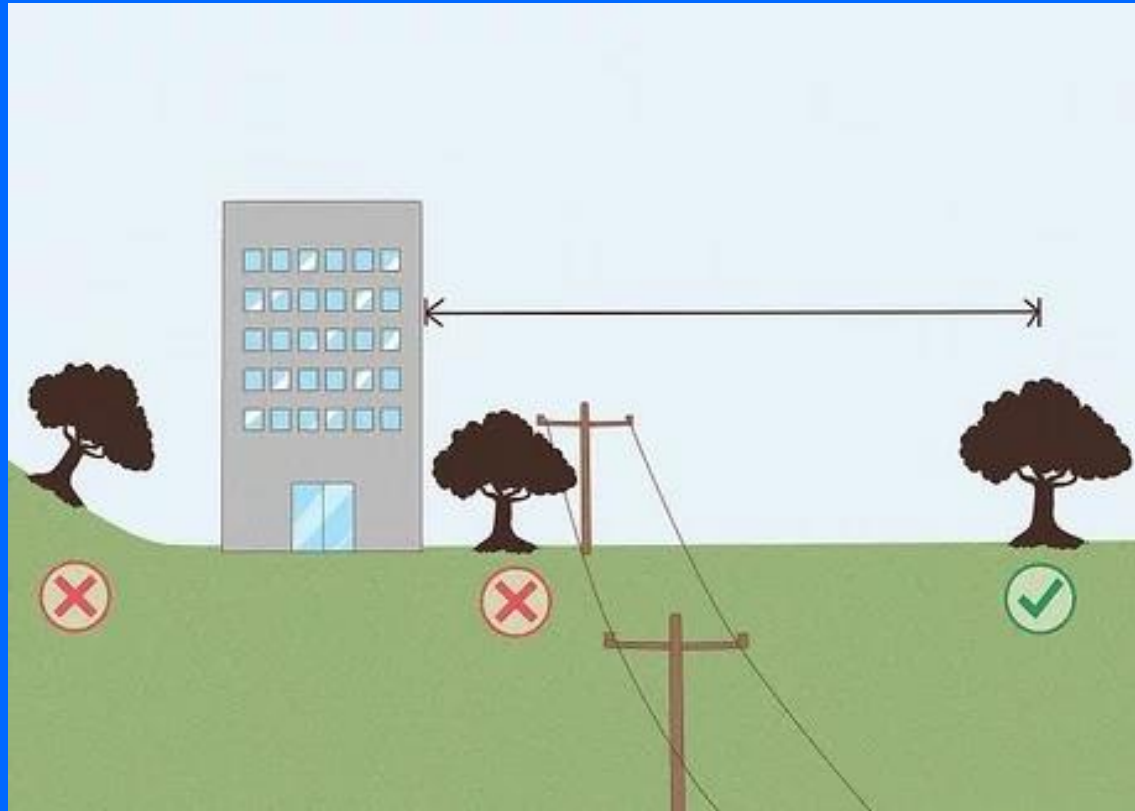
**How can your
Landscaping help?**



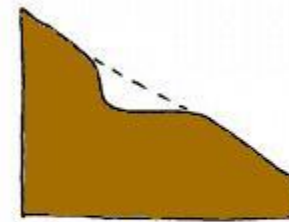
Evaluate Your Watering System



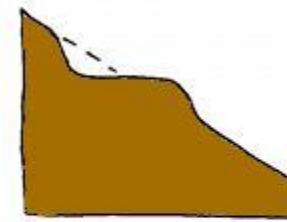
Where should I plant my Tree?



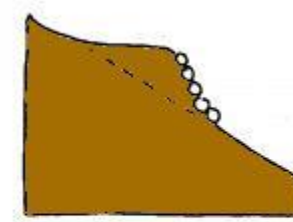
How Can I plant on a slope?



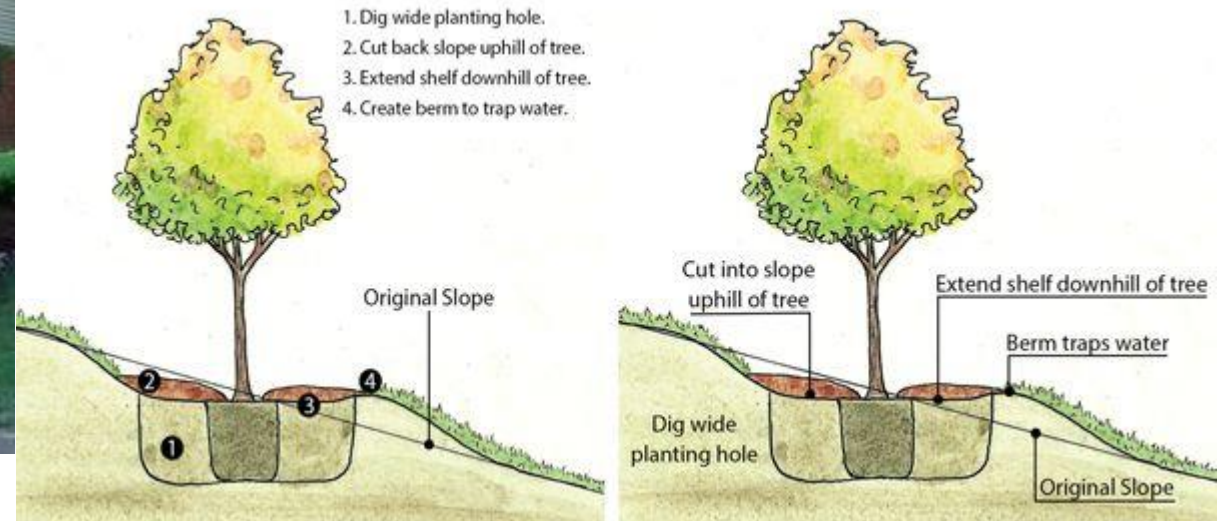
Cut Into Slope



Combo



Built Out



Factors influencing Tree Health

- ❖ Species selection: Should be based on the site-specific conditions
 - ❖ Shade tolerant/intolerant?
 - ❖ What soil is best for the species? Does this match the soil you are working with?
- ❖ Soil pH, chemistry, and composition
 - ❖ Soil nutrients; does it need fertilizer of any kind?
- ❖ Planting location

Additional tips

- ❖ When appropriate you can increase leaf area by planting smaller shade tolerant trees under the larger dominant trees
- ❖ Use ground cover like mulch or vegetation under your tree canopy to increase the surface area for interception
- ❖ Maximize belowground soil volumes to help store stormwater runoff and encourage deep root growth



Summary



- ❖ Forest management is a key factor in watershed protection
- ❖ Managing trees minimizes the volume and improves the quality of stormwater runoff
- ❖ Anyone can make a difference by managing trees

**60% of Texans get
their drinking water
from forestlands.**



**Protecting the forests that
protect the drinking water.**



Thank you

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