Stormwater Trees

How do Trees help manage stormwater?

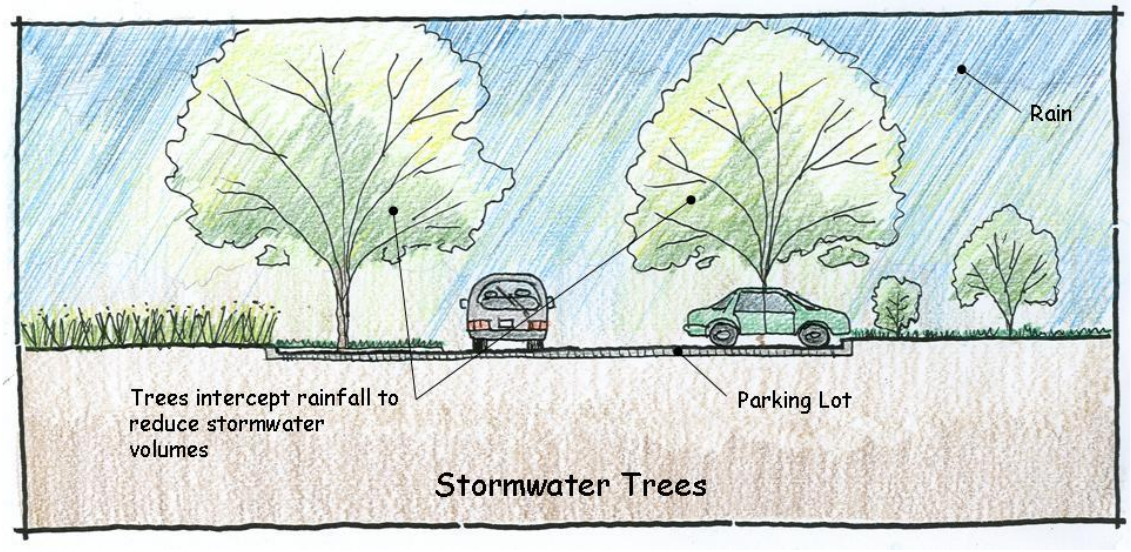
Trees are one of the simplest and most cost effective ways of reducing stormwater runoff from impervious area such as parking lots, roads, and buildings. Trees have an effect on stormwater above the ground surface, at the ground surface, and below the ground surface.

First, rain is caught on the trees' leaves, branches, and trunk slowing the movement of the stormwater. Portions of this intercepted rainfall is evaporated from the foliage and released back into the atmosphere as vapor. In addition to being evaporated, some of the rainfall caught by the trees is absorbed into the trees' leaves and stems where it is used for growth.

Not all rainfall that falls on a stormwater tree is absorbed or evaporated: some raindrops fall through the trees without landing on leaves or branches and other raindrops drip from the tree before they can be absorbed or evaporated. The rainfall that reaches the ground beneath the trees may still be affected by the tree.

The leaf litter and other organic matter commonly located underneath trees hold the precipitation in temporary surface ponds that reduce the amount and peak rates of stormwater runoff from the area. In addition, roots and the trunks of mature trees create hollows and hummocks on the ground that also provides areas for temporary water storage and ponding.

A small portion of the ponded water is evaporated from the surface while the majority is infiltrated into the soil. The presence of organic matter from leaf litter and other tree detritus and macropores, which are large interconnected pores in the soil created by roots, increases the infiltration rate and the moisture holding capacity of the on-site soils. Once below ground, the stormwater can be taken up by the trees through their roots or percolated into the groundwater. The roots of the trees also action as natural pollution filters removing nitrogen, phosphorus, and potassium from the stormwater before it is able to percolate into the groundwater.



Where and how can Stormwater Trees be located?

Scale ☒ Watershed/County ☒ Town/Village ☒ Neighborhood ☒ Lot

Applications	☒ Retrofit	☒ New	
	☒ Preventative	☐ Remedial	☐ Ongoing/Maintenance
	☒ Parking lots	☒ Streets	☒ Driveways
	☐ Roofs	☒ Lawns	☒ Sensitive Areas
Effectiveness	☒ Runoff Rate Control	☐ Runoff Volume Control	☒ Habitat Preservation/ Restoration
	☒ Sediment Control	☒ Nutrient Control	☒ BOD/COD Control
	☒ Other Pollutant Control		

Additional Benefits of Stormwater Trees

Trees provide more than just stormwater management.
They also:

- Reduce air pollution
- Provide shade
- Lower energy costs
- Prevent soil erosion
- Reduce noise level

Maintenance

Maintenance of stormwater trees is low. Basic tree care should be preformed regularly to ensure healthy trees and minimize the risk of damage to people and property.

This Fact Sheet was prepared by the Winnebago County Highway Department using funding provided in part through the USEPA Section 319 of the Clean Water Act and administrated through Illinois Environmental Protection Agency.