



## Richland Soil and Water Conservation District

*Conservation, Education and Stewardship*

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### **2022 MS4 Theme: Trees-Reduce & Clean Stormwater**

Did you know, trees are the most productive filters on the planet, starting from their canopy down to their roots? They help improve water quality in streams, rivers, and lakes by reducing flooding and minimizing chemical/ sediment runoff. The tree's canopy acts as a large umbrella capturing rainwater as it falls. This reduces the speed and amount of precipitation that reaches the ground and becomes stormwater runoff. A tree's root system takes in various pollutants and reduces the effects of erosion. An average tree can catch and hold onto 700 to 1000 gallons of rainwater a year. (Multiple Sources)

To find out an estimate of what the tree outside your window may be doing for you and the environment go to [My Tree](#). This estimator tool will give you information such as carbon dioxide sequestered, stormwater runoff avoided, air pollution removed each year and a valuation of the carbon Dioxide stored to date.

#### **Trees are Incredible Stream Stabilizers**

Riparian forest buffers filter sediments from streams during storm events, remove nitrogen and phosphorus leached from adjacent lands, provide stability to stream banks, shade and modify stream temperatures, provide aquatic and wildlife habitat for many species, reduce stream velocity, and reduce downstream flooding.

Protected riparian buffer widths vary from 10 feet to provide some bank stability to 250 feet plus to provide flood mitigation, wildlife habitat, and recreation. While riparian areas continue to be preserved and restored across the state, mature wooded buffers are destroyed during new construction or by misguided landowners.

It's time we understand and talk about the role trees, forests, and healthy soils play in keeping our waters clean and reducing stormwater runoff and flooding instead of just mentioning how trees beautify a community. The Pennsylvania Department of Environmental Protection has recently included urban tree planting as one of the control measures that MS4 (Small Municipal Separate Storm Sewer Systems) communities can use to meet the TMDL (total maximum daily load) requirements that have been established to meet their water quality improvement goals. Source: [Penn State University Extension](#)

*\*\* Serving all Richland County Landowners with Conservation Assistance\*\**

## **Trees Reduce Stormwater Runoff**

The benefits of trees are numerous, but here are a few related to stormwater.

Runoff from urban stormwater (non-point source pollution) washes chemicals (oil, gasoline, road salts, fertilizers, and other lawn chemicals) from hard surfaces such as roadways and parking lots into streams, wetlands, rivers and oceans. Drinking water, aquatic life and the health of our entire ecosystem can be adversely affected by this process.

Trees act as mini reservoirs, controlling runoff at the source. Trees help to reduce runoff by:

- Intercepting and holding rain on leaves, branches, and bark.
- Increasing infiltration and storage of rainwater through the tree's root system.
- Reducing soil erosion by slowing rainfall before it strikes the soil.
- Tree roots hold the soil in place and prevent sediments, (another major component of non-point source pollution) from entering lakes and streams.

Source: [Tree City Bulletin no. 55](#)

## **Trees Positively Influence Public Health**

Another important reason to value trees and include them as an integral part of a community's infrastructure is their positive influence on public health. Trees have a huge impact on both the physical and mental health of our citizens. This is one of the four major mechanisms for explaining the relationship between urban forestry and human health.

Physical action by trees

- Tree leaves filter the air, absorbing pollutants that trigger asthma and other respiratory diseases. These pollutants include sulfur dioxide, nitrogen oxide and particulate matter, (dust, soot, fly ash, diesel exhaust particles, wood smoke and sulfate aerosols.)
- Trees sequester carbon, and this reduces global warming, urban heat islands, and ozone production, as well as saving energy and fossil fuels.
- Photosynthesis provides oxygen and transpiration gives off water vapor and adds to the cooling influence of trees.

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- Trees reduce smog when they shade asphalt and parked vehicles, because the evaporation of hydrocarbon emissions from leaked gasoline is reduced.
- Trees shading recreation areas reduce harmful exposure to the sun's ultraviolet rays which have been linked to certain types of cancer.

Source: [Tree City Bulletin no. 57](#)

To find out more about Trees - Reduce and Clean Stormwater and the MS4 program, contact [Dan](#) or call 419-747-8077.