GRASS SWALE CONVERSION

Currently, Green Hills has a large network of open channel grassed swales that can be developed into vegetated water quality swales for additional infiltration opportunities. When deep-rooted, native vegetation is planted in place of short-rooted grasses commonly seen in the area, an exponentially larger amount of water is sunk into the ground instead of traveling to the stream.

Vegetated swales can reduce the velocity of the storm flow preventing erosion, allowing for infiltration and removing nutrients and pollutants from the storm flow.

TREE PLANTING RIPARIAN BUFFER

A riparian buffer is a vegetated strip of land that functions as a transition from land to water and serves as protection to the waterbody by filtering pollutants from the water, stabilizing banks, promoting biodiversity and providing much needed shade.

Riparian buffers serve as the strongest protection waterbodies have against outside influences and often a healthy, robust riparian zone is indicative of a healthy body of water. Native trees will be available for qualified landowners which in turn will increase the watershed's ability to capture and infiltrate water.

BIORETENTION

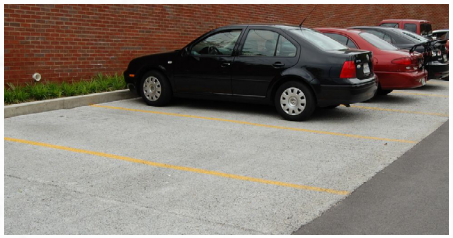
Often called a "rain garden" when applied in a residential setting, bioretention sites are shallow, constructed depressions that are planted with deep-rooted native trees, shrubs and grasses. They should be located to receive runoff from hard surfaces, such as a roof via a downspout, a sidewalk, or driveway. Rain gardens slow down the rush of water from these hard surfaces, hold the water for a short period of time, and allow it to naturally infiltrate into the ground.

This is a great way to capture stormwater runoff, where the water can be reintroduced back into our water table, lessening the strain felt during storm events by bulging rivers and streams. This garden effectively combats pathogen contaminated water, high algal levels in streams and sedimentation/erosion issues. One well-placed rain garden can percolate and clean 42,000 gallons of rain in a single year.

CONCRETE CHANNEL CONVERSION

Many concrete channels are present along Sugartree Creek. These channels do nothing in the way of filtering or slowing the velocity of the water as it enters the stream. The same function can be attained while adding filtration and water velocity reducing benefits by incorporating vegetation into the channel. The removal of concrete along with the inclusion of vegetation will decrease the amount of water and nutrients finding their way to the stream and will also slow the velocity of the water, decreasing erosion.

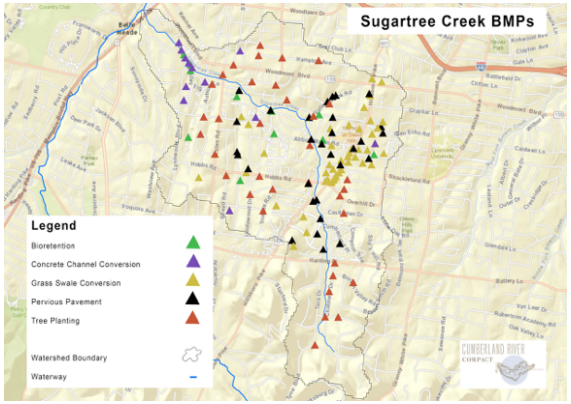
DEPAVING



Sugartree Creek is located in an urbanized area of Nashville that is increasing in population and growth and decreasing in vegetated cover. Many once vegetated areas were actively filtering and absorbing runoff but are now considered impervious, usually in the form of a building, parking lot or road. Incorporating pervious pavement into new construction or replacing old impervious pavement with new pervious pavementwill reduce stormwater runoff.

Unlike impervious pavement, pervious pavement allows water to infiltrate the surface, making its way down to the water table and not to our streams.

PROJECT OVERVIEW



Sugartree Creek is an urban stream running through the heart of Nashville's Green Hills neighborhood. It is considered polluted by federal standards with three primary culprits - high nutrient levels, pathogens, and habitat alteration.

The Cumberland River Compact and its partners, Metro Water Services and the Nature Conservancy, Tennessee Chapter are working in Sugartree Creek to establish a model for urban stream restoration. The goal of our project is to implement newly designed EPA software that determines optimum locations for water quality projects and apply this to Sugartree Creek. Using this software, we have essentially determined what actions need to be performed where. If this is adhered to, we will reduce impervious surface in critical areas and reduce nutrient and pathogen levels back to a healthy state.

Listed in this pamphlet are the 5 types of projects we will be conducting in the next 3 years, how these projects improve water quality and what services we can offer to landowners who want to participate in this exciting project.

CUMBERLAND RIVER COMPACT
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URBAN WATERS

Project: Sugartree Creek