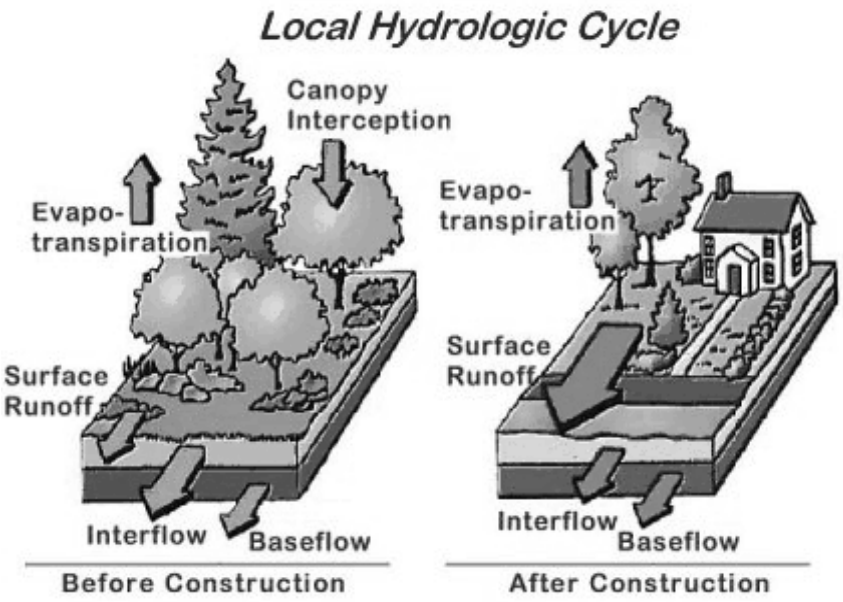
Stormwater and You

www.obedwatershed.org Obed Watershed Community Association September 2008

The Basics

When you take a shower or a bath, all the dirty water goes down the drain, either into a septic tank and then into the ground or through sewer pipes to the wastewater treatment plant. At the treatment plant, the dirty bath water is cleaned and filtered before it is returned to the Obed River.

Rain is like a shower for all things outdoors. As rainwater flows over land, it collects soil, pet wastes, fertilizers, oils and other pollutants. Even if your house is not near a stream or river, the runoff will flow down the street into a ditch or storm drain that eventually empties into a stream or lake, taking soil and pollutants along with it.



If the water has a chance to soak into the ground, the ground filters the water and that clean water eventually makes it into our streams. If the water doesn't soak in, then the dirty water flows directly into our streams, lakes and rivers.

When we change a forest or a pasture into a road or a development, water can't soak in as well so stormwater increases. As Crossville and Cumberland County have grown, so has the problem of stormwater.

Think about the different surface around your home, school, or neighborhood.

If rain falls on paved or impervious surfaces (surfaces like roads, driveways, or rooftops where water can't soak in), almost all of the water will run off.

If rain falls on grassed areas, up to 90% of the water may still run off the surface, depending on how packed the ground is, how long it's been since the last rain and how hard it is raining.

If rain falls on areas planted in dense shrubs and trees, very little water runs off since the deep roots keep the soil open so the water can soak in.

Infiltration (allowing water to sink into the soil) is the main goal of controlling rainfall runoff. If water can be encouraged to sink into the soil instead of running off, then it cannot transport pollutants to surface waters.

Impacts of Stormwater Runoff

The most obvious consequences of stormwater runoff are flooding and the damage it brings.

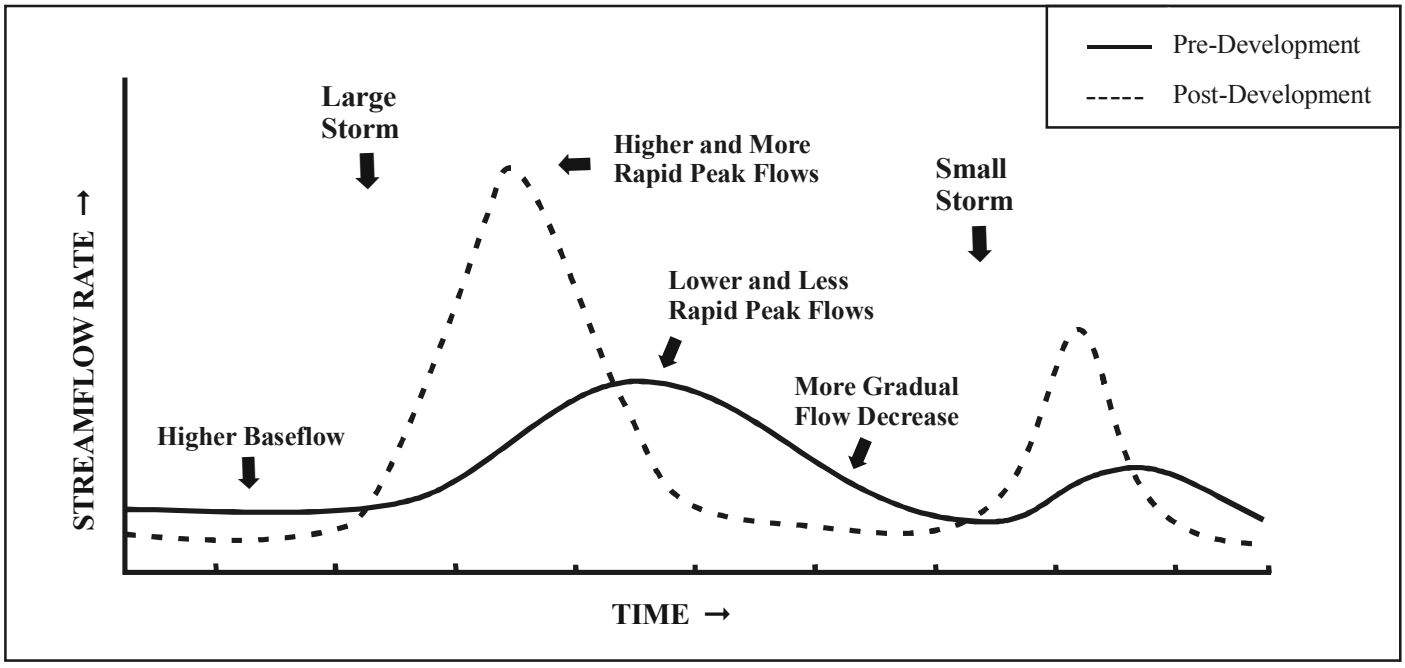
In Crossville, stormwater from the streets is channeled directly to streams. These streams can not always handle the additional fast flow of water. Stormwater becomes floodwater when it runs over the stream banks and floods streets and business and residential property. Outside the City, stormwater from roads, subdivisions, and commercial development is directed into the closest stream which also may not have the capacity to handle the additional water.

Flooding is not the only impact!

Stormwater runoff results in:

* erosion of streambeds and streambanks which fills the water with mud, smothering the plants and critters living in the streams and lakes,
* high levels of fecal bacteria from farm animal and pet poop, of which *e. coli* is a type,
* fertilizer from your lawn ending up in the stream, causing algae growth and oxygen depletion,
* oil and gasoline from engines, as well as pesticides from lawns poisoning the streams,
* trash in the streams, especially plastic bags, cups, bottles, cigarette butts and other light items including leaves that wash into a stream and can even clog a small stream,
* less water in the stream during dry times, since the rain water doesn't have a chance to soak in and make its way slowly to the stream.

STREAMFLOW



Comparison of stream flows after a rain, showing the effect of development. (After Schueler, 1987)

During these times of increasing drought, doesn't it make sense to keep the water here in Cumberland County, rather than speed it on its way off the mountain? Remember, the key to reducing the stormwater problem is to help the water soak in rather than run off.

What you can do

Hold the Water!

✓ Plants trees to open the soil for rainwater and to provide shade.

✓ Keep at least twenty-five feet of vegetation near streams and drainageways. This encourages the water to soak in, and it filters out what may be carried in the run-off.

✓ Use rainbarrels to capture water from roofs and use this for watering later.

✓ Use downspout extensions that spread the water out or put it in drainage pipes. DO NOT pipe roof water directly to a stream.

✓ Create low areas in your landscaping that will temporarily collect water and allow it to soak in and plant these islands with woody plants to keep the soil open.

✓ Put outlets or small rock dams in ditches to slow the water down and allow it to spread out and soak in.

✓ Plant trees in wet areas to dry them out rather than putting in pipe drainage systems.

Stop the Pollution!

* Use fertilizer and pesticides sparingly.

* Keep fertilizer off of paved surfaces. Sweep it back onto the lawn.

* Don't fertilize before a rainstorm.

* Don't litter. Litter is one of the most unsightly forms of pollution in our local waterways and can easily be prevented. Carry a bag for waste along in the car to eliminate the temptation to throw it out the window. Use an ashtray for ashes and cigarette butts, and properly dispose in the trashcan periodically.

* Practice proper chemical disposal. Be sure to take chemicals such as paint, furniture stripper, fertilizers, pesticides, herbicides, oil, car batteries and antifreeze to the County Recycling Center on the annual Hazardous Waste Collection day.

* If you do your own car maintenance, take you oil and other fluids and batteries to the proper facility for disposal. Do not pour waste onto the ground or into storm drains.

* When you wash your car, do it on the grass. Wash water contains pollutants such as oils and grease, phosphates (from the soap), and heavy metals, all of which have negative effects on water quality.
Commercial car washes send the water to the water treatment plant where pollutants are removed.

* Pick up after your pets. Animal waste contributes harmful bacteria to local waters. These bacteria can pose health risks to humans and other animals and result in the spread of disease.

* Maintain your septic system. Have your septic tank pumped every three to five years to extend the life of your system. Divert roof drains and runoff away from the septic system area to keep extra water off.

* Don't dump leaves and yard waste into streams or drainage ditches. These decaying materials increase bacteria and mosquitos and decrease the oxygen in the water that is essential for fish life.

Protect the Streams!

→ Maintain a twenty-five foot minimum vegetation zone along any stream, no matter how small. Grass counts, but you need trees and shrubs as well. Grass by itself won't get the job done. Streams need the shade of trees and shrubs to keep cool. Critters can't live in hot water.

→ Keep the channel clear. Branches and pieces of wood are a natural part of a stream and provide food for the critters that live there, but if the channel is being blocked by logs or trash, you do not need a permit to remove them. However, you must have a permit if you want to use a back-hoe or heavy equipment to improve or change the channel. Call TDEC at 1-888-891-8332, and they can tell you whether a permit is needed.

→ Do not use herbicides on the sides or tops of stream banks. Not only may you pollute the stream, but you are destroying the plants that will hold the soil when the water rises.

→ Use barriers such as silt fence during construction projects to catch any soil that may be carried towards the stream.

→ If you are experiencing bank erosion problems, contact the Crossville Stormwater coordinator at 456-6947 or OWCA at 484-9033 for suggestions on how to handle the problem.

→ If you notice odors, colors, or very muddy water that suggest someone upstream is polluting the stream, contact TDEC at 1-888-891-8332.

Beginning in January 2009, the City of Crossville will be operating a Stormwater program to monitor the health of the streams within the city and to enforce regulations designed to reduce the amount of mud and other pollutants that are getting into the streams. A copy of the regulations are available at City Hall. The Stormwater program is also interested in educating the public and contractors on how to keep the streams clean. They welcome questions about how to manage projects and are willing to come out and discuss solutions at any time. The contact number is 456-6947.

This publication was produced by the Obed Watershed Community Association, a local membership organization of concerned citizens who want to protect and maintain the high quality of our environment for future generations. OWCA sponsors monthly educational programs on a variety of topics to build appreciation for the historical, cultural and environmental treasures that exist in Cumberland County. It also sponsors a Stream Monitoring and Restoration project which monitors a number of streams and helps landowners improve the stream while protecting their property. For more information about OWCA and its activities, contact Dennis Gregg, Executive Director, 484-9033.