



Rainwater

Rainwater Concerns:

Property owners sometimes experience wet basements, flooded yards, temporary water ponds, poorly growing plants, or eroding stream banks. *These concerns may be the result of one or more natural resource realities.*

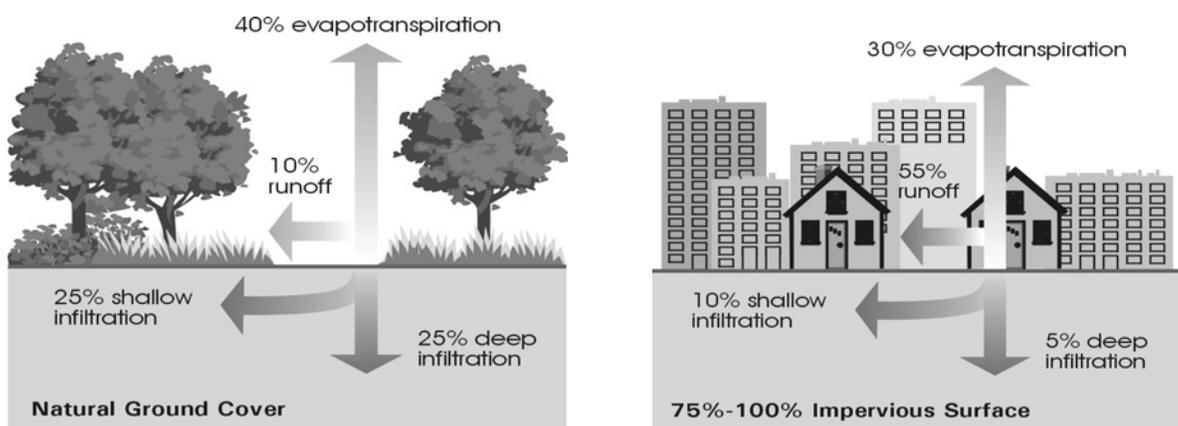
Where Rainwater Goes:

After reaching the ground rainwater becomes either surface or subsurface water. Surface water travels on top of the ground. Subsurface water soaks into the soil and travels throughout the soil.

Subsurface water will become part of the water table, recharging wells and streams throughout the dry season, and remaining in small spaces in the soil for plants to uptake. In agricultural areas land is usually drained to keep the water table below the plant roots. It is drained by tiles, which are underground clay or corrugated plastic tubing pipes spaced far enough apart to allow water to seep into the tile from the soil and travel through them. Water follows the path of least resistance and is drained to the nearest outlet, usually a stream.

With 100% natural vegetative ground cover, an average of 50% of the rainwater will seep into the ground. 40% will evaporate from the surface and plants and 10% will runoff to a nearby stream, river, pond or lake. In urban and commercial areas that have 75 –100% impervious surfaces such as parking lots, buildings and roads, an average of 55%, instead of 10%, of rainwater is drained directly to a ditch, stream, river, pond or lake. In many cases the street curb drain by your house empties directly into the stream. This water is NOT treated in any way. See figure below.

Rainwater Path in Natural vs. Urban Area, from "Tools for Water Resource Management in the Chagrin River Watershed."



The higher volume of stormwater discharging directly to the stream increases the amount of water rushing through the stream during a storm event and increases the number of pollutants carried to waterways. The increased runoff water results in stream channel erosion by deepening and widening the stream channel. This can threaten existing structures and allow more pollution to enter streams and drinking water reservoirs. Erosion increases the sediment load to streams, rivers, ponds and lakes; this can result in more downstream flooding events.

“Wet” Soils:

In addition to increased water volumes being diverted to waterways, development pressures have resulted in more structures being built on hydric soils. Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic (without oxygen) conditions in the upper part of the soil. Location of soil and parent material with high clay content are the main reasons for formation of hydric soils in Franklin County. Typically these soils are found in low points in the landscape. Many hydric soils have been drained with subsurface tiles, but this still does not make drained soils good building sites. Often the water is still too close to the surface to make building easy. Many special and costly measures are needed to build on these sites which may include rerouting existing tiles, adding an extensive tile system under and beside the house and installation of one or more sump pumps. In addition, the builder must consider the impact of possible water flow increase if development occurs upslope. For these reasons the District does not recommend building structures on hydric soils. Hydric soils occupy approximately 17% percent of the land in Franklin County. The most recent date indicates that 0.8% of hydric soil have been developed on.

Floodplains and floodways:

Floodplain is an area of flat land extending from the banks of a stream. A floodway hugs the stream and is close enough to experience high water velocity. Floodplains play an important role in storing water during storm events. Development pressures and the desire for streamside views has resulted in properties being built in these areas. These properties are more likely to be flooded especially in developing urban areas where the amount of impervious areas continues to increase. As a result the areas where water cannot infiltrate in urban settings, the 100-year mapped floodplain boundaries are often exceeded. Properties built in the floodplain can also cause more flooding downstream because of a loss of storage for storm events and a “damming effect” that increases flood heights upstream and can be at risk of damage themselves. This is especially true when fill material is used to further raise the ground surface above the water level in order to build outside of the floodplain.

Minimizing the Impact of Urban Runoff on Waterways:

As an individual landowner you can reduce runoff from your property. Divert water from your roof to your vegetated areas rather than directly to the street. Plant more trees and shrubs to reduce runoff from your property. Because your storm drain most likely outlets to a stream, never throw/deposit yard wastes or other debris into the street; keep fertilizer, herbicides and pesticides off of sidewalks and drive ways. Minimize the use of lawn chemicals.

For more detailed tips on how to deal with drainage, flooding or ponding on your property please contact the Franklin SWCD office. For more information on floodplains call the Franklin County Development Department.

References and Resources:

Arnold, Chester and Gibbons, James, 1996, APA Journal vol 62:2, American Planning Association, “Impervious Surface Coverage” Chicago, IL 244.

OSU Extension, Ohio Watershed Network, www.ag.ohio-state.edu/~waternet/index.html.

Franklin County Development Department, 462-3094.

Picture is from a slide show presented by Tom Denbow, “Tools for Water Resource Management in the Chagrin River Watershed,” Chagrin River Watershed Partners, Inc., November 2000. Contact tjd@ix.netcom.com

The Franklin SWCD and NRCS Field Office strive to serve all people equally.

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