

PROTECTING WATER QUALITY FROM URBAN RUNOFF

Clean Water is Everybody's Business

IN URBAN AND SUBURBAN AREAS, MUCH OF THE LAND SURFACE IS COVERED BY BUILDINGS AND PAVEMENT, WHICH DO NOT ALLOW RAIN AND SNOWMELT TO SOAK INTO THE GROUND. INSTEAD, MOST DEVELOPED AREAS RELY ON STORM DRAINS TO CARRY LARGE AMOUNTS OF RUNOFF FROM ROOFS AND PAVED AREAS TO NEARBY WATERWAYS. THE STORMWATER RUNOFF CARRIES POLLUTANTS SUCH AS OIL, DIRT, CHEMICALS, AND LAWN FERTILIZERS TO STREAMS AND RIVERS, WHERE THEY SERIOUSLY HARM WATER QUALITY. TO PROTECT SURFACE WATER QUALITY AND GROUNDWATER RESOURCES, DEVELOPMENT SHOULD BE DESIGNED AND BUILT TO MINIMIZE INCREASE IN RUNOFF.

The most recent National Water Quality Inventory reports that runoff from urbanized areas is the leading source of water quality impairments to surveyed estuaries and the third-largest source of impairments to surveyed lakes.

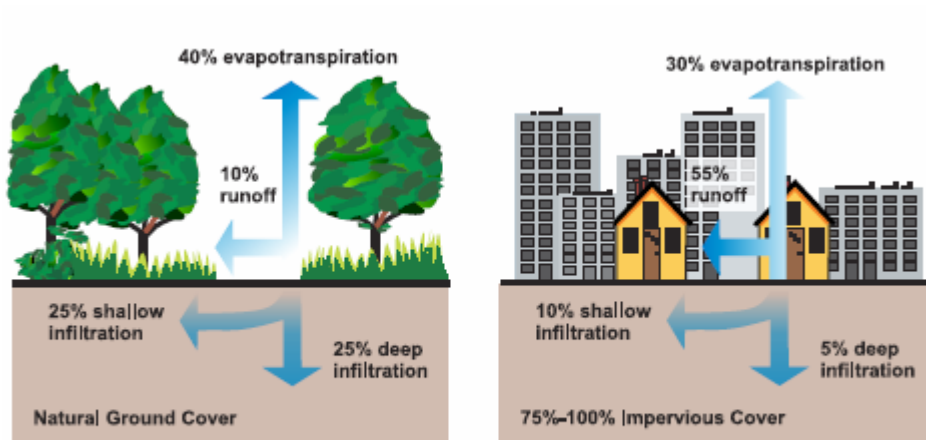
How Urbanized Areas Affect Water Quality

Increased Runoff:

The porous and varied terrain of natural landscapes like forests, wetlands, and grasslands traps rainwater and snowmelt and allows them to filter slowly into the ground. In contrast, impervious (nonporous) surfaces like roads, parking lots, and rooftops prevent rain and snowmelt from infiltrating, or soaking, into the ground. Most of the rainfall and snowmelt remains above the surface, where it runs off rapidly in unnaturally large amounts.

Storm sewer systems concentrate runoff into smooth, straight conduits. This runoff gathers speed and erosional power as it travels underground. When this runoff leaves the storm drains and empties into a stream, its excessive volume and power blast out stream banks, damaging stream side vegetation and wiping out aquatic habitat. These increased storm flows carry sediment loads from construction sites and other denuded surfaces and eroded stream banks. They often carry higher water temperatures from street, road tops, and parking lots, which are harmful to the health and reproduction of aquatic life.

Did you know that because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times the runoff of a woodland area of the same size?



Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.

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The loss of infiltration from urbanization may also cause profound groundwater changes. Although urbanization leads to great increases in flooding during and immediately after wet weather, in many instances it results in lower stream flows during dry weather. Many native fish and other aquatic life cannot survive when these conditions prevail.

Increased Pollutant Loads

Urbanization increases the variety and amount of pollutants carried into streams, rivers, and lakes. The pollutants include:

- Sediment
- Oil, grease, and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Viruses, bacteria, and nutrients from pet water and failing septic systems
- Heavy metals from roof shingles, motor vehicles, and other sources
- Thermal pollution from dark impervious surfaces such as streets and roof tops

Managing Urban Runoff

What Homeowners Can Do

To decrease polluted runoff from paved surfaces, households can develop alternatives to areas traditionally covered by impervious surfaces. Porous pavement materials are available for driveways and sidewalks, and native vegetation and mulch can replace high maintenance grass lawns. Homeowners can use fertilizers sparingly and sweep driveways, sidewalks, and roads instead of using a hose. Instead of disposing of yard waste, they can use the materials to start a compost pile.

In addition, households can prevent polluted runoff by picking up after pets and using, storing, and disposing of chemicals properly. Drivers should check their cars for leaks and recycle their motor oil and antifreeze when these fluids are changed. Drivers can also avoid impacts from car wash runoff (e.g., detergents, grime, etc.) by using car wash facilities that do not generate runoff. Households served by septic systems should have them professionally inspected and pumped every 3 to 5 years. They should also practice water conservation measures to extend the life of their septic systems.

Used motor oil, gear oil, and transmission fluid is accepted at all AutoZone Stores, Valvoline Instant Oil Change, and BP ProCare (full-service stations only) locations. They can accept up to 5 gallons per day, per customer. The container must be returned to the customer.

For additional information about household waste collection go to www.swaco.org/what.htm

Controlling Impacts from new Development

Developers and city planners should attempt to control the volume of runoff from new development by using low impact development, structural controls, and pollution prevention strategies. Low impact development includes measures that conserve natural areas (particularly sensitive hydrologic areas like riparian buffers and infiltrable soils); reduce development impacts; and reduce site runoff rates by maximizing surface roughness, infiltration opportunities, and flow paths.

Controlling Impacts from Existing Development

Controlling runoff from existing urban areas is often more costly than controlling runoff from new developments. Economic efficiencies are often realized through approaches that target "hot spots" of runoff pollution or have multiple benefits, such as high-efficiency street sweeping (which addresses aesthetics, road safety, and water quality). Urban planners and others responsible for managing urban and suburban areas can first identify and implement pollution prevention strategies and examine source control opportunities. They should seek out priority pollutant reduction opportunities, then protect natural areas that help control runoff, and finally begin ecological restoration and retrofit activities to clean up degraded water bodies.

Information is also available from the Franklin Soil and Water conservation district at www.franklinswcd.org and from the USEPA at www.epa.gov/npdes/stormwater

To report illegal discharge of pollutants, contact the City of Reynoldsburg Storm Water Utility at 614-322-5800 or e-mail: lward@ci.reynoldsburg.oh.us