

# Enviro FACTSHEET

## URBAN RUNOFF

**What happens to rain or snow that falls on urban areas?**

**U**nder natural conditions the ground will absorb a significant percentage of precipitation, wetlands will store much of the excess water from storms, and floodplains will allow high water levels to spread out, reducing the destructive energy of floods. But in developed areas the results are much different.

Urban development drains or fills in streambank areas, known as riparian zones, and constricts stream channels. Sedimentation occurring during construction and from later erosion fills in the stream's pools and reduces its capacity to carry water. Roads, parking lots and rooftops reduce absorption of water into the ground, increasing the volume of runoff. The result is increased flooding. Stream channels adjust by widening and downcutting, eroding the streambank and threatening downstream property, roads, bridges and buildings. A loss of porous ground surface of just 15% in a watershed will increase flooding and damage habitat, water quality, biological diversity and streambank stability.

During storms, pollutants from impenetrable surfaces quickly will runoff into streams, degrading water quality and threatening public health. Pollutants include oil, salt gasoline, antifreeze, brake and transmission fluids, and metals. Other pollutants common in urban and suburban

**Parking lots and roads tend to absorb heat, making runoff 10 to 12 degrees warmer than a forested stream.**

areas are sewage, fertilizers, pesticides and other toxic chemicals.

Economic impact of urban/suburban runoff includes flooding, expensive channelization and other flood control structures, road and property damage, increased drinking water treatment and a loss of recreation.

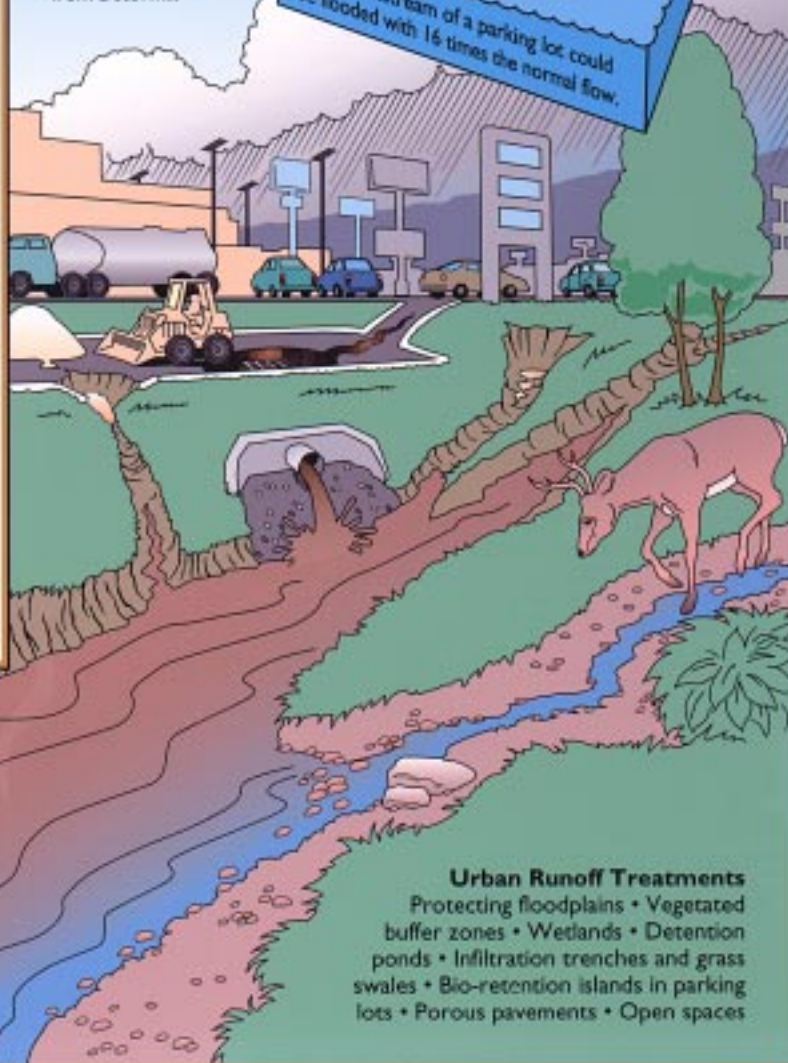
**Trout are seldom found in watersheds where impervious ground surface exceeds 15%.**

**Compare** - A one inch rainstorm on a one acre natural meadow produces 218 cubic feet of runoff while the same storm on a one acre paved parking lot produces 3,450 cubic feet.



A meadow will normally absorb much of the rain from a storm...

...but downstream of a parking lot could be flooded with 16 times the normal flow.



### Urban Runoff Impacts

Flooding • Loss of aquatic life • Dry streams  
• Threats to public health • Increased erosion  
• Increased public expenses

### For more information contact:

West Virginia Department of Environmental Protection  
Division of Water Resources  
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### Urban Runoff Treatments

Protecting floodplains • Vegetated buffer zones • Wetlands • Detention ponds • Infiltration trenches and grass swales • Bio-retention islands in parking lots • Porous pavements • Open spaces

