URBAN RUNOFF

Under 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 constrains 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 15 percent in a watershed will increase flooding and damage habitat, water quality, biological diversity and streambank stability.

During storms, pollutants from impenetrable surfaces quickly will run off 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 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.

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

For more information contact:
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Environmental treatment
- Protecting floodplains • Vegetated buffer zones • Wetlands • Detention ponds • Infiltration trenches and grass swales • Bio-retention islands in parking lots • Porous pavements • Open spaces

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.