

BE WATER WISE



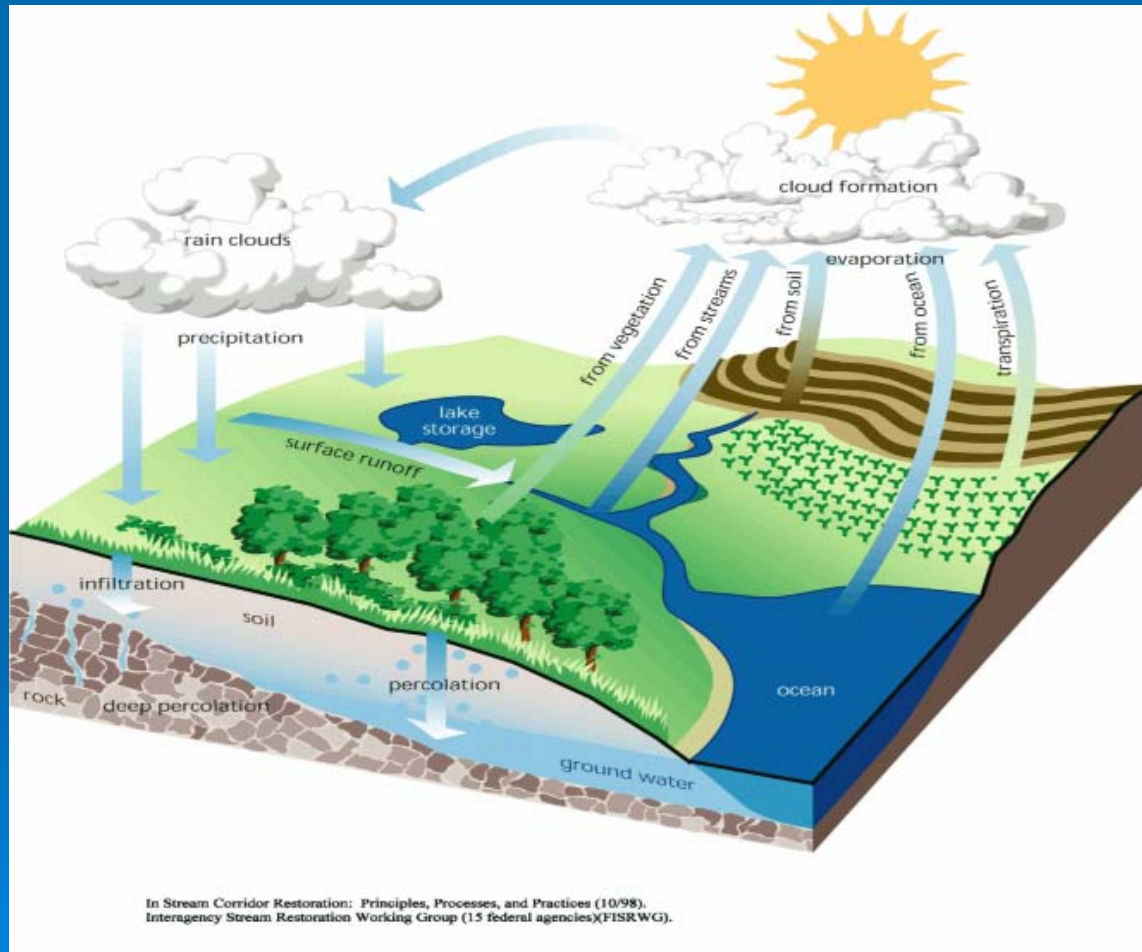
Managing Your Onlot Stormwater

Sept. 23, 2006

Watershed Weekend 2006

1

All water resources are interrelated through the Hydrologic Cycle



What is Storm Water?

- Storm Water is water from precipitation that runs off the land when it rains or when snow and ice melt.
- The water seeps into the ground or drains into what we call storm sewers.
- These are the drains you see at street corners or at low points on the sides of streets.
- Collectively, the draining water is called storm water runoff.

Storm Water

Wastewater or Resource?

Storm Water

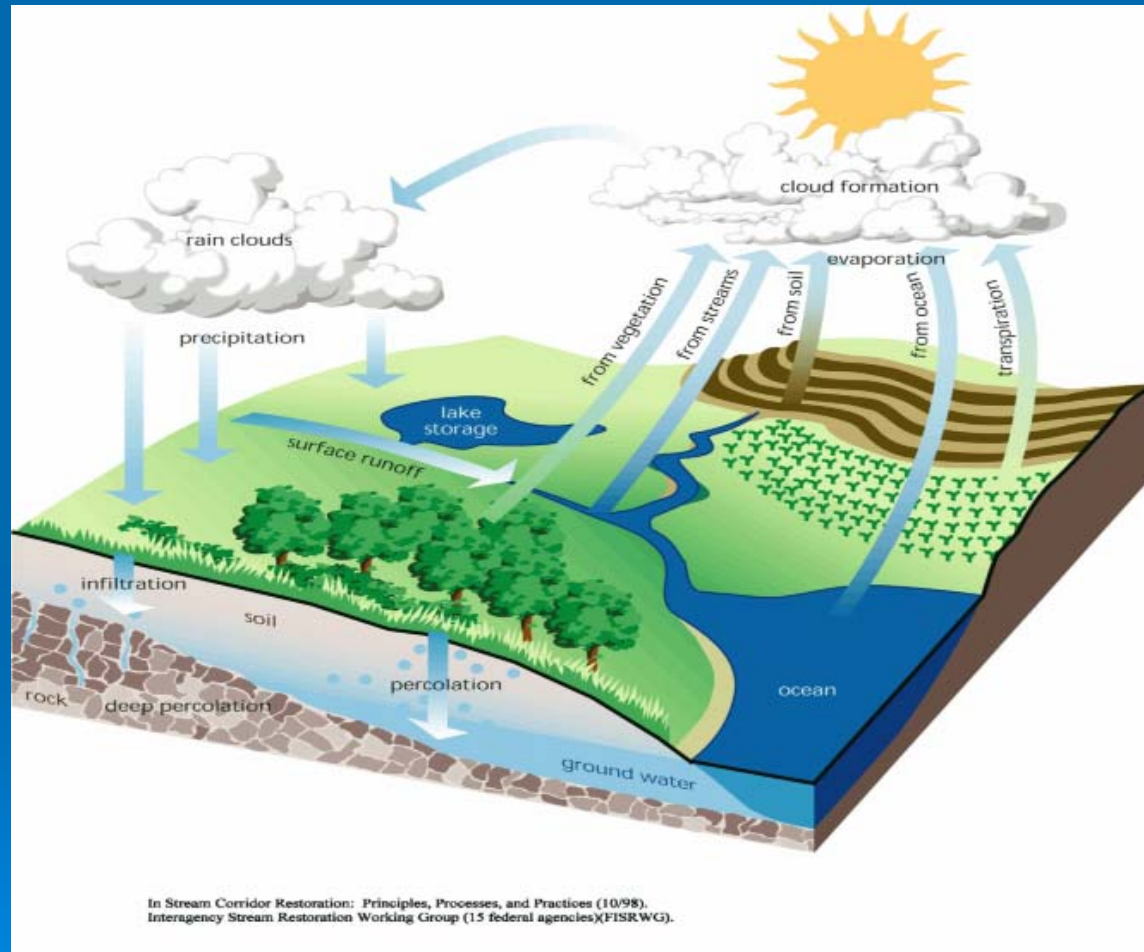


- Historically storm water management has been to collect and get rid of it as quickly as possible.

Storm Water

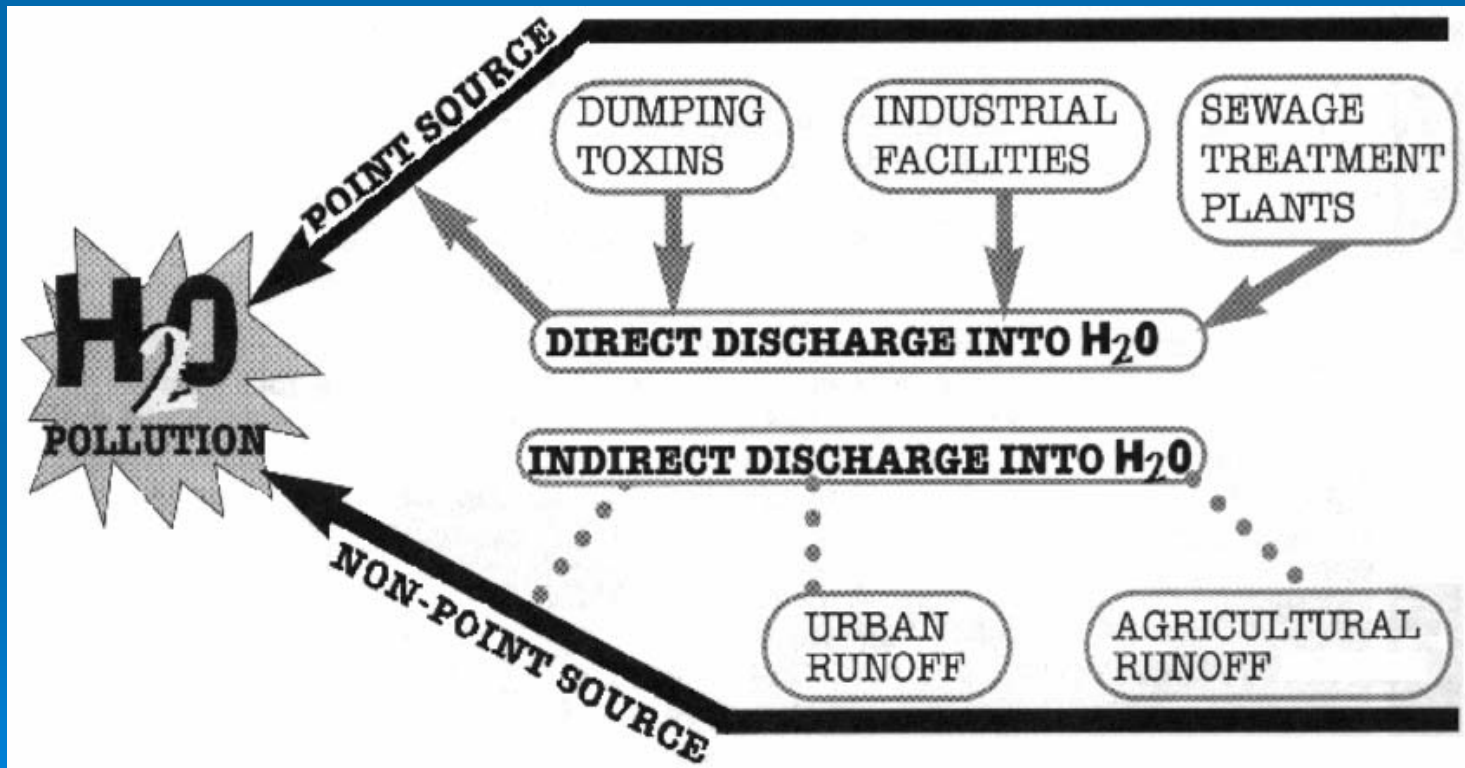
- **Today storm water is being looked upon as a precious resource.**

What happens when it rains?

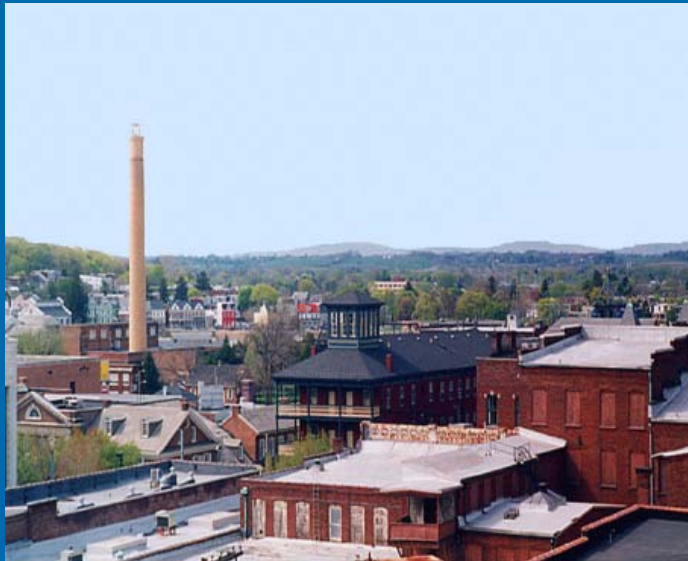


What is the problem?

➤ Point-Source & Non-Point source pollution!



How has non-point source pollution become a problem?



- **The way we use and modify the land directly impacts our water.**

Agricultural Non-Point Source Pollution

Improper management of...

- grazing land
- tilling
- applying manure and fertilizing
- spraying
- plus uncontrolled storm water runoff . . .

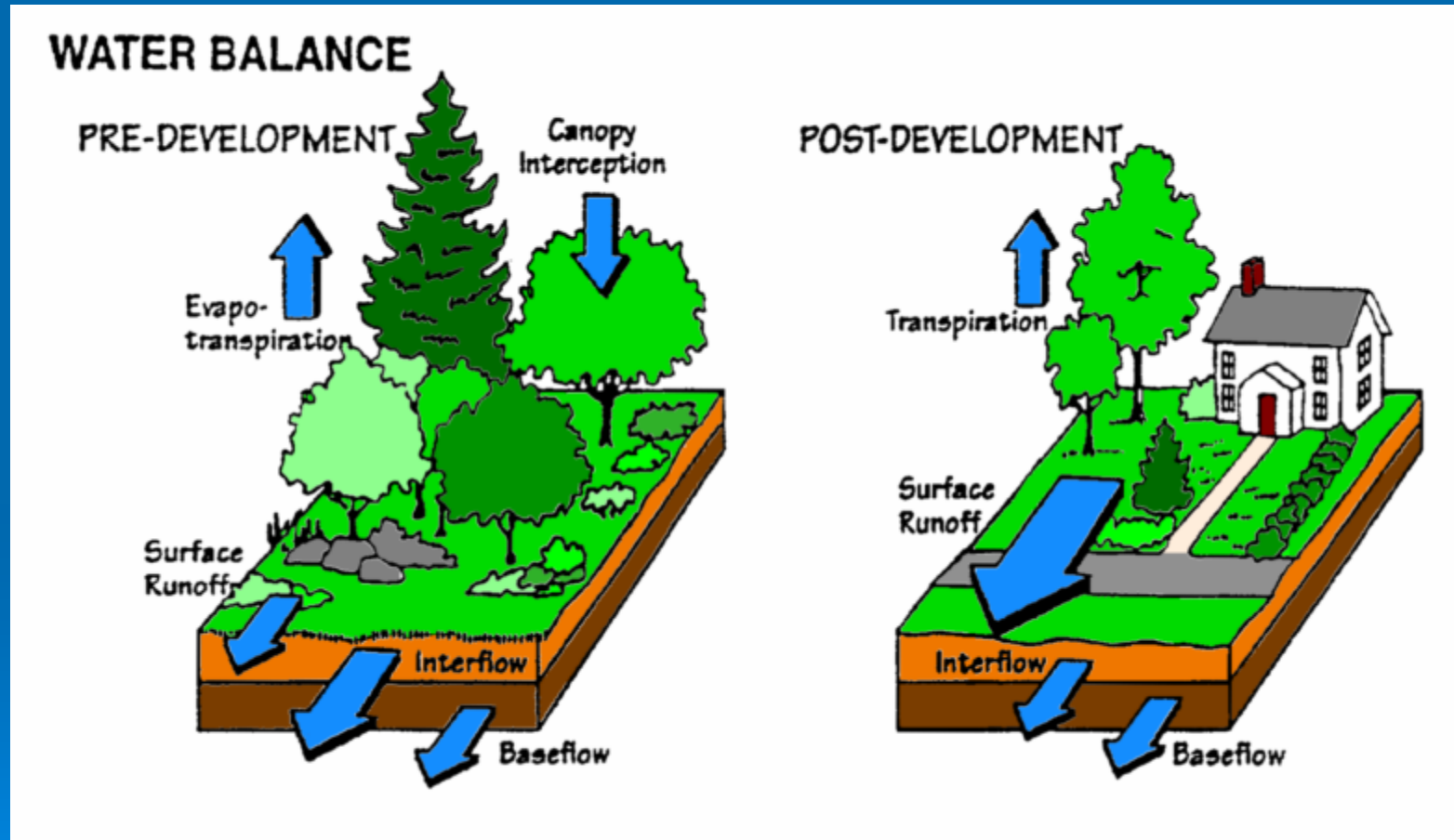
can lead to sediments, nutrients, and pesticides in our waters. These pollutants can be minimized by conservation planning and implementation of BMP's

Urban Runoff caused by . . .

- Increasing County population
- Land development
- Impervious surfaces
- Storm water runoff

Increases Non-Point Source Pollution

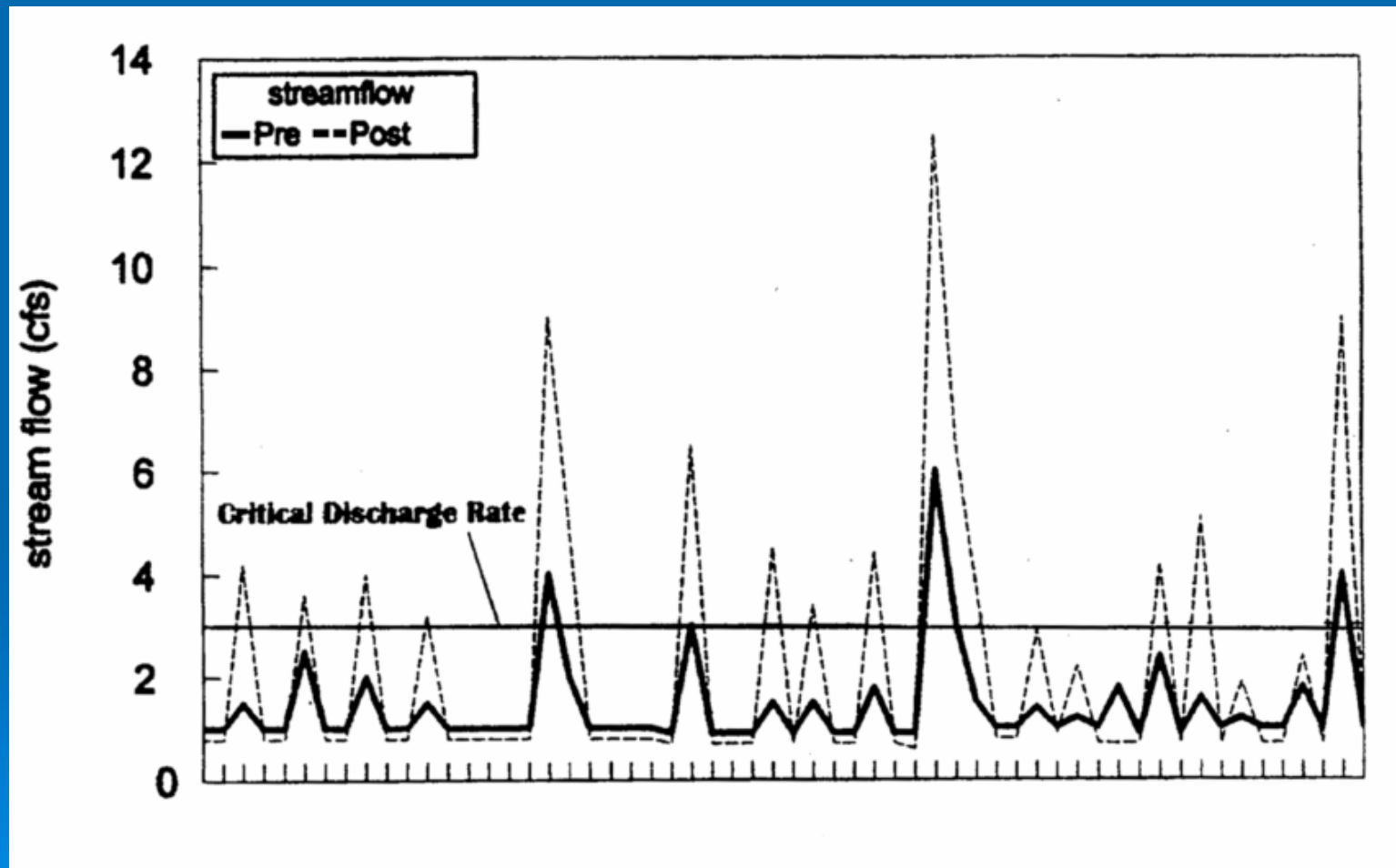
Urban Runoff



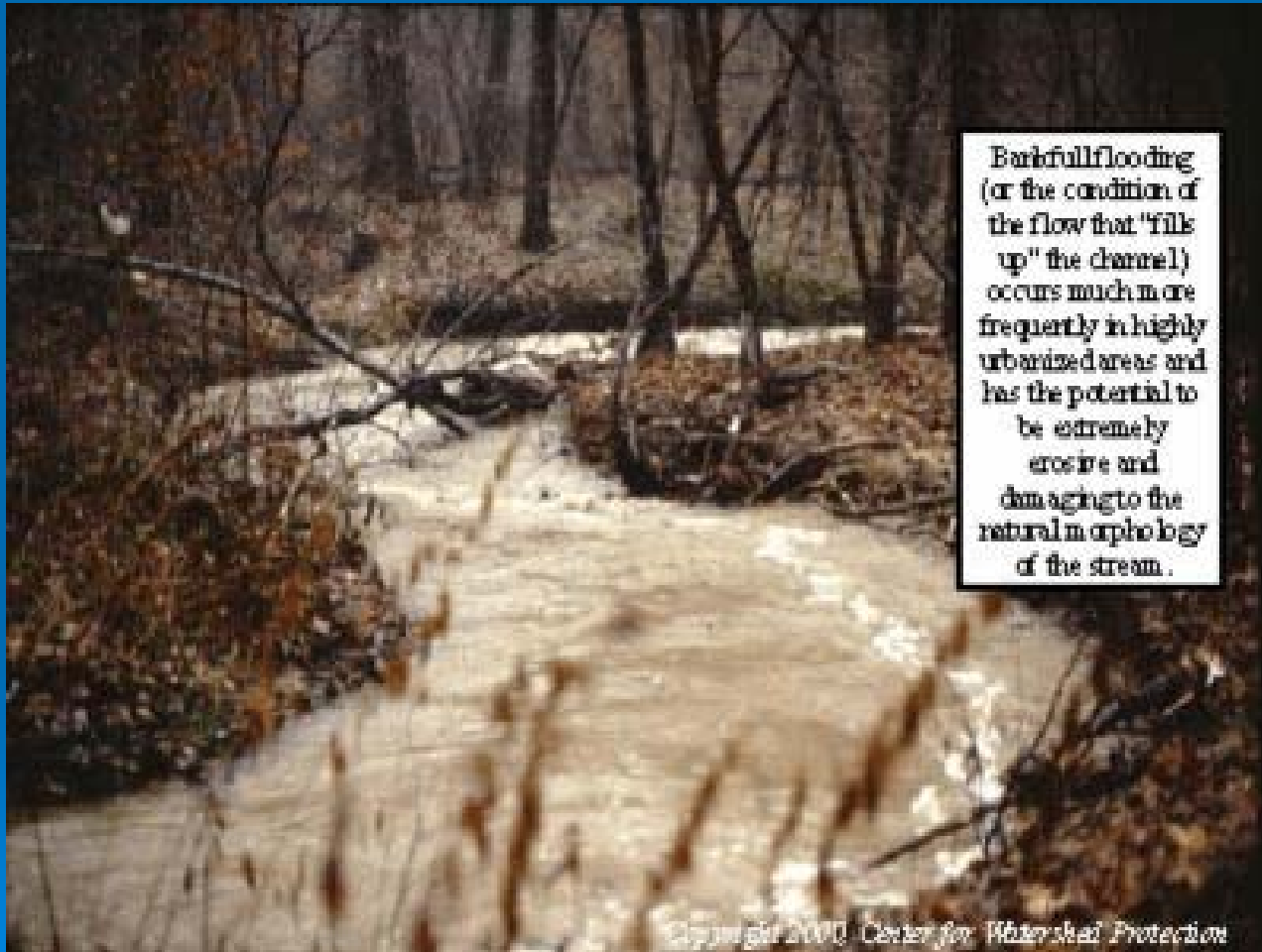
Increasing storm water runoff causes . . .

- Altering of floodplains
- Increasing frequency of peak stream flow rates and flooding
- Eroding stream banks
- Silting streams
- Changing aquatic habitat
- Increasing water treatment & costs
- Decreasing groundwater recharge
- Transporting pollutants to downstream waters

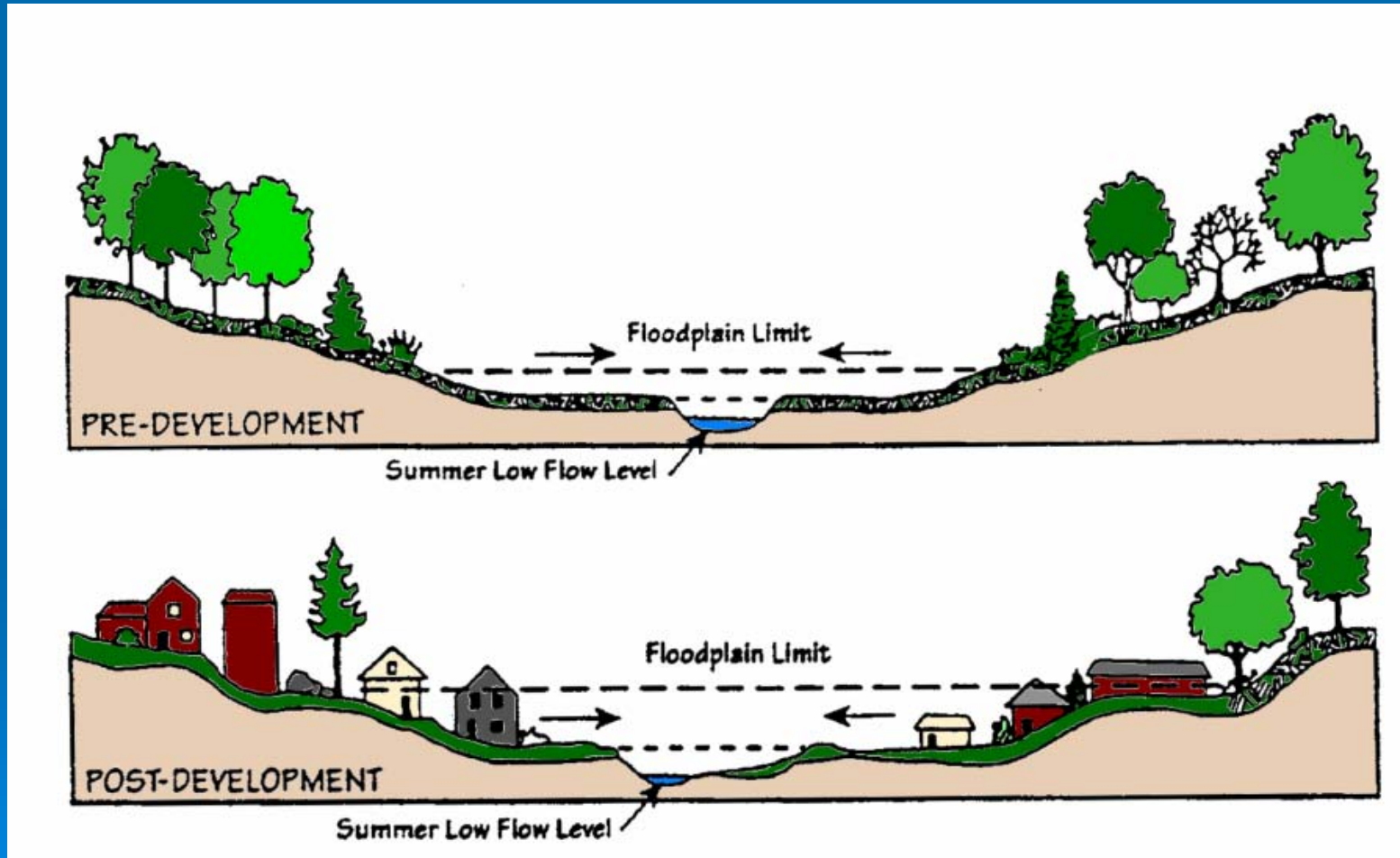
Frequency of Flows Greater Than Peak Discharge Rate (Pre- and Post-Development)



Bankfull Discharge



Floodplain Alteration

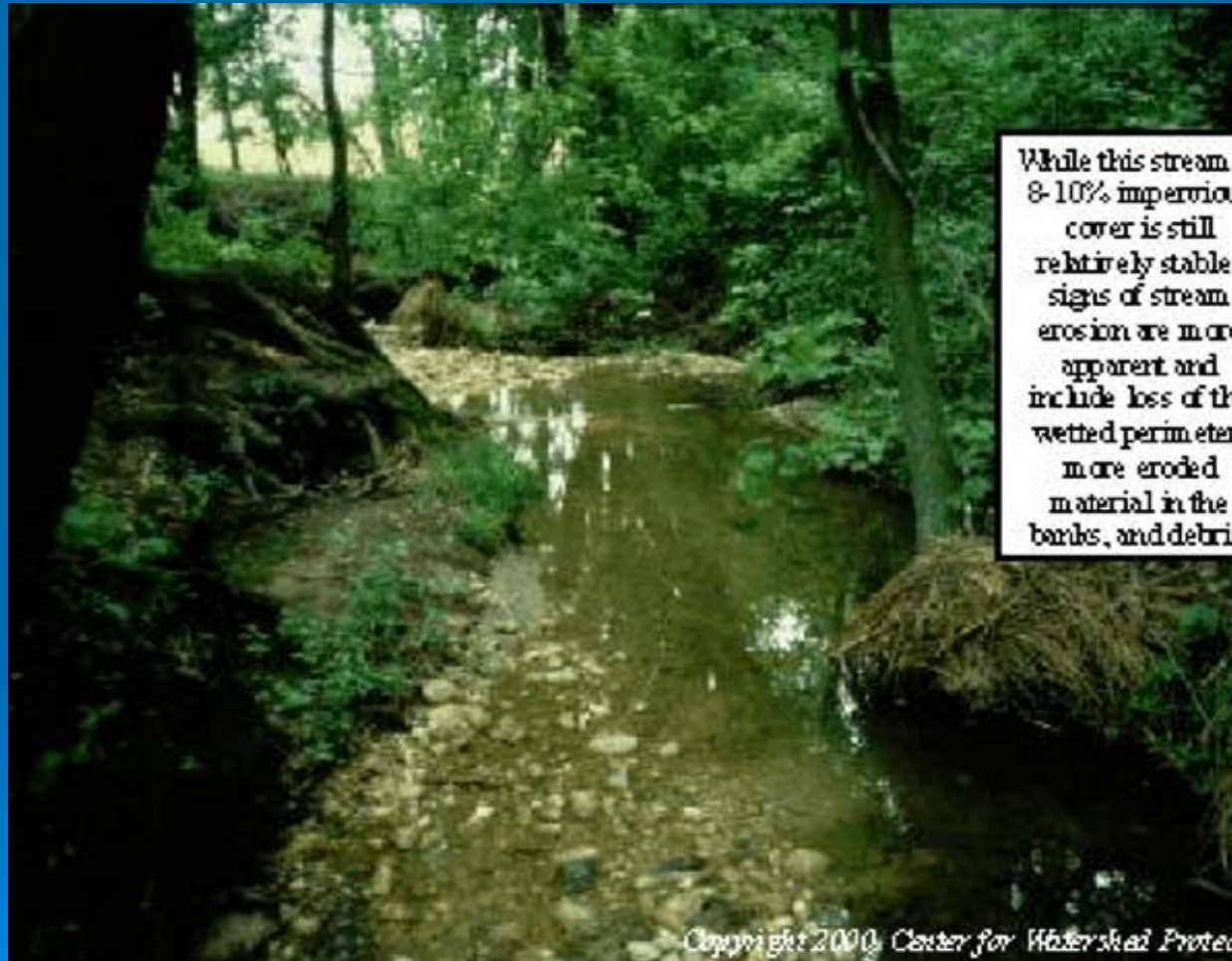


Effects of Impervious Cover

In watersheds with less than 5% impervious cover, streams are typically stable and pristine, maintaining good pool and riffle structure, a large wetted perimeter during low flow, and a good riparian canopy coverage.



Effects of Impervious Cover



Effects of Impervious Cover

At 10% impervious cover, the stream is slightly more visibly impacted. The stream shown here has approximately doubled its original size, tree roots are exposed, and the pool and riffle structure seen in sensitive streams is lost.



Effects of Impervious Cover



Effects of Impervious Cover



Effects of Impervious Cover



Effects of Impervious Cover

Urban and Industrial Stormwater: Typical Pollutants

- Suspended solids/sediments
- Nutrients (nitrogen & phosphorus)
- Metals (copper, zinc, lead, and cadmium)
- Oil & greases (PAHs)
- Bacteria
- Pesticides & herbicides
- Temperature

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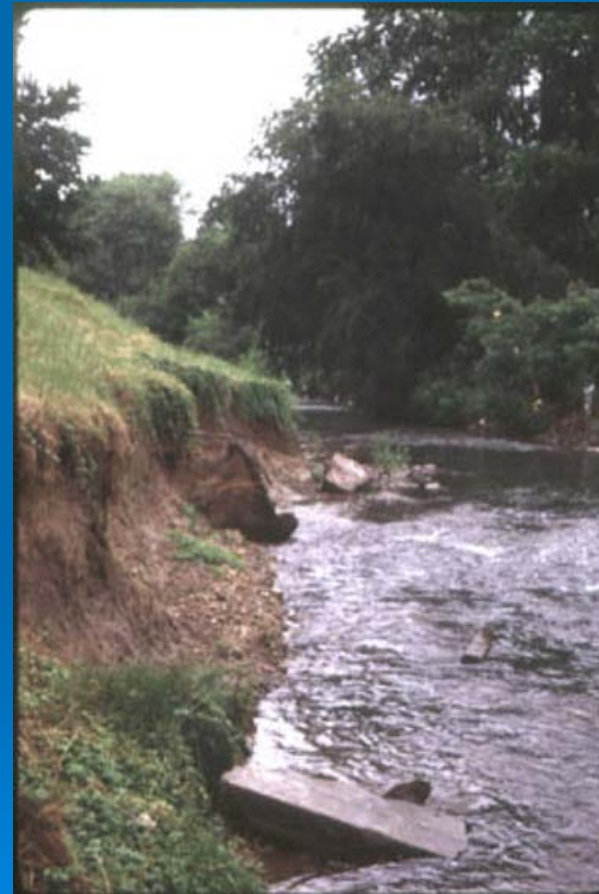
Who is Responsible? All of us . . .

- Federal Government – Clean Water Act
 - (i.e., drinkable, fishable, swimmable, usable)
- State Government – Act 167; Chapter 93
- Local Government – Land Use Ordinances & Planning/Zoning
- Residents – lifestyle, awareness, best management practices (BMPs)

Results of not addressing the issue . . .

- Social health impacts
- Loss economic development
- Environmental degradation
- Financial burden i.e., taxes, fees, licenses
- Prevention costs less than the cure
- Pollution
- Quality of life

What can you do as a homeowner?



What you can do to help

- Educate family, friends and neighbors
- Good housekeeping practices
- Best management practices (BMPs)
 - Structural
 - Nonstructural

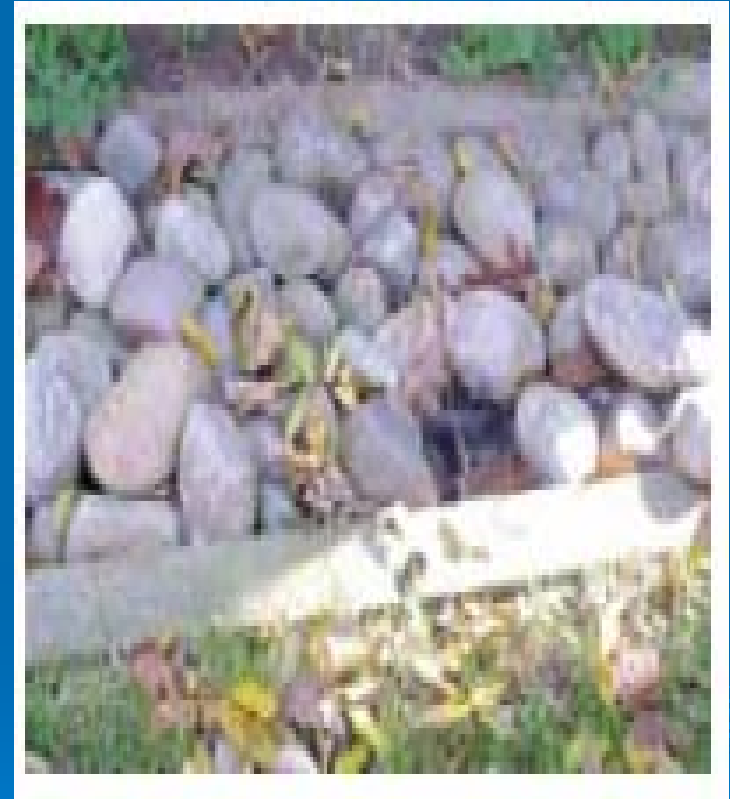
Best Management Practices

- Dry Wells
- Landscaping
- Rain Barrels
- Rain Gardens
- Riparian Buffers



Dry Wells

Dry wells are small, excavated pits, filled with stone or gravel that allows runoff to infiltrate (soak) into the surrounding soil. The stormwater can come straight off of the roof of your house via a downspout or indirectly to the dry well through a grassy swale or it can travel directly into the well through a pipe.



Landscaping



Trees improve stormwater management, reducing the amount of polluted stormwater that normally would go directly into storm drains. Tree roots also allow rainwater to filter back into the soil, recharging the often thirsty water table.

Rain Barrels



A rain barrel collects and stores stormwater runoff from rooftops. By holding) the runoff during a rain event, you can help reduce sewer overflows to our creeks and rivers, our drinking water source. Also, the collected rain water can be reused for irrigation to water lawns, gardens, window boxes or trees.

Rain Gardens

A rain garden uses native plants and landscaping to soak up rain water that flows from downspouts or over land during a rain event.

The center of the rain garden holds several inches of water, allowing runoff to slowly seep into the ground instead of flow directly into the nearest storm drain, creek river.



Riparian Stream Buffers



Establish a streamside (riparian) buffer—a vegetated area along the edge of the stream that protects it from pollution and erosion. This buffer zone absorbs pollutants and nutrients that would otherwise end up running directly into the stream.

Good Housekeeping



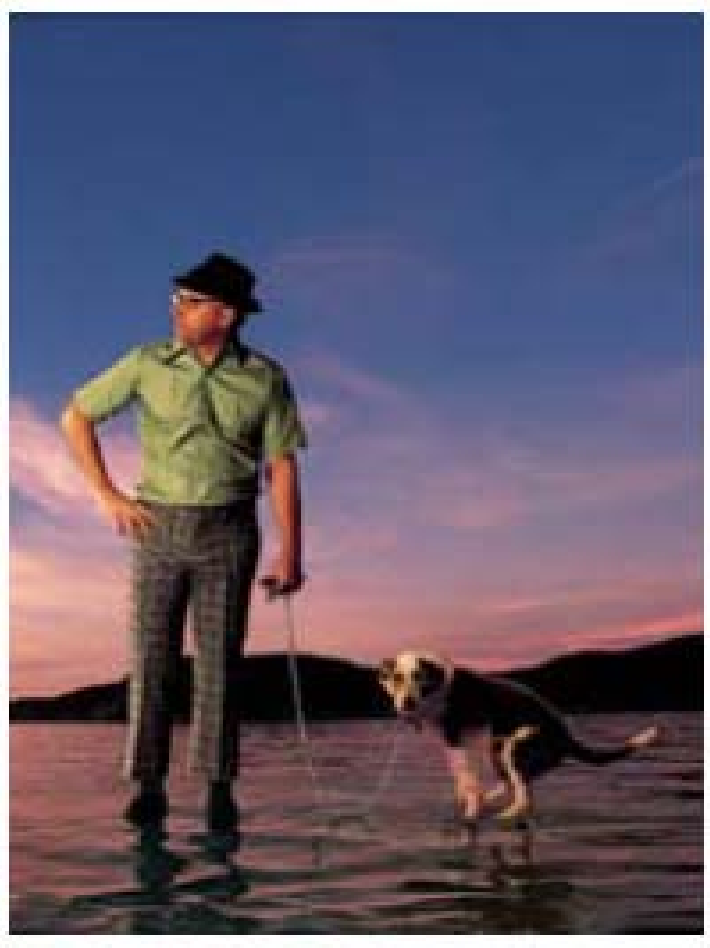
- Lawn & garden care
- Pet waste
- Vehicle maintenance
- Vehicle washing
- Winter de-icing

Lawn & Garden Care

- When fertilizing lawns and using other common chemicals, such as pesticides and herbicides, remember you're not just spraying the lawn. When it rains, the rain washes the fertilizers, pesticides and herbicides along the curb and into storm drains, which ultimately carry runoff into streams and lakes, our drinking water source.



Pet Waste



- When animal waste is left on the ground, rainwater or melting snow washes the pet waste into our storm drains or directly into our local creeks. The disease-causing bacteria found in pet waste eventually flows from our local waterways into streams and lakes, our drinking water source.

Vehicle Maintenance

- By maintaining your car properly you can prevent oil leaks, heavy metals and toxic materials from traveling from your car onto the street. Rain washes oil and other hazardous chemicals from the street into the nearest storm drain, ultimately draining into streams and lakes, the source of drinking water for many.



Vehicle Washing



- Car washing is a common routine for residents and a popular way for organizations, such as scout troops, schools, and sports teams to raise funds. However, most of the time, cars are washed in driveways and parking lots which allow wash water (dirty water) to find its way to the nearest storm drain, ultimately draining into our drinking water sources.

Winter De-icing



- As snow piles up in the winter, we oftentimes turn to salt to melt snow and ice. Salt, however, causes adverse environmental impacts, especially on our streams and rivers, our drinking water source in Philadelphia. Excess salt can saturate and destroy a soil's natural structure and result in more erosion to our waterways. High concentrations of salt can damage and kill vegetation.

Our Vision

The Watershed Alliance of York (WAY) has a vision for York County—“Clean Water for All.” We want to unite the County with its water environment, creating a green legacy for future generations while incorporating a balance between social, economic, and environmental quality of life.

Cooperation

In order to achieve the goal of “Clean Water,” we must work together with our partners, local residents, homeowner associations and municipalities on managing stormwater in a manner that will restore our watersheds.

Responsibility

We can all play a part in taking an active role in converting our streams, creeks and surrounding green spaces into healthy systems that local residents, along with native fish and wildlife, can use as amenities, sanctuaries and habitats.

Stewardship

As a homeowner, your part can be as simple as maintaining your car properly or building a rain garden on your lawn. This program provides you with the steps and actions you can take to improve stormwater management on your property or in your community.

Sustainability

These stormwater management projects will not only help protect our valuable drinking water sources, but they will help green the county, restore our waterways and improve quality of life for all residents.

For More Information Contact

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