

In Region, Pollution Rises as Rain Falls

Leaders Pledge to Tackle Growing Threat to Bay

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It begins with just a few droplets falling on rooftops and pavement, gathering force as they slip down drain spouts and gutters, then disappear into concrete culverts marked "Chesapeake Bay drainage."

From there, the currents swell into small rapids that carve canyons from streambeds and push deltas of mud into creeks and rivers. By the time rainfall from a single storm reaches the bay, it can carry 10,000 tons of dirt and grit and millions of pounds of toxins and nutrient pollution.

Stopping Rainwater Pollution Where It Starts

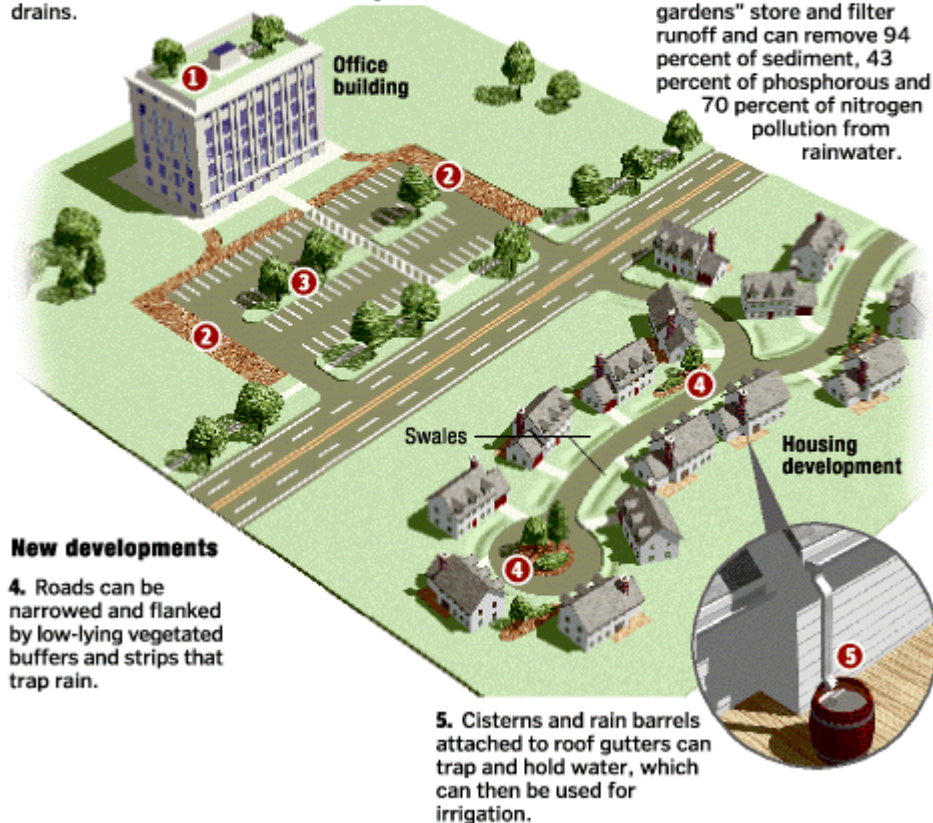
Officials from Maryland, Virginia, Pennsylvania and the District are promoting low-impact development techniques to curb excess rainwater runoff throughout the Chesapeake Bay watershed. Runoff from rooftops, driveways, streets and other hard surfaces contains nitrogen and phosphorous pollutants.

Redevelopments

1. Rooftops can be planted with trees, grasses and other bushes to stop rainwater from flowing into streets and storm drains.

2. Porous materials can be used for roads and sidewalks to allow more rain to infiltrate the ground.

3. Parking lots can be reconfigured with grass strips between lanes and vegetation on the perimeter. Such "rain gardens" store and filter runoff and can remove 94 percent of sediment, 43 percent of phosphorous and 70 percent of nitrogen pollution from rainwater.



New developments

4. Roads can be narrowed and flanked by low-lying vegetated buffers and strips that trap rain.

5. Cisterns and rain barrels attached to roof gutters can trap and hold water, which can then be used for irrigation.

SOURCE: U.S. Environmental Protection Agency

BY DOUG STEVENS—THE WASHINGTON POST

Rain, channeled off the growing mantle of development in the Washington region, is the fastest-growing source of contaminants to the watershed. More than factories and

sewage plants that pour contaminants from outflow pipes or farmers who over-fertilize their fields, scientists say that the man-made systems for handling rainwater pose the greatest future threat to the quality of the region's waterways.

Today, officials from Maryland, Virginia, the District and Pennsylvania will announce plans to tackle what may be the most intractable problem facing the bay cleanup effort.

Using state and federal land, they plan to model reengineered construction designs that allow rainwater to remain on site, soak in and replenish groundwater supplies, rather than pipe it to detention ponds. They also note the need to find funding sources that will help local planning departments and developers embrace the new designs and technologies, which could be especially costly in urban areas where old systems must be retrofitted.

"From flooding, stream bank erosion, [temperature increases] in the water to reducing the base flow of streams, all of these things are caused by uncontrolled runoff of rain," said Kelly Eisenman-Shenk, a scientist with the Environmental Protection Agency's Chesapeake Bay Program. "If we don't get a handle on this, we won't be able to sustain the progress we've made."

The initiative represents the first major restoration effort announced since the governors of the three bay states and the mayor of the District signed an agreement in July 2000 to correct all the nutrient pollution and sediment problems in the Chesapeake and its tributaries by 2010.

Growth, however, poses an enormous threat to the effort. In one year, rain pouring off streets, roofs and parking lots washes more than 442,000 tons of sand, mud and grit, nearly 3 million pounds of phosphorous and 28.2 million pounds of nitrogen into the watershed, according to the EPA.

The runoff is responsible for fouling nearly 1,600 miles of streams and destroying thousands of acres of habitat for crabs, fish and other aquatic life.

Each new acre of hard surface heaps even more pollution into waterways, making it more difficult for the states to meet pollution reduction goals. Under the bay agreement, the states pledged to preserve 20 percent of the watershed as open space and curb the rate of growth in the region by one-third.

But those efforts alone will not be enough to stem the flow of polluted runoff, which is why officials hope to lead the way in demonstrating new technologies that can dramatically decrease rainwater pollution.

At the heart of the agreement is a dramatic shift in thinking about how best to design home sites and developments to minimize impacts on the environment.

Under the old way of thinking, construction engineers drew development plans so that rainwater was quickly flushed away from buildings and into drainage ponds or nearby creeks. Over time, however, the ponds fill up with dirt and sediment and flood into neighboring streams and communities.

Under the new low-impact construction designs, however, developers aim to leave a site's natural drainage functions intact as much as possible, adding small gardens and vegetation to soak up rainwater.

Larry Coffman, associate director of the Prince George's County Department of Environmental Resources and a national expert on new rainwater drainage techniques, said it will probably take about 10 years for the new ideas to trickle down to local planning departments and builders.

Although local governments may balk at first, he said, if states can lead by example, local planners may come to recognize low-impact designs as useful tools for managing growth and its impact on the environment.

"There's a big emphasis today under smart growth principles to save green space and conserve land," Coffman said. "We also need technology to better protect those green spaces we're going to develop around."

Redeveloping older properties, another principle of smart growth, poses an even bigger challenge because of the cost associated with retrofitting storm drainage systems in urban areas.

Maryland instituted a rainwater management plan this year that requires builders to achieve a 20 percent reduction in rooftop, roads and other hard surfaces in redevelopment projects to curb runoff.

In urban areas such as downtown Bethesda or Baltimore, such requirements could prove so costly that builders may shy away from some projects. So state officials have allowed builders other options.

"It could be a check written at the permit counter to help the program," said Brian Clevenger, deputy director of the Maryland Department of the Environment's water division, which wrote and oversees the rainwater plan. "Or it could be in-kind contributions, like stream restorations, that will still help them meet these goals."

Ultimately, however, officials with the bay cleanup effort say a huge infusion of funds will be needed to help local planning departments and developers embrace new low-impact designs and technologies.

In Maryland and Virginia, a handful of municipalities, including Montgomery County, Takoma Park, Prince William County and jurisdictions in the Hampton Roads area, have established utility taxes or fees for maintaining old storm drainage systems.

In many cases, however, officials are reluctant to establish utilities funded by special taxes or dedicated funds to do such work, fearing that it would drive away residents and businesses.

"Given the magnitude of the problem, there needs to be widespread understanding and acceptance of these practices," said Ann Swanson, executive director of the Chesapeake Bay Commission, which is leading the bay cleanup. "We have to look for new opportunities for funding to deal with this."

Environmental groups are lobbying state and congressional leaders throughout the watershed to support federal legislation that could dramatically increase funds for land conservation and help municipalities incorporate new drainage techniques into development and redevelopment projects.

Such techniques could go a long way toward helping the cleanup, proponents say. Scientists estimate that rain gardens -- patches of vegetation built into parking lots and home sites that trap water and allow it to soak back into the ground -- can trap 94 percent of the sediment, 70 percent of nitrogen and 43 percent of phosphorous that is washed off the land by rain.

Theresa Pierno, Maryland director of the Chesapeake Bay Foundation, said political leaders from the region need to push harder for new funds from the federal farm and surface transportation bills and other measures.

"It's going to take substantial resources, and I think we know how to deal with some of these problems," Pierno said. "We need the federal government to step up and recognize this is an important issue that should be funded."

Bay program officials estimate that under one version of the farm bill that is expected to be considered in the Senate this week, the federal commitment to the program's budget could increase from \$30 million to \$144 million annually.