The Monmouth County Mosquito Extermination Commission may have a truck available to assist local municipalities in cleaning catch basins and outfall pipes (see "For More Information").

Many communities label storm drains to remind residents not to use the inlets as waste receptacles.

WHAT ELSE CAN BE DONE?

Aside from implementing the measures described above, communities can take additional steps to prevent stormwater from becoming a problem. One effective measure is to steer new development away from drainage pathways. Greenways and drainage easements can also be effective tools. Another is resident education. Labelling storm drains with eye-catching graphics lets people know where the drains empty and reminds them not to use the inlets as waste receptacles. Finally, municipalities can adopt stormwater ordinances. For example, the model ordinance developed for the Manasquan watershed stipulates that there be no net increase in the speed or volume of stormwater delivered to local streams.

These actions and others that promote infiltration, control water flow, and remove pollutants guarantee stormwater's continued role as a vital natural resource.

FOR MORE INFORMATION

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Monmouth County Mosquito Extermination Commission
732.542.3630

Further References:

Mitchell, M. "Toward Sustainable Communities," Erosion Control: Products and Services Directory 2002.

Scholz-Barth, K. "Green on Top," Urban Land, June 2001.

NJDEP Stormwater and NPS Pollution: www.njstormwater.org

Stormwater Management Resource Center: www.stormwatercenter.net

Stormwater and Nonpoint Source Pollution Control Best Management Practices Primer. Monmouth County Planning Board, 1996.

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Printed on Recycled Paper 2001
Reprinted 2005

MONMOUTH COUNTY PLANNING BOARD'S

ECO-TIPS:

STORMWATER MANAGEMENT

INTRODUCTION

The water that originates from rain, snow or other precipitation is known as stormwater. Stormwater can be an asset, replenishing our streams and reservoirs and nourishing our crops. It can also be a problem, contributing to flooding and amassing pollutants as it travels over land and into our drinking water. Careful management of the landscape can help to ensure that stormwater remains a valuable resource rather than a destructive force.

WHY MANAGE STORMWATER?

As our county becomes increasingly urbanized, water that previously infiltrated the soil now runs off impervious surfaces such as parking lots, roofs and even turf. Groundwater recharge is thwarted, causing streams to dry out, drinking water supplies to diminish and vegetation to suffer. In addition, without the adequate infiltration of stormwater, overland runoff accumulates more rapidly in streams and rivers causing flooding, stream channel widening and streambank erosion.

Stormwater runoff often picks up pollutants as it travels over roadways, lawns and parking lots. Common contaminants include motor oil, lawn chemicals, trash, and organic debris. Because most storm drains empty directly into our waterways, these contaminants typically receive no intervening treatment.

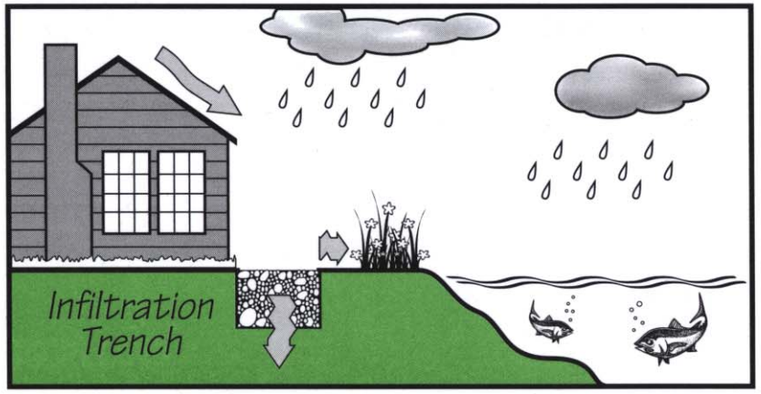
Stormwater management can help achieve the following goals: maintaining or increasing infiltration of water, controlling the extremes of stormwater flow, and removing pollutants from runoff. A number of the most effective management practices and policies are described below.

PROMOTING INFILTRATION

Limiting the percentage of impervious cover (e.g., pavement, buildings, and compacted soil) at a site helps reduce runoff and promote the infiltration of stormwater.

It is beneficial to minimize the area of disturbance during construction. Once topsoil has been compacted or removed, infiltration is much less effective. By the same token, it is essential to keep as many trees as possible to maintain the uptake of water.

When building a new home or making changes around an existing property, try to reduce the amount of pavement. In many cases, gravel, interlocking stones, or brick can be substituted for concrete and asphalt. It may also be suitable to use porous pavement for walkways and low-volume traffic areas such as alleys and overflow parking lots.



Infiltration trenches can be used as an alternative to drainage pipes and gutters.

Porous pavement looks like conventional asphalt; however, it lacks fine aggregate stones, enabling infiltration.

Impervious surface coverage may be decreased by minimizing a building's footprint. To do so, new homes and stores can be built upward instead of outward. For commercial and office space, parking decks can be constructed rather than expansive lots; and, if zoning allows, the decks can be located under the commercial space. It may also be possible to negotiate shared parking between adjacent land uses that have different peak parking periods.

To curtail runoff, infiltration trenches can be used. They are long, thin channels (2-3 feet deep) filled with coarse aggregate. These trenches can be installed near parking lots or buildings and can be buffered with native vegetation. They can be used as an alternative to drainage pipes and gutters that divert stormwater from roofs.

RE-THINKING ROOFS

A "green roof" is a novel approach to roof design that can help to limit stormwater runoff and enhance physical surroundings. Instead of asphalt shingles or gravel, a green roof consists of a waterproof liner, a layer of soil, and a variety of drought-resistant plants. Although it doesn't allow groundwater recharge, this building technique permits the uptake of water by the soil and plants that comprise the roof system. It provides the added benefits of improving the energy efficiency of buildings and moderating air temperature. Popular in Europe, green roofs have been used in the United States at Chicago City Hall, The Gap headquarters in California and the Fencing Academy in Philadelphia.

CONTROLLING FLOW

Cisterns and rain barrels have long been used to intercept water from roofs. Collected water can be used to irrigate a yard or can be incorporated into a controlled release system for managing stormwater.

Vegetated drainage swales help to mimic natural drainage patterns at disturbed sites. They are strategically placed depressions that slow the movement of runoff. The meandering path of the swale helps to lengthen stormwater's travel time. Willows and other deep-rooted, native plants in the swale enable biofiltration and encourage transpiration. Small dams and basins can be added to the system to further slow water and hold sediment.

Detention basins are excavated ponds or depressions that store and slowly release stormwater. Retention basins also store and release stormwater; however, some water remains at all times. Aside from controlling the flow of stormwater, both structures allow for some settlement of pollutants.

REMOVING POLLUTANTS

Shielding compost piles, manure and other sources of pollution from contact with stormwater is one of the simplest ways to maintain water quality. Installing filters in storm drain inlets to capture oil, grease and sediment, as well as attaching hoods to prevent the influx of trash and debris, are other means of excluding pollutants from stormwater. The use of oil-grit separators is another way to reduce contamination. This technology has been used at the Carleton Homes development in Freehold and the Lexus of Monmouth dealership in Oakhurst. At sites where land uses and activities generate highly contaminated runoff, sand filters can be used to strain pollutants out of stormwater. Such a filter was installed, in conjunction with an oil-grit separator, at a rest area off Route 287 in Morris County and has proven to be very effective.

The continued ability of these devices to function properly depends on their periodic maintenance. For example, if a catch basin has a debris-capturing device in place, trash may be cleared by hand. Otherwise, a vacuum truck may be needed to remove sediment from the inlet.