

What's Happening to the Water Cycle?

As we develop our land and increase the amount of paved surfaces and buildings (known as impervious cover), the water cycle is changed. Less rainfall and snowmelt sinks into the ground and more water flows rapidly over the land into our lakes, rivers and estuaries. Stormwater runoff can lead to increased flooding, erosion and pollution and decreased groundwater recharge during dry periods.

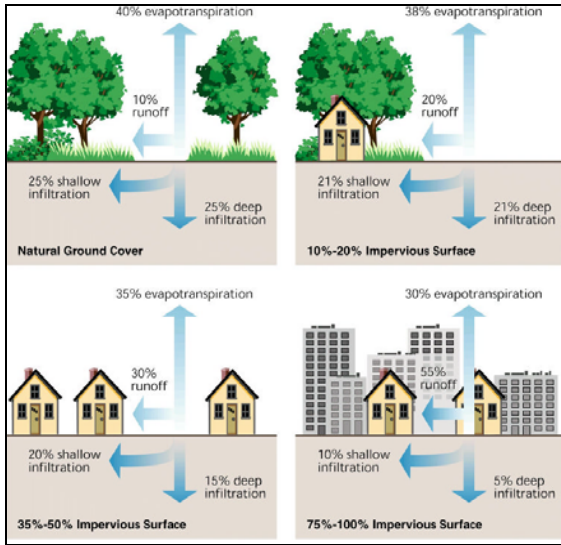


Photo: FISRWG

As impervious surfaces increase, the problems associated with stormwater quality also increase. Stormwater can contain pollutants such as sediment, nutrients, bacteria and chemicals that can threaten aquatic health, and contribute to the loss of water dependent recreational activities. Unmanaged stormwater is recognized nationally as the leading cause of water pollution today.

Conventional methods of land development collect and convey stormwater quickly into a series of drains and pipes that flow directly into the closest waterbody with little or no water quality treatment.

How can we help? Consider Pervious Pavement!

Low Impact Development (LID) techniques manage stormwater runoff by mimicking the natural movement of water in the environment. A great way to recharge groundwater resources, decrease the volume of stormwater runoff, and improve water quality is to consider **INSTALLING A PERVIOUS PAVEMENT** patio, walkway, or driveway. Pervious pavements are designed to allow water to percolate through the pavement into the ground. Installing pervious pavement is an easy way to make your home environmentally friendly!

Why Pervious Pavement?

Installing pervious pavement can reduce the amount of stormwater runoff and improve water quality in your community. Infiltrating stormwater runoff through pervious pavement can help to:

- Filter nonpoint source pollutants from paved areas and prevent them from flowing into nearby waterways
- Recharge local groundwater resources
- Protect rivers and streams from erosion
- Help to control local flooding
- Help to reduce the need for sewer upgrades by reducing the amount of stormwater entering sanitary sewer lines

Pervious pavements can be used for a variety of purposes including driveways, patios, sidewalks, roads, and parking areas. The type of product should be chosen by the intensity and frequency of use the area will receive.

What is Pervious Pavement?

Pervious pavements allow precipitation to infiltrate on site, close to where it falls. These products are part of an engineered stormwater system and should be professionally installed.

Pervious concrete and **pervious asphalt** have compositions similar to traditional pavement, without the fine particles. This creates open areas in the mixture that allow water to drain through the material and into the ground. These products can be used in most of the same areas as traditional concrete and asphalt but should be avoided in areas with high sediment loads, such as soil or mulch storage areas.



Photo: CT DEP

Concrete block pavers and **concrete grid pavers** are not permeable materials but contain spaces in between the blocks or grids to allow for infiltration. These pavers are best used for parking areas, driveways, patios, and sidewalks.



Photo: CT DEP

Plastic grid pavers contain void areas for grass or gravel, which allow water to infiltrate into the soil, while still providing support for vehicles. Often made from recycled materials, these pavers are best used for overflow parking lots, pathways, and driveways.



Photo: CT DEP

How Pervious Pavements Work

Pervious pavements require an engineered subsurface to allow for adequate infiltration into the ground. A typical installation includes an uncompacted subsurface recharge bed

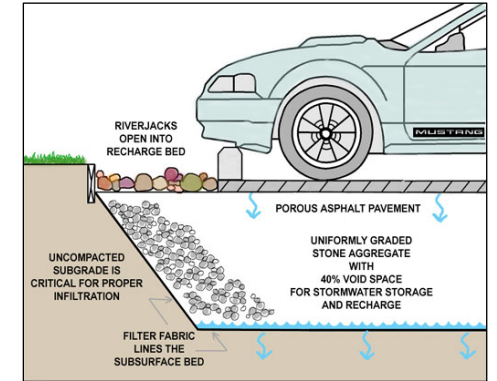


Photo: Cahill Associates

overlaid by the pervious product. In order to function properly, appropriate soil types are necessary beneath the recharge bed and the groundwater table needs to be deep enough to allow for infiltration. Environmental conditions may restrict the use of pervious pavements in certain areas so it is recommended that they be professionally designed and installed.

Residential Options for Pervious Pavement Projects

Permeable pavements are a great option for many residential projects including:

- Driveways
- Walkways
- Patios
- Sidewalks
- Shoulder parking
- Pool areas



Photo: UCONN

By minimizing the amount of impervious cover on your property through the use of pervious pavements, you can personally make a difference in the health of Connecticut's rivers, lakes, streams, and estuaries!

Common Questions About Pervious Pavement

Do pervious pavements work in the winter?

Properly designed pervious pavements can perform better than traditional pavements in the winter months. Unlike traditional pavements, water does not pool on pervious pavements – it infiltrates into the ground. This prevents snow and ice from refreezing on the surface and organic activity in the soils prevents the recharge bed from freezing. Pictures from a University of New Hampshire Stormwater Center study* compare two 25°F parking lots after plowing:



Pervious Asphalt



Traditional Asphalt

Pervious pavements should not be treated with sand, to prevent clogging the infiltration spaces. Studies have shown that pervious pavements can use up to 75% less salt for deicing purposes than traditional pavements.

How do you maintain pervious pavements?

Pervious pavements should be vacuumed with a specially designed vacuum 2-4 times a year to remove debris and excess sediments from the void spaces. Although pervious pavements can still infiltrate water when they are partially clogged, proper maintenance is important to maximize water quality benefits.

How much does pervious pavement cost?

The costs of pervious pavement can vary, depending on the type of pavement, soil types and depth to groundwater, and the size of the project. The initial costs may be higher than traditional pavements but this is often offset by savings in infrastructure costs such as stormwater ponds and curbs, and less need for deicing in the winter.

Want to Know More? Click to Explore!

Resources in Connecticut:

Connecticut DEEP's Watershed Management Program:

www.ct.gov/dep/watershed

Connecticut DEEP's 2004 Connecticut Stormwater Quality Manual:

www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654

UConn's Nonpoint Source Education for Municipal Officials (NEMO) Planning for Stormwater web site:

www.nemo.uconn.edu/tools/stormwater/index.htm

UNH Stormwater Center Resources:

Main web site:

<http://www.unh.edu/erg/cstev/>

Winter Maintenance Guidelines for Porous Pavements:

http://www.unh.edu/erg/cstev/pubs_specs_info/winter_maintenance_fact_sheet.pdf

*Publications, Specifications, and Information on Pervious Pavements:

http://www.unh.edu/erg/cstev/pubs_specs_info.htm

Environmental Protection Agency Resources:

The EPA's Green Infrastructure Web Site – Permeable Pavements:

<http://cfpub.epa.gov/npdes/greeninfrastructure/technology.cfm#permpavements>

The EPA's LID Web Site Provides Information on Permeable Pavements and LID Costs:

<http://www.epa.gov/nps/lid/>

Other Resources:

An article on the longevity of pervious pavements in the journal *Stormwater*:

<http://stormh2o.com/may-june-2003/pavement-porous-bmps.aspx>

Additional Town Information:

Including contacts and local resources

Fourth Brochure of the LID Series

For more information contact Connecticut DEEP's Watershed Management Program:

(860) 424-3020

<http://www.ct.gov/dep/watershed>

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Rainfall as a Resource

A Resident's Guide to Pervious Pavement in Connecticut



This pervious pavement sidewalk at Bushnell Park in Hartford was funded in part by a Section 319 Clean Water Act Grant. Photo: CT DEEP



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