



## Help • Prevent **Erosion**

Most people live in cities and suburban areas. These areas are characterized by acres of hard surfaces -- roads, rooftops and parking lots. In contrast to forests and fields, which allow rainwater to soak in, these impermeable surfaces force more and more rainwater to run off. Every storm increases the volume and velocity of rainwater runoff. Cities experience nine times more runoff than wooded areas, causing flooding, topsoil and streambank erosion, and choked waterways.

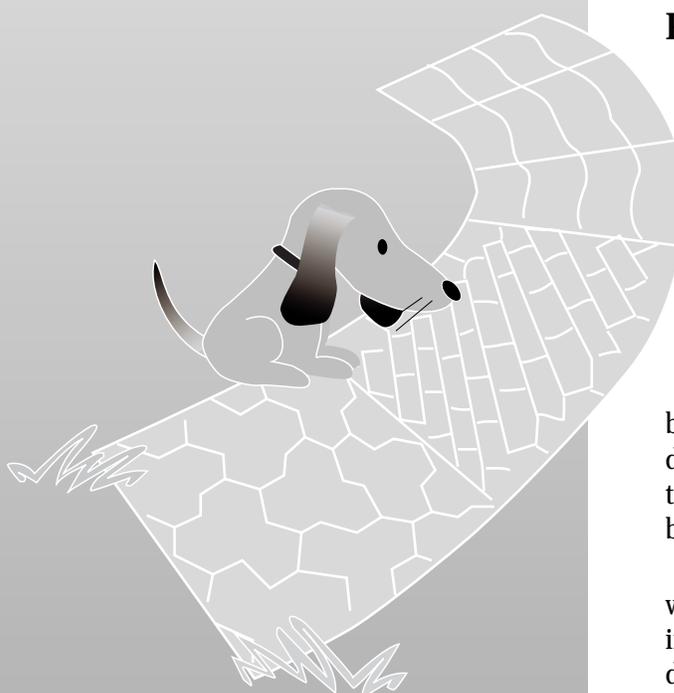
Of course, we can't live without driveways, sidewalks or patios. But water from paved surfaces and rooftops can degrade nearby bayous. The waterway may be out of sight, but underground storm drains carry rainwater runoff from the impervious surfaces surrounding your home directly into a nearby bayou. By using paving surfaces that allow rainwater to soak into the ground, you can reduce excessive rainwater runoff and help prevent erosion.

### Permeable Paving Surfaces

A paving surface that allows water to soak in may seem impossible, but many materials provide the durability of concrete while allowing rainwater to filter down into the ground. If you're planning a new patio, walkway or driveway, and your home site has favorable soil conditions, there are several attractive alternatives to concrete.

Wood decks, usually installed for their functional good looks, can serve as a form of porous pavement. Redwood and treated Southern pine are as durable as most other paving surfaces. Decking allows rainwater to soak into the ground beneath it, and the space between the planks provides ample room for precipitation to drain directly onto the soil surface. As long as minimal air space is maintained between the soil surface and the decking, wood rot can be minimized.

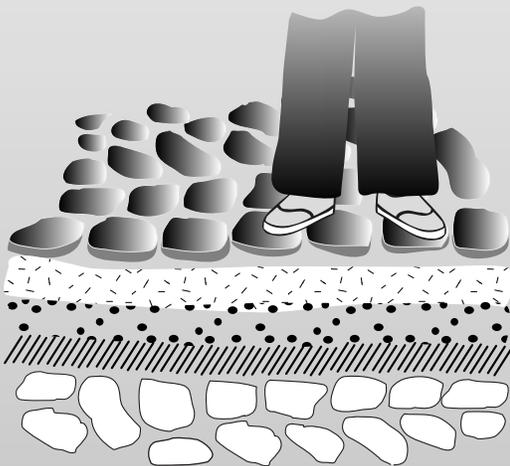
If you are installing a new patio or rebuilding a crumbling sidewalk, you don't need to use the typical slab concrete. Using bricks, interlocking pavers or flat stones, you can construct an attractive, durable walkway. If placed on well-drained soil or on a sand or gravel bed, these modular pavers allow rainwater infiltration. Although chemicals are sometimes used to control weeds growing in the joints between the pavers, some groundcovers can crowd out weeds and add beauty to the paved area.



## What You Can Do

Think about the ultimate destination of rainwater. Consider the erosive force of runoff from the paved surfaces that are part of our daily lives. When you take steps to channel that runoff into areas where it can filter slowly through the soil instead of running directly into storm drains or canals, you help protect our waters.

- Use wood decking, bricks or interlocking stones for walkways and patios.
- Encourage the use of porous asphalt in your community.
- Divert rain from paved surfaces onto grass to permit gradual absorption.



Pre-cast concrete lattice pavers also rest on a bed of sand and gravel and allow rain to soak slowly into the ground. These kinds of paving materials can be used wherever natural soil drainage is good and there are no problems with seasonal high water. Lattice pavers won't work on clay or other soils that are already saturated with water.

Significant strides have been made in developing porous asphalt pavement in the last three decades. This material is similar to conventional asphalt in durability, but it contains a much smaller percentage of very fine particles. As a result, the asphalt allows water to soak through to the base material and into the soil below. Almost twice as much porous asphalt must be applied to achieve the same strength as conventional asphalt. The finished surface must be protected from excess silt and fine sand so that its pores don't become clogged. You can use porous asphalt on your new driveway or encourage its use on streets and parking lots in your community.

## Diverting Rain From Paved Surfaces

Roof downspouts spill onto driveways that are graded down to street gutters, which, in turn, lead to storm drains that dump the accumulated rainwater directly into drainage canals. The destructive torrents of this collected rain have helped erode countless streambanks. In some urban areas, storm drains and sanitary sewers are combined, which means that after a storm, untreated sewage could spill directly into your neighborhood canal.

In places with good soil drainage, you can capture, spread and infiltrate rainwater runoff from paved areas and roofs to minimize the erosive force of the flowing water. Although many sidewalks and driveways are appropriately graded to spread runoff onto lawn areas where it can soak in, steep slopes, poor grading or concentrated flow from downspouts can sometimes cause destructive and unsightly erosion. In these cases, stabilizing the eroding area where runoff leaves the pavement can dissipate the water's erosive force and allow infiltration. Dense vegetation, mulch (possibly held in place by nylon netting) or gravel can serve this purpose.

If the volume of runoff can't be controlled effectively, the runoff can be captured as it leaves the paved surface. The water can be channeled and spread to either a low-lying grassy area or a series of terraces, both of which allow gradual absorption into the soil. In more severe cases, gravel-filled seepage pits along the pavement's edge or perforated drains can be used to take in large volumes of runoff and encourage infiltration.

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