

know where
it goes

take simple
steps to reduce
STORMWATER POLLUTION

Low-Cost Stormwater Management Options for Residential Driveways

Description

Block pavers, plastic grid pavers, and porous asphalt have good track records of holding up over time. While it seems that any of these options are worth the investment, the cost can be prohibitive when compared to competitive pricing of non-porous asphalt. This factsheet will introduce a few low-cost permeable options.

Ribbon Driveways

Stormwater runoff can be reduced from driveways by increasing their permeability. Grass areas, which soak up rainwater, can be incorporated into driveways. A traditional ribbon driveway, also called a two-track driveway or a Hollywood driveway, is designed with two long drivable paths for tires with a strip of grass running through the middle. They are less prone to cracking because they respond more dynamically to frost/thaw cycles than a solid concrete driveway. Since one should avoid driving on grass areas, this design is best suited to short, straight driveways. As with any lawn, ribbon driveways require care in the form of watering and mowing. Cars should not be parked in the same spot on the driveway all day, every day, as this will shade the grass. Whether you are using block pavers, plastic grids, or traditional concrete, ribbon driveways are lower cost because there are less materials required.



Concrete ribbon driveway. Photo courtesy of the City of Burlington, VT.

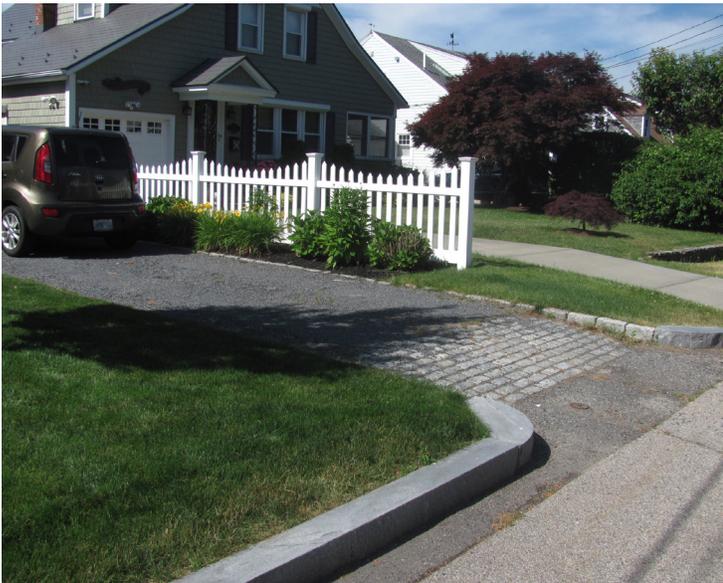


Open-cell design concrete pavers used for a ribbon driveway and walkway. Photo courtesy of the City of Burlington, VT.

Crushed Stone

Driveway design is based on the amount of use a driveway will receive. For light-duty residential use, a narrow-width driveway with a layer of washed crushed stone can be a very affordable pervious option. Installation involves excavating and grading the area before adding the stone aggregate. The crushed stone used for this sort of driveway must be $\frac{3}{4}$ inch to $1\frac{1}{2}$ inch diameter, washed, and (to prevent compaction) angular. Otherwise, over time the stone can become as impermeable as conventional asphalt or concrete.

Borders made of pavers will hold the crushed stone in place. An apron made of an impermeable material will withstand high wear and tear at entrance. The stone will likely still migrate, sometimes into the street where it can cause problems for cyclists and drivers, and must be periodically raked back and replaced to maintain a depth of 3 inches and a



A crushed stone driveway with cobblestone apron and paver border in East Providence.

level surface.¹ If the soil under the stone becomes visible it must be covered by more stone so that erosion does not occur. In the winter, shoveling is recommended over plowing. Additional maintenance can include removal and rinsing of stone, which will help to ensure permeability. It is recommended that loose aggregate driveways not be installed on any slope greater than 2%³ and the grade of the finished driveway must not be higher than the adjacent ground elevation.¹ Crushed stone driveways can cost as little as \$1.30 per square foot.

Bigger Is Not Better

The simplest way to reduce stormwater runoff, and thereby contribute to cleaner waters, is to create less impervious cover. Where possible, choose to install a narrower, shorter driveway. The typical single-lane driveway width for a residential home is 10-12 ft, but a width of nine feet is usually sufficient.⁴ And instead of a two-lane driveway, consider a single lane driveway that widens just before the garage.

Sources

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- ¹ "State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development." Guide. Coastal Resources Management Council & Rhode Island Department of Environmental Management. Rhode Island. 2013. Web.
- ² "Rhode Island Stormwater Designs and Installations Standards Manual." Coastal Resources Management Council & Rhode Island Department of Environmental Management. Rhode Island. 2015. Web.
- ³ Water Resources. "Why Should You Consider a Stormwater Friendly Driveway?" Fact Sheet. Burlington, VT Public Works. Burlington, VT. ND. Web.
- ⁴ "Rhode Island Low Impact Development Site Planning and Design Guidance Manual." Coastal Resources Management Guide & Rhode Island Department of Environmental Management. Rhode Island. March 2011. Web.

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