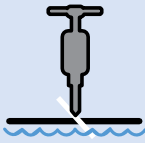




Pavement Removal Fact Sheet



What is pavement removal?

Pavement removal is the replacement of impervious surfaces, such as asphalt and concrete, with grass or native plants or with permeable pavement. Instead of seeping through the soil (infiltrating) and replenishing groundwater, rainfall that falls on driveways, sidewalks, and other impervious surfaces rapidly accumulates in the form of runoff, which often contains pollutants (sediment, chemicals, animal waste, trash, etc.). Large expanses of impervious area are associated with increased stream bank erosion and decreased water quality.



Before



After

What are the benefits to property owners and communities?

Reducing pavement on individual properties can:

- Improve downstream water quality, reduce downstream erosion, reduce stormwater runoff.
- Enhance property aesthetics with landscape vegetation and promote native plant species and habitat.
- Increase potential green space within the community.
- Cool parking lots and improve air quality.
- Reduce pavement maintenance costs and potentially increase home values.

How can you determine if your property is suitable for pavement removal?

- Identify the types and locations of impervious pavements, e.g., driveways and sidewalks.
- While it is raining, observe where the rainwater flows on your property and identify areas that could benefit from reduced runoff through pavement removal.
- Measure the pavement area to be removed and compare it with the minimum area needed to qualify for a rebate.

Qualifying for a rebate

Project	Individual Residence or Individual Members of a Housing Cooperative	Commercial, Homeowner Associations, Condominium Associations, Civic Associations, Multi-Family Dwellings, Nonprofits, Not-for-Profit Organizations, Housing Cooperatives
Pavement Removal	\$6 per square foot	\$6 per square foot (400 square foot minimum)

What are the costs?

The cost of pavement removal varies considerably and is dependent on the scale of the project.

Costs include:

- Rental equipment (excavators, jackhammers, walk-behind pavement saws, and pick axes).
- Contractor, if work not done by property owner.
- Landscaping, debris haul away and disposal.

Can you do this project yourself?

Yes, under most circumstances. But, pavement removal can be labor intensive and requires specialized tools and equipment. You may want to consider hiring a professional designer and a qualified contractor.





Pavement Removal

What is pavement removal?

Pavement removal is the replacement of impervious surfaces, such as asphalt and concrete, with grass or native plants or with permeable pavement and/or pavers. Instead of seeping through the soil (infiltrating) and replenishing groundwater, rainfall that hits driveways, sidewalks, and other impervious surfaces rapidly accumulates in the form of runoff, which often contains pollutants (sediment, chemicals, animal waste, trash, etc.). In urbanized areas, runoff typically enters the storm drain system (underground pipes that carry stormwater to streams) and, ultimately, to the Chesapeake Bay. Large expanses of impervious area are associated with increased stream bank erosion and decreased water quality.

What are the benefits to property owners and communities?

Pavement removal can restore the natural processes by which rainwater infiltrates the ground and replenishes groundwater. Precipitation that lands on pervious surfaces (such as grass or gardens) drains directly through the soil. This reduces the amount of stormwater runoff entering the storm drain system. Pollutants that would otherwise enter streams and rivers with runoff are treated and filtered through the natural processes that occur during infiltration.

Reducing pavement on individual properties can

- improve downstream water quality;
- enhance property aesthetics with landscape vegetation;
- increase potential green space within the community;
- improve air quality;
- reduce stormwater runoff;
- reduce downstream erosion;
- promote native plant species and wildlife habitat; and
- reduce expensive pavement maintenance costs and potentially increase home values.

How can your pavement removal project qualify for a rebate?

To be eligible for a rebate through the Rain Check Rebate Program, the area in which you remove pavement has no minimum size for residential applications and 400 square feet for commercial businesses, homeowner associations, condominium associations, civic associations, multi-family dwellings, and nonprofit or not-for-profit uses.

To alleviate costs, the Rain Check Rebate Program provides a rebate of \$6.00 per square foot up to \$6,000 for residential properties, and up to \$20,000 for commercial businesses, homeowner associations, condominium associations, civic associations, multi-family dwellings, and nonprofit or not-for-profit organizations.



Before



After



How can you determine if your property is suitable for pavement removal?

To find out if your property is suitable for pavement removal, first identify the types and locations of impervious pavements on your property. In most residential areas, driveways and sidewalks contain the largest area of pavement that could be easily removed. While it's raining, observe the drainage patterns (where the rainwater tends to flow) on your property and identify areas that could benefit from reduced runoff through pavement removal.

Next, measure the pavement area to be removed and compare it with the minimum area needed to qualify for a rebate. Adjust the removal location and the amount of pavement to be removed to maximize your rebate benefit.

Finally, identify the desired landscaping or permeable pavement or paver option for the area of interest. Driveways can be replaced with permeable pavers, a grassy strip, or short native vegetation that can withstand being driven over and parked on repeatedly. You can also remove most of the paved driveway, leaving only paved tire strips in place, but you will only receive credit for the portion of the driveway removed. Larger vegetation, such as trees and shrubs, can be included outside of parking areas. You may want to consider replacing paved areas with a rain garden or other landscaping features.

What are the costs?

The cost of pavement removal varies considerably and is dependent on the scale of the project. In most cases, you will have to rent equipment, such as excavators, jackhammers, walk-behind pavement saws, and pick axes from a home improvement center or equipment rental store. Costs for rental equipment can range up to \$500 or more. Hiring a contractor will usually increase costs, which, typically are in the \$2.50 to \$3.50 per square foot range. For a typical 10 foot by 20 foot single car driveway, this would amount to between \$500 and \$700. For a 5,000 square foot parking lot, costs can be expected to range between \$12,500 and \$17,500. Landscaping costs will be determined by the amount and type of vegetation you choose and whether you install it yourself or hire a contractor. There may also be additional costs associated with hauling away and disposing of pavement debris, which may cost up to \$30 per truck load. Approval of your pavement removal project through the Rain Check Rebate Program can help reduce costs.

Can you do this project yourself?

Yes, you can do this project yourself under most circumstances. However, the project can be labor intensive and require specialized tools and equipment to properly remove and dispose of materials and to install landscaping. Purchasing and installing landscaping can also be costly. Therefore, you may want to consider hiring a professional designer and a qualified contractor.

How can you implement the project?

Once you have selected the area of pavement to remove, be sure to address the following items during project planning and implementation.

Identify and avoid utilities

Prior to starting your pavement removal project, find existing underground utilities, such as water mains, telecommunication lines, and gas lines, so you can avoid them. Call Miss Utility at 811 or 1-800-257-7777, or visit their website at www.missutility.net/maryland/ for assistance.

Pavement removal and disposal

You can remove pavement using a jackhammer, pick-axe, walk-behind pavement saw, or excavator. These tools will break the pavement into smaller pieces for easy removal. Whichever technique you use, always wear a face mask, protective goggles, and appropriate clothing and footwear. If using mechanical equipment, make sure you are properly trained in its use. When considering how to dispose of the pavement, recycling and reuse are highly recommended. Alternatively, you can hire a licensed solid waste removal contractor to dispose of the removed pavement.

Gravel base removal and disposal

You can use a shovel and pick-axe to remove the gravel layer under the pavement and dispose of it as described above. In most cases, the gravel layer is compacted; therefore additional labor may be required for removal. If replacing with an alternate permeable pavement or pavers, the existing gravel may be salvaged (left in place) provided it is clean, porous and able to infiltrate water.

Liner removal and disposal

If you find a plastic liner under the gravel layer, be sure to remove it to ensure that water will be able to properly soak into the soil.

Breaking up compacted soils

Soil located under the gravel layer is typically compacted. Loosen the compacted soil and break it up; this will help ensure that water flows easily throughout the soil. To maximize plant growth and drainage, loosen the soil to a depth of at least 6 inches. In most cases, you can use garden tools, such as shovels, for this task.

Soil amendments

Once loosened, the compacted soil base will require enhancement, or amendment, to help support vibrant plant growth. Compost makes an excellent amendment. Spread a 2-inch deep layer of compost evenly across the entire area, then mix the compost with the soil below (to a depth of 6 to 9 inches). The mixed soil creates a superb growth medium within the planting bed. The soil should be tested for pH, and if too alkaline, other amendments may be needed before planting.

Erosion control

Areas where pavement has been removed are particularly susceptible to erosion due to rain and wind, so take care to prevent the loss of soil. Ideally, replanting should take place quickly to help stabilize the area. In cases where this is not possible, you can place mulch or straw on top of exposed soils to reduce erosion. You can protect stockpiled material, such as soil or compost, with a tarp prior to use. In areas with steep slopes, you can use straw bales, silt fencing, or geotextile blankets to prevent erosion.

Planting instructions

The steps and requirements for establishing a garden depend on the quantity and type of plants you select. Before planting, grade the area to ensure that it is fairly level; you can use simple garden tools like a rake to do this. If you plan to install sod, be sure to use a heavy roller to help establish root contact with the soil.

Depending on seasonal conditions, your new plants will probably require regular watering, particularly before the garden or lawn establishes (is thriving on its own). Sod will require watering once or twice a day for the first two weeks, followed by watering every other day for an additional four weeks. The watering needs for native herbaceous (green and leaflike) plants, shrubs, and trees vary and should be adjusted accordingly.

Replacement with permeable pavement

Replacing conventional pavement with permeable pavement or pavers is also an option. Prince George's County provides an additional rebate for eligible permeable pavement projects. Please see the Permeable Pavement stormwater management guidelines for more information.

How should you choose a contractor?

If you decide to hire a contractor for your pavement removal project, choose carefully. Ask potential contractors how much experience they have with removing, disposing of, and replacing pavement with vegetation or permeable surfaces. Experienced contractors should be able to supply references from past clients. Find out if they are insured or bonded or if they are accredited by a recognized organization. Ask potential contractors how much the project will cost, what is included in their services, and whether any additional fees are associated with the disposal of removed material. Ask how long it should take to complete the project and whether their work would be guaranteed. Ask potential contractors what type of system they would recommend for your property and request a written estimate, in advance, that includes materials and labor. Ask whether they will secure any necessary permits. If loud equipment will be used, verify that construction will be in compliance with local rules, regulations, and ordinances.

Is a permit required?

A permit is required for any work performed on a driveway or sidewalk within the public right-of-way (ROW). No permit is required for the removal of less than 500 square feet of asphalt or concrete if it is outside of the public ROW, such as a patio. However, if your pavement removal project (on its own or in combination with a concurrent project on your property) results in more than 5,000 square feet and/ or 100 cubic yards of earth-moving disturbance (such as grading, cutting, and filling), or change in grade of +/- 12 inches a permit is required. Contact the County's Department of Permitting, Inspections and Enforcement for more information: (301) 636-2000 or <https://www.princegeorgescountymd.gov/1024/Permitting-Inspections-and-Enforcement>.



Tire Strips

What maintenance will be required?

Depending on the size of the project, maintenance requirements will vary considerably, but are typically the same as for other types of landscaping projects. The use of native plants and trees are typically associated with lower maintenance costs. After a garden is established, the frequency and amount of watering will depend on the types of plants installed as well as local weather conditions. Regular activities, such as weeding are also recommended; the use of mulch can reduce the frequency and duration of weeding required. Approximately 2 to 3 inches of mulch should be added annually.

Compared with native vegetation, the maintenance requirements for sod are more frequent, especially during the summer months and growing season. Regular watering may be needed even after the turf becomes established; watering early in the morning or later in the evening is most efficient. Apply a steady stream of water to ensure adequate infiltration. If you observe runoff, stop watering as this means that the soil is saturated. When mowing, aim for a grass height of 2.5 to 3.5 inches during the summer and 2 inches during the autumn and spring. Cutting more than one-third of a grass blade will hinder growth and accelerate the loss of soil moisture. Maintaining a higher grass height (by raising the mower blade) will help reduce the frequency of mowing and provide for a more robust lawn.



Grass Driveway

Although occasional maintenance will be required, the replacement of pavement with vegetation, whether sod, small trees, or native plants, will provide countless benefits to both the property owner and the local environment.

There are maintenance requirements for permeable pavement or pavers as well. Please see the Permeable Pavement Stormwater management guidelines for more information.



Using an Excavator to Break Up Pavement



MAINTENANCE SCHEDULE FOR PAVEMENT REMOVAL													
	Two-Track Driveway	Spring			Summer			Fall			Winter		
	Inspect edges	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	
	Fill and stabilize ruts	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	
	Plant Maintenance	Spring			Summer			Fall			Winter		
Native Plants	Annual mulching	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required as Necessary	Required as Necessary	Required as Necessary	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency			
	Weeding		Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency				
	Watering		Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary				
	Pruning as desired	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	
Trees	Mulch upon installation	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	
	Annual mulching		Required at Low Frequency	Required at Low Frequency	Required as Necessary	Required as Necessary	Required as Necessary	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency			
	Watering		Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency				
	Prune limbs	Required as Necessary							Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	
	Pest Control	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	
Sod	Watering		Required	Required	Required	Required	Required	Required	Required				
	Mowing		Required	Required	Required	Required	Required	Required	Required				

Required
 Required at Low Frequency
 Required as Necessary

For more information

While Prince George’s County does not endorse any one method of pavement removal or any particular vendor or contractor, the following information is supplied for your consideration.

Montgomery County Department of Environmental Protection, Permeable Pavement
<https://www.montgomerycountymd.gov/DEP/Resources/Files/PostersPamphlets/pavementremoval.pdf>

Chesapeake Conservation Landscaping Council, Eight Essential Elements of Conservation Landscaping
<http://chesapeakelandscape.org/eight-essential-elements>

Depave.org, How to Depave, The Guide to Freeing Your Soil
<http://depave.org/learn/how-to-depave/>

Virginia Department of Conservation and Recreation, Native Plants for Conservation, Restoration, and Landscaping
http://www.dcr.virginia.gov/natural_heritage/nativeplants.shtml

Brooklyn Botanic Garden, Planting a Native Grass Lawn Step By Step
http://www.bbg.org/gardening/article/planting_a_native_grass_lawn/

Blue Water Baltimore, Pavement Reduction
<http://www.bluewaterbaltimore.org/programs/clean-waterways/waterauditprogram/pavement-reduction/>

Metropolitan Washington Council of Governments Builders Recycling guide
<http://www.mwcog.org/buildersrecyclingguide>

For more information, call 410-974-2941 or visit The Chesapeake Bay Trust (cbtrust.org).