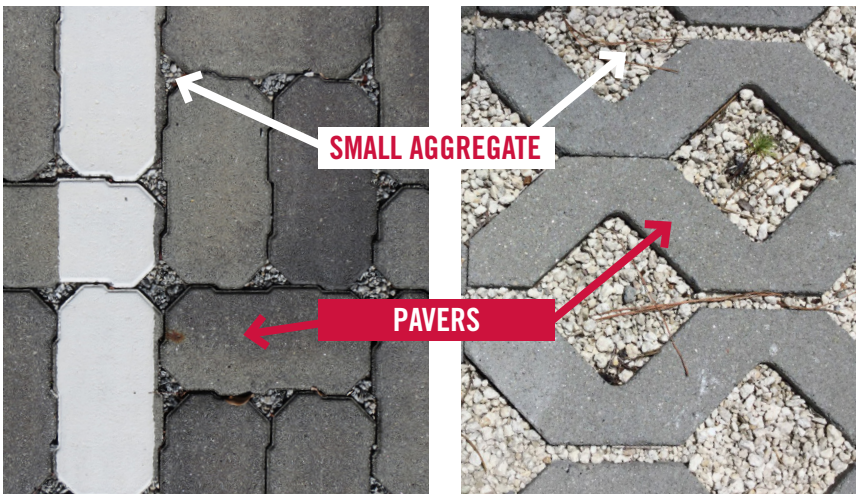
PERMEABLE INTERLOCKING PAVERS FACT SHEET

Permeable pavement systems have structural units that include void, or open, spaces, allowing stormwater to infiltrate and get treated and stored in an underlying gravel base. The stormwater is then filtered through native soils or is discharged through an underdrain. Permeable pavement systems include, permeable pavers (bricks or blocks), along with pervious concrete and porous asphalt. Permeable pavers use pervious void space located between the pavers that is often filled with small aggregate.

Permeable pavement systems are designed to reduce peak flows and volumes of stormwater runoff. They are advantageous for groundwater recharge, particularly in areas where land values are high, as vehicles can drive and park on this stormwater practice. Placement of these systems where in-situ subsoils have an infiltration rate greater than 0.5 in./hr. is recommended. When underlying soils have low permeability, permeable pavement systems can utilize an underdrain to return filtered runoff to the conveyance system. There are many different shapes, styles, and materials used to create the pavers used in these systems. Permeable Pavement is designed to reduce runoff and treat the water quality rain event (1.2 inches); however they can also be designed to handle larger storm events and store larger volumes of runoff. The ratio of impervious area to permeable paver surface area should be no greater than 3:1.

PERMEABLE PAVEMENT POLLUTANT REMOVAL[1]

80%	of suspended solids
50%	of phosphorus
50%	of nitrogen
60%	of metals



As with any type of green infrastructure, permeable pavers require maintenance to ensure continued functionality. It is important to avoid compaction and clogging of these pavement systems, beginning with construction. Undesirable vegetation, sediment accumulation and debris are common culprits of clogged permeable pavement systems. General inspection and assessment of three critical features can keep the practice operational. Street sweeping and hydro-excavation can be effective for source control and routine maintenance of the top layer. Surface cleaning is required to remove debris and undesired vegetation that clog the top layer of the permeable pavement system. Locations that are highly trafficked or near overhanging vegetation may need more frequent surface cleaning to maintain higher infiltration rates.

Three Critical Features to Inspect

1 **Drainage Area**

The condition of the drainage area and surrounding landscape that will contribute runoff to the practice is essential to its overall function. Unstable areas that are sources of sediment or drainage ways that have pollutants such as trash, debris, sediment, and grass clippings can hinder the performance of the permeable pavement by clogging the pavement surface or contributing additional nutrient and pollutant loads.

2 **Inlet and Outlet Structures**

If inlet or outlet structures are impeded, this could mean a number of things. Structural damage might be present, there might be evidence of erosion, or runoff may not be flowing over the pavement surface and maintenance is required to restore function.

3 **Pavement Surface**

The void space between the surface of the permeable pavers is the primary location for infiltration of stormwater. Physical clues such as accumulation of fine sediment, stains, standing water, and paver settling are evidence of surface clogging and subsequent maintenance needs. Any missing aggregate needs to be replaced to maintain optimal performance of the system. Pavers that have been damaged (signs of cracks, splitting, or structural damage) need to be replaced to maintain public safety.

Maintenance costs vary based on many factors. The maintenance cost as a percentage of capital cost is estimated at 3-5%; however, more robust local datasets are needed.[2]

1 Georgia Stormwater Management Manual. Atlanta, 2016. 2016 Edition. https://atlantaregional.org/natural-resources/water/georgia-stormwater-management-manual/

2 Clary, J. and Piza, H. (2017). "Cost of Maintaining Green Infrastructure." ASCE. Reston, VA.

For more a more detailed inspection checklist reference:

gacoast.uga.edu/stormwater-management