

**PUTNAM VALLEY
CENTRAL SCHOOL
DISTRICT
PUTNAM VALLEY, NY**

**MS4PY1 STORMWATER
PROGRAM**

**NEWSLETTER
DECEMBER 2010**

**MANAGING STORMWATER
RUNOFF AT THE SOURCE**

**FOR MORE INFORMATION
VISIT
YOUR STORMWATER WEBSITE
AND/OR CONTACT YOUR SWMP
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**1. BENEFITS OF ONSITE STORMWATER
MANAGEMENT**

Traditional methods of handling stormwater involve the collection of stormwater in storm sewers and the discharge of untreated stormwater to adjacent municipal storm sewers and/or nearby waterways. The alternate approach to stormwater management is to capture and treat the stormwater at the source.

The benefits of onsite stormwater management include:

- A reduction of water volume, discharged offsite
- A decrease in flooding in low lying areas
- A decrease in runoff velocity, which minimizes erosion and sedimentation, especially in areas without vegetative cover
- An increase in groundwater recharge
- Conservation of water by the harvesting of stormwater for irrigation and other non-potable uses
- The removal of a variety of pollutants, including heavy metals, hydrocarbons, nutrients and bacteria by the onsite treatment of stormwater

2. GREEN STORMWATER PRACTICES

USEPA facilities draw on some of the following best practices, also called Integrated Management Practices (IMPs), to design, implement, and evaluate their stormwater management efforts:

Bioretention Cells

A bioretention cell or rain garden is a depressed area with porous backfill under a vegetated surface. These areas often have an

underdrain to encourage filtration and infiltration, especially in clayey soils. Bioretention cells provide groundwater recharge, pollutant removal, and runoff detention. Bioretention cells are an effective solution in parking lots or urban areas where green space is limited.

Green Parking Design

Green parking refers to several techniques that, applied together, reduce the contribution of parking lots to total impervious cover. Green parking lot techniques include: setting maximums for the number of parking lots created; minimizing the dimensions of parking lot spaces; using bioretention areas to treat stormwater and encouraging shared parking.

Permeable Pavement

Permeable pavement is an alternative to asphalt or concrete surfaces that allows stormwater to drain through the porous surface to a stone reservoir underneath. The reservoir temporarily stores surface runoff before infiltrating it into the subsoil. The appearance of the alternative surface is often similar to asphalt or concrete, but it is manufactured without fine materials and instead incorporates void spaces that allow for storage and infiltration. Underdrains may also be used below the stone reservoir if soil conditions are not conducive to complete infiltration of runoff.

Permeable Pavers

Permeable pavers promote groundwater recharge. Permeable interlocking concrete pavements (PICP) are concrete block pavers that create voids on the corners of the pavers. Concrete grid paver (CGP) systems are composed of concrete blocks with voids inside the blocks that also create voids between blocks. Plastic turf reinforcing grids (PTRG) are plastic grids that add structural support to the topsoil and reduce compaction to maintain permeability. Grass is encouraged to grow in PTRG, so the roots will help improve permeability due to their root channels.

Rain Barrels and Cisterns

Rain barrels and cisterns harvest rainwater for reuse. Rain barrels are placed outside a building at roof downspouts to store rooftop runoff for later reuse in lawn and garden watering. Cisterns store rainwater in significantly larger volumes in manufactured tanks or underground storage areas. Rainwater collected in cisterns may also be used in non-potable water applications such as toilet flushing. Both cisterns and rain barrels can be implemented without the use of pumping devices by relying on gravity flow instead. Rain barrels and cisterns are low-cost water conservation devices that reduce runoff volume and, for very small storm events, delay and reduce the peak runoff flow rates.

Stormwater Planters

Stormwater planters are small landscaped stormwater treatment devices that can be placed above or below ground and can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality, similar to rain gardens and green roofs.