

## Top 10 Stormwater Best Management Practices for Parks

1. **Rain Garden-** an excavated shallow surface depression planted with specially selected native vegetation to treat and capture runoff. Rain gardens should be located in well-drained soils. They allow stormwater to be absorbed by plants and infiltrated into the groundwater.

*How can you apply this in your park?* A simple rain garden can be located near a walkway, parking lot, court area, or other paved surface to absorb stormwater runoff. Native vegetation that thrives in wet conditions should be planted to enhance the water absorption capabilities of the rain garden. Additional benefits of native vegetation may include creating habitat areas for wildlife and birds and aesthetic enhancement of the site. This type of design is inviting to park visitors and educational signage can illustrate how a simple rain garden design can be created at home to reduce stormwater runoff.

2. **Pervious Pavement-** consists of a permeable pavement (surface course) underlain by a uniformly-graded stone bed which provides temporary storage for stormwater runoff and promotes infiltration. The surface course may consist of porous asphalt, porous concrete or various porous structural pavers.

*How can you apply this in your park?* Pervious pavement can be used in parking areas, on basketball and tennis courts, for trails and walkways, etc. Use of pervious pavement is not practical for wooded or flood prone areas due to sediment and leaf-litter filling the porous voids of the pavement. In open areas, use of pervious pavement provides the added benefit of managing stormwater beneath the surface, minimizing disruption of additional areas for the management of stormwater and the costs associated with construction of a stand-alone stormwater management facility. For large parking lots consider a mix of surface types that include turf parking with a gravel base, aggregate paving for traffic aisles, and pervious paving for parking stalls.

3. **Enhance Riparian Areas-** a permanent area of trees and shrubs located adjacent to streams, lakes, ponds, and wetlands. Riparian forests are the most beneficial type of buffer for they provide ecological and water quality benefits.

*How can you apply this in your park?* Enhance the areas adjacent to rivers, streams, wetlands and ponds with native vegetation or create a “no mow zone” with meadow grasses that is at least 35’ wide on all sides. Be sure to include public access points where appropriate so park visitors can enjoy these water resources. Interpretative signs can describe the benefits of riparian areas and describe the wildlife habitat areas created.

4. **Vegetated Swale-** a broad, shallow channel densely planted with a variety of trees, shrubs, and/or grasses. Vegetative swales should be promoted in lieu of storm piping to convey stormwater naturally, promoting infiltration, reducing runoff volume, and filtering pollutants.

*How can you apply this in your park?* A vegetated swale is an economical alternative to storm piping and may be constructed between a street, parking lot or commercial/industrial area and the park to provide a natural stormwater infiltration area. The park can become a solution to an urban stormwater issue.

5. **Naturalized Infiltration Basin-** an earthen structure constructed either by impoundment of a natural depression or excavation of existing soil that provides temporary storage and infiltration of stormwater runoff.

*How can you apply this in your park?* Existing and new stormwater management basins can be naturalized with native plantings to aid in faster infiltration and to provide wildlife habitat. Basins can be planted with native wildflowers and warm season grasses that are attractive and low maintenance.

6. **Floodplain and Wetland Restoration-** tries to mimic the interaction of groundwater, stream base flow, and vegetative root systems- key components of a stream corridor under pre-settlement (pre-1600s) conditions. The interaction among these elements provides multiple benefits, including the filtering of sediments and nutrients through retention of frequent high flows on the floodplain, removal of nitrates from groundwater, reduction of peak flow rates, groundwater recharge/infiltration, reduced erosion, control non native invasive species, and an increase of storage and reduction of flood elevations during higher flows.

*How can you apply this in your park?* Floodplains should remain natural without constructed facilities; however low-impact accessible paths may be included to invite park visitors to walk among native vegetation and view wildlife. Existing wetland should be protected and restored to enhance their ecological benefits such as increasing water quality, reducing stormwater impacts, and providing critical habitat for a variety of species. Boardwalks and viewing decks can provide access to wetland areas for environmental education. Educational signage can be installed to teach park visitors the critical role floodplains and wetlands play in the environment.

7. **Reforestation-** replant the site with trees.

*How can you apply this in your park?* Reforestation can occur in both natural areas and developed areas of a park. Riparian corridors, floodplains, wetlands, meadows, and forest edges can all benefit from reforestation. Reforestation and planting of trees near picnic areas, pavilions, spectator areas, playgrounds, benches, trails, and other built features will enhance the environment, provide shade, and create a sense of place within a park.

- 8. Extensive Green Roof-** the most popular green roof for smaller structures and existing structures. Its lightweight attributes minimize the amount of structural changes needed to create it.

*How can you apply this in your park?* Extensive green roofs may be constructed on park kiosks, pavilions, environmental education centers, sheds and community recreation centers.

- 9. Warm Season Meadows-** conversion of a turf area into a meadow. Native species should be selected for their minimum need of fertilizers, herbicides and pesticides. Minimize mowing to two times per year.

*How can you apply this in your park?* Meadows can be integrated into most park sites; particularly along riparian corridors and, forest edges and within un-programmed open space. Meadows diversify the land cover; attract butterflies, birds, and wildlife; and reduce on-going maintenance costs associated with mowing. Trails can be created through the wildflower and/or warm season grass meadow and bluebird boxes can be put up to create wildlife viewing opportunities. Educational signage can be installed to present the environmental and ecological benefits meadows provide vs. turf.

- 10. Runoff Capture and Reuse-** encompasses a wide variety of water storage techniques designed to “capture” precipitation, hold it for a period of time, and reuse it. These storage techniques may include cisterns, underground tanks, above-ground vertical storage tanks, rain barrels or other systems.

*How can you apply this in your park?* Rain barrels and cisterns can be used in parks to capture roof runoff from pavilions, environmental education centers or community recreation centers to then be used to irrigate gardens and water plants, flush toilets, storage for firefighting needs, etc.

Link to Pennsylvania’s Stormwater Best Management Practices Manual:  
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>