

**BRIARCLIFF MANOR
UNION FREE SCHOOL DISTRICT
45 INGHAM ROAD
BRIARCLIFF MANOR, NY 10510**

**MS4PY4 STORMWATER
PROGRAM**

**FACT SHEET # 4
APRIL 2014**

**COMPOSTING: A PARADIGM
SHIFT IN STORMWATER
MANAGEMENT**

**FOR MORE INFORMATION CONTACT
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1. A Paradigm Shift in Stormwater Management

The traditional approaches to stormwater management are to collect runoff from the site via catch basins, inlets, streams and drainage swales and to discharge the stormwater offsite to a neighboring MS4. In recent years there has been a paradigm shift that recognizes that the most effective stormwater management is to treat stormwater by emulating natural processes. Thus, the management practices that emphasize the roles of soils and plants, are gaining prominence.

2. What is Composting?

Composting is a natural way of recycling organic materials back into the soil, in order for the cycle of life to continue. The billions of living organisms in healthy soil transform dead plants into nutrients vital for new plant growth.

3. How Does Composting Prevent Stormwater Pollution?

Alternative management techniques, such as the utilization of composted materials, can be very effective in preserving the hydrologic functions of the landscape. Native soils mixed with organically prepared compost, retain runoff. This in turn reduces both peak flow rates and runoff volume and significantly increases infiltration, thereby decreasing pollutant loads entering water bodies.

4. Green Stormwater Practices that Benefit from the Use of Compost

Green stormwater practices that benefit from the use of compost include:

RAIN GARDENS/BIORETENTION SYSTEMS: decrease total stormwater entering the storm drain system and include native plants, several inches of mulch and a planting mix that utilizes 20 -30% of compost

INFILTRATION PRACTICES: include infiltration galleries with underground drains, pervious /porous pavements, trenches, etc., All of these practices incorporate composted soil to increase infiltration of

the stormwater into the subsurface areas, where runoff is taken up by plants and/or percolates further into the ground.

VEGETATED/GREEN ROOFS: is another growing green stormwater practice that significantly reduces total stormwater as well as improves the quality of the water. Generally compost is included in the growing media component of a green roof. In order to meet exacting specifications for the media, including weight, porosity and stability, compost makes up about 10-15% of the total volume.

5. Construction Practices that Benefit from the Use of Compost

Erosion and sedimentation practices are usually employed in the beginning phases of a construction project, where most earth- moving is going on. Composted material, consisting of a protective layer of living and decaying matter, permits infiltration, decreases both peak flow rates and runoff volume by slowing flows and significantly reduces pollutant loads entering water bodies. Stormwater Best Management Practices (BMPs), for construction practices, consist of:

COMPOST BLANKETS: a compost blanket is a layer of loosely applied compost material placed on the soil in disturbed areas to reduce stormwater runoff and erosion. This material provides a more permeable surface to facilitate stormwater infiltration and promotes re-vegetation. As noted by USEPA, compost blankets:

- Retain a large volume of water, which aids in establishing vegetation growth within the blanket
- Act as an energy absorbing cushion, reducing the impact of heavy rainfall, which reduces erosion
- Stimulate microbial activity which in turn increases nutrient availability and improves the soil structure
- Remove pollutants such as heavy metals, nitrogen, phosphorus, fuels, grease and oil from stormwater runoff

COMPOST FILTER SOCKS: a compost filter sock is a biodegradable sock that is filled with composted material and placed perpendicular to sheet-flow runoff

to control erosion and retain sediment in disturbed areas. The compost filter sock which is oval to round in cross-section provides a three-dimensional filter that retains sediment and other pollutants, while allowing clean water to flow through the sock. The filter sock can be used in place of the traditional sediment and erosion control practice such as a silt fence and straw bale barrier. Compost socks are usually placed along a perimeter of a site, or at intervals along a slope, to capture and treat stormwater that runs off as sheet flow.

COMPOST FILTER BERM: is a dike of compost material that is placed perpendicular to sheet-flow runoff to control erosion and retain sediment in disturbed areas. The compost filter berm is trapezoidal in cross-section and provides a three-dimensional filter that retains sediment and other pollutants, while allowing clean water to flow through the berm. The filter berm, just like the filter sock, can be used in place of the traditional sediment and erosion control practice such as a silt fence and straw bale barrier. A filter berm can also be used as a cross check dam in small drainage ditches. The berms can be vegetated or un-vegetated. Vegetated filter berms are normally left in place and provide long-term filtration of stormwater as a post-construction BMP. Un-vegetated berms are normally broken down once the construction is complete and the compost is spread around the site as a soil amendment or mulch.

6. Recycling & Composting Biodegradables in Your School

Several schools have adopted recycling of their waste products, separating paper, glass and plastics where feasible. However, to date, very few schools have begun dabbling with the idea of separating biodegradables from non-biodegradables for the purpose of having their lunchtime food waste composted locally or at a commercial facility. Indirect benefits of having school children involved with a recycling program are priceless. A program such as this will:

- Provide a goal for an environmental club to take on composting as service learning project, which subsequently can be adopted as a school-wide program

- Promote environmental ethics to future generations
- Make a connection between classroom lessons and activities of the real world
- Parents will learn about the program through their children

7. The Next Step Recycling & Composting Biodegradables

Schools can help the environment and their community when they recycle food scraps. A school recycling program will:

- Help schools reduce their solid waste streams and increase their recycling rate
- Recycle organics and natural resources
- Extend the life of a leaching field and septic tank, where kitchens use garbage disposal systems
- Create a useful product (finished compost) for school's lawns and gardens
- Teach students, our future community decision-makers, the importance of responsible solid waste disposal and the environmental advantages of composting
- Within the classroom, science concepts related to composting can be integrated into the science and environmental studies program curricula
- Students can develop a sense of school pride by taking steps towards becoming a "green school"

8. Initiating and Developing a Plan

Administrators and teachers may have pre-conceived ideas and fears about the level of effort required to start a recycling composting program. However the following simple steps can successfully address these issues:

- A program might be started by interested parents bringing the idea to their PTO or school administration
- The Town Recycling Coordinator or a Town Board should be contacted to determine what efforts the Town has initiated or will initiate to start a compost recycling program
- A team of environmental/conservations teachers should be encouraged to consider a composting science program in their science and

science program in their science and environmental studies program

- A Compost Program steering Committee can benefit from the leadership skills of a school administrator
- The Steering Committee Coordinator should advocate for school composting by introducing staff to the program in September or announcing reminders to the student body throughout the year, finding ways to fit compost tasks into routine school duties of the staff and by encouraging integration of composting concepts into the curriculum

Regardless of who initiates the composting program, the District should actively engage the support of the school administration.

9. Getting Started

Talk about the topic of composting and you will find other staff members who are supportive of the idea. Here are some ideas on getting started:

1. Learn as much as you can about other school districts that have adopted recycling and composting in their schools
2. Understand the process and define the scope of the project
3. Start with a small pilot program and develop the program in phases
4. Schools differ in the way they develop new programs: follow your district's protocol
5. Share your ideas and seek out others who may be supportive of your idea
6. Recruit a Steering Committee to develop the program
7. Research and examine what resources (especially the PTO) are available in your district to initiate the program
8. Clearly define the scope of the project (it is okay to start small)
9. Determine both short and long-term costs for undertaking such a program
10. Involve the support of the entire school community, including students from all grades, teachers and parents