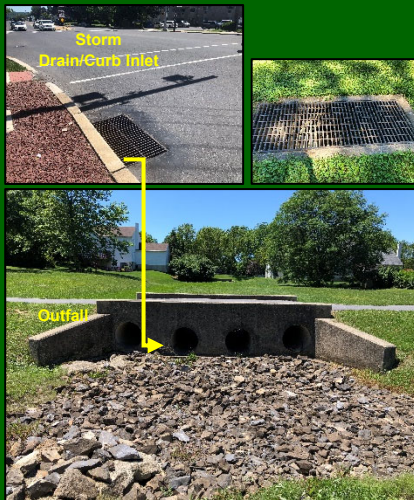


What is MS4?

MS4 is the acronym for "Municipal Separate Storm Sewer Systems," which are stormwater (only) conveyance systems on municipal property that discharge as concentrated flow directly or indirectly into "waters of the United States."



The Township's MS4 system of conveyances includes roads with drainage systems, municipal streets, catch basins, curbs, gutters, man-made channels, and storm drains.



Hanover Township



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Hanover Township
Northampton County, Pennsylvania

Preventing Polluted Stormwater: A Guide for Residents



Hanover Township
MS4 Program

1. Never dump anything down storm drains or in ditches.

Many people wrongly think storm drains are part of a sanitary sewer system that flow to a wastewater treatment plant. Actually, storm drains are a direct link to local streams, rivers, lakes, and wetlands. If you need to dispose of something and not sure where to put it, contact the Township Office to ask about safe ways to dispose of the materials.



2. Pick up after your pet.



Pet waste that is left on streets, sidewalks, yards, or trails near streams can easily wash into area creeks and streams. It is estimated one dog can produce approximately 180 pounds of poop per year. Not all this ends up in our water, but even a fraction creates quite a pollution load for our waters. Pet waste can add harmful bacteria to our water than can make the water unsafe to swim or play in. Pet waste also has nutrients that cause algae to grow in waterways which can be harmful

to the animals that live there. **Always pick up after your pets and dispose of their waste in a trash can or flush it down the toilet.**

3. Check your car for leaking fluids and recycle your motor oil.

Improper disposal of used oil, which includes oil leaking from cars, contributes significantly to stormwater pollution. The EPA estimates that American households improperly dump about 193 million gallons of used oil every year, or roughly the equivalent of 17 Exxon Valdez oil spills. If you have an oil leak, do your part and have it repaired. In 2019, there were over 4 million cars registered in Pennsylvania. If only a small portion of these had leaks, that is still a significant amount of oil entering our streams. If you change your own automotive fluids, recycle your used motor oil. Many places that sell motor oil also collect it for free. An easy way to clean up an accidental spill is to pour sand or clean kitty litter over the spill, wait a few minutes and then sweep up the solid materials.



4. Don't litter! Pick up trash you see on the ground (even if it is not yours) and participate in a stream or watershed clean-up!



No one likes to see trash floating in the water and that is where it will end up if litter is left on the ground. Litter can wash into area streams through storm drains where water from our streets goes untreated. Litter can also be dangerous to wildlife that might mistake it for food or get tangled in the trash. Participate in stream, highway, or watershed clean-ups. These are often organized by area watershed associations and coalitions or something you can

do on your own. Take a trash bag and some gloves and go for a nature hike through area streams. Pick up any trash you find along the way and put in the in proper disposal container!

Ten Things You Can do to Prevent Stormwater Pollution

5. Use fertilizers sparingly and sweep driveways and sidewalks after application.

Use fertilizers according to your lawn, plant needs, and labeled instructions. Sweep driveways and sidewalks after application. Fertilizers that are applied in excess or scattered onto driveways or sidewalks have the potential to be carried by rain runoff into streams causing high levels of nutrients in our waters. Too many nutrients can lead to unnatural algae growth creating green "slimy" or "hairy" water that depletes oxygen for aquatic ecosystems. Soil test before applying fertilizers so you are adding enough nutrients to meet plant needs, but not more than needed.



6. Compost yard waste and sweep grass clippings out of street gutters after mowing.

Most people don't think of grass clippings and leaves as possible pollutants, but they can when they end up in streams through the storm drain system. These materials can contribute nutrients such as nitrogen and phosphorus, which cause unwanted and uncontrolled growth of algae and aquatic weeds in the waterways. Too much algae is harmful to streams and lakes. It blocks sunlight and prevents other plants from growing. When it dies and decays, it also takes much needed oxygen away from fish. Mulch leaves by running the lawnmower over them and leaving the shredded leaves and grass in the lawn. This also adds needed nutrients back to your lawn, minimizing the need for added fertilizers. Consider making a compost bin or pile or utilizing the City of Bethlehem's Compost Facility. Be sure to sweep up any leaves and grass from driveways and sidewalks so they don't end up down the storm drain. Yard waste such as leaves, small brush, hedge and shrub trimmings, garden and plant residue can be placed curbside for Township yard waste pick up. As a last resort, grass clippings can be placed out for regular trash collection, but this practice is not recommended by the Township or the PA Department of Environmental Protection.



7. Direct downspouts away from paved surfaces and slow water down.

When rain falls on a roof, its momentum increases and gives it more power to wash pollutants into storm drains. Storm drains carry rainwater untreated to area streams. By diverting your gutter downspouts to grassy areas, runoff can be slowed and allowed to soak into the soil. Increased stormwater flows also create larger and faster flushing of creeks when it rains. This accelerates stream bank erosion. Erosion leads to murky water that can have impacts on the stream's wildlife and increase algae growth from nutrients in the soils. Consider building a rain barrel or installing a rain garden to capture the rain as it flows off roofs.



8. Wash your car at a commercial car wash that is connected to a treatment plant or water recycling system instead of washing your car on a driveway or street.

When you wash your car on the driveway or street, the dirt, grease, and soap can wash into storm drains directly to streams. Concentrations of detergents in streams can kill fish and their eggs, as well as disrupt their ability to reproduce. Detergents can also destroy the natural protections fish have against bacteria and parasites and can severely damage fish gills. The phosphates from soap can also cause excess algae to grow in our waterways. Excessive algae growth makes water cloudy, green, unattractive, smelly, and unpleasant for swimming, boating, fishing, or drinking. Take your car to the car wash where the rinse water goes to a wastewater treatment plant instead of storm drains. If you do wash your car at home, do it on grassy or gravel areas that can absorb the water without it washing into the street.



9. Use integrated pest management practices for controlling pests around your home.



Use pesticides cautiously. If pesticides are necessary, use only recommended amounts. Excess pesticides applied to lawns and around surfaces like driveways and sidewalks wash off and pollute streams. These include bug killers, weed killers, and fungus treatments. The most effective and important practice to minimize lawn and garden pests is to observe what is going on in the yard. Many serious disease or insect problems can be stopped or slowed down early by observation and timely intervention. Better yet, consider natural or organic methods to treat pests or weeds.

10. Vegetate bare spots in your yard and terrace slopes to minimize erosion.

Cover bare spots in your yard with mulch or vegetation. Leaving bare soils in your landscape can cause exposed soil to wash away during a rain. On slopes, rain water will move quickly taking with it any soil that it can along the way. These soils can fill water channels and make the water murky. This makes it difficult for aquatic life to find food or breathe. If you have a hard time getting grasses to grow, you might consider planting ground covers. Some options include creeping phlox, virginia creeper, moss, or mulch. Check with local nurseries about what native ground covers work well for your specific growing conditions. If your yard is sloped, consider terracing the land into steps to help slow down the water as it moves across your property.

