

# Water

Everyone's Responsibility



City of Bowling Green  
Department of Public Works and  
Citizen Information and Assistance



According to the Environmental Protection Agency, the primary cause of water quality problems in the U.S. today is not from factories or waste water treatment plants, but rather something called "nonpoint source pollution." Nonpoint source pollution is runoff from rainfall, snowmelt, or irrigation that picks up soil and contaminants as it runs over land or under ground, eventually depositing them into surface waters or introducing them into ground water.

Healthy lakes, rivers, and streams directly impact property values and the quality of life we enjoy. Each of us has a responsibility to be a part of Bowling Green's pollution solution by controlling what we purposefully or inadvertently put down our storm drains. This responsibility begins by understanding where pollutants come from. For example, many common household products – such as oven cleaners, paint and paint removers, cleaning fluids, and motor oil, contain toxic ingredients that can become a threat to public health and the environment if not properly used or discarded. Wash water contains detergents, oil, grease, metals, dirt, and other pollutants released by the washing process. Fertilizers and pesticides washing off our lawns can deplete lakes and rivers of oxygen needed by aquatic life and wildlife. Even waste from the family pet can contain bacteria and viruses that contaminate waterways.

Bowling Green faces unique challenges with respect to storm water management. Warren County is located in a karst region that is typified by caves, sinkholes, springs, underground streams, and other karst features. The Bowling Green and Warren County area has relatively few surface streams and rivers. The use of streams and storm sewer systems are the conventional method of handling urban storm water runoff. Bowling Green is challenged with the lack of such conveyance means. As a result, other methods of storm water management must be employed, such as subsurface streams. A major concern with such alternative methods is water quality. Bowling Green's Phase II efforts will require changes in the ways we handle storm water to achieve improved water quality.

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## Improving the Environment Together



### What is storm water runoff?

Storm water runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent storm water runoff from naturally soaking into the ground.

### Why is storm water runoff a problem?

Storm water can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly into a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the water bodies we use for swimming, fishing and providing drinking water.

### The effects of pollution...

Polluted storm water runoff can have many adverse effects on plants, fish, animals and people.

**Sediment** can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.

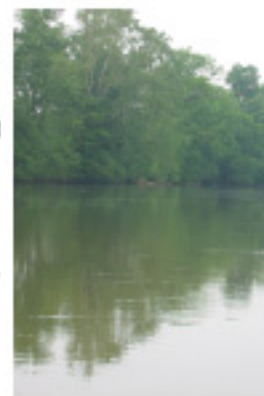
**Excess nutrients** can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Some fish and other aquatic organisms can't exist in water in low-dissolved oxygen levels.

**Bacteria and other pathogens** can wash into swimming areas and create health hazards, often making beach closures necessary.

**Debris** - plastic bags, six-pack rings, bottles, and cigarette butts washed into waterbodies can choke, suffocate, or disable aquatic life such as ducks, fish, turtles, and birds.

**Household hazardous wastes** such as insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick from eating diseased fish and shellfish or ingesting polluted water.

Polluted storm water often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.







### Small MS4 Storm Water Program

Polluted storm water runoff is often transported to municipal separate houses' storm sewer systems (MS4s) and ultimately discharged into local rivers and streams without treatment. The EPA's Storm Water Phase II Rule establishes an MS4 storm water management program that is intended to improve the nation's waterways by reducing the quantity of pollutants that storm water picks up and carries into storm sewer systems during storm events. Common pollutants include oil and grease from roadways, pesticides from lawns, sediment from construction sites, and carelessly discarded trash, such as cigarette butts, paper wrappers, and plastic bottles. When deposited into nearby waterways through MS4 discharges, these pollutants can impair the waterways, thereby discouraging recreational use of the resource, contaminate drinking water supplies, and interfere with the habitat for fish, other aquatic organisms, and wildlife.

### What is a Phase II Small MS4?

A small MS4 is any MS4 not already covered by the Phase I program as a medium or large MS4. The Phase II Rule automatically covers, on a nationwide basis, all small MS4s located in "urbanized areas" (UAs) as defined by the Bureau of the Census (unless waived by the Natural Pollutant Discharge Elimination System [NPDES] permitting authority), and on a case-by-case basis those small MS4s located outside of UAs that the NPDES permitting authority designates.

**On March 10, 2003, the City of Bowling Green submitted its Phase II permit to the Kentucky Division of Water.**

### What are the Phase II Small MS4 Program Requirements?

Operators of regulated small MS4s are required to design their programs to:

- Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protect water quality; and
- Satisfy the appropriate water quality requirements of the Clean Water Act.

Implementation of the MEP standard will typically require the development and implementation of Best Management Practices (BMPs) and the achievement of measurable goals to satisfy each of the six minimum control measures.

The Phase II Rule defines a small MS4 storm water management program as a program comprising six elements, that when implemented in concert are expected to result in significant reductions of pollutants discharged into receiving waterbodies.

The six Phase II minimum control measures are outlined below.

#### Public Education and Outreach

Distributing educational materials and performing outreach to inform citizens about the impacts polluted storm water runoff discharges can have on water quality.

#### Public Participation/Involvement

Providing opportunities for citizens to participate in program development and implementation, including input from public through public meetings and activities such as cleanup and monitoring.

#### Illicit Discharge Detection and Elimination

Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).

#### Construction Site Runoff Control

Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb one or more acres of land (controls could include silt fences and temporary storm water detention ponds).

#### Post-Construction Runoff Control

Developing, implementing, and enforcing a program to address discharges of post-construction storm water runoff from new development and redevelopment areas. Applicable controls could include preventative actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales, porous pavement or water quality devices.

#### Pollution Prevention/Good Housekeeping

Developing and implementing a program with the goal of preventing or reducing pollutants in runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, efficient usage of pesticides and street salt or frequent catch-basin cleaning).







## Minimizing Storm Water Pollution: What You Can Do

### Around the Home

- Use household cleaners that are labeled nontoxic and biodegradable, and use the smallest quantity possible.
- Properly use and store all toxic products, including cleaners, solvents, and paints. Clean up spills immediately. Follow label directions regarding container disposal or take to a local collection site.
- Recycle reusable materials and throw litter into trash cans that are tightly covered.



### In the Yard

- Use pesticides, herbicides, and fertilizers sparingly, and in accordance with label instructions. Do not apply if rain is expected or near ditches, gutters, or storm drains. Use products labeled nontoxic, biodegradable, or water-soluble when possible.
- "Go natural" by using natural fertilizers such as compost or bone meal and natural insect repellents, such as marigolds (for nematodes and white flies), soapy water from dishes (for flowers and roses), or spearmint gum (for moles).
- Do not over irrigate - this can cause sediment to wash into storm drains.
- Do not blow, sweep, or rake leaves or grass clippings into gutters, ditches, or storm drains. Compost yard waste or bag and dispose using solid waste collection programs.
- Divert rainspouts and garden hoses from paved surfaces onto grass.
- Pick up animal wastes and dispose in garbage cans or by flushing down toilets.



### Vehicle and Boat-Related Activities

- Take used motor oil to a participating oil recycling center.
- Properly maintain your car or boat to reduce the leakage of oil and other fluids.
- Wash cars on lawns or ground rather than paved surfaces to minimize runoff, and use biodegradable, nonphosphate soap.
- Use marine sanitation devices or pump-out facilities to get rid of boat sewage.
- When spills occur, use kitty litter, sawdust, or wood chips to soak up fluid and dispose in garbage cans.



Preserving Our Water...  
One Drop at a Time



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