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Improving stormwater quality while reducing flood risk

City of Bloomington Utilities

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bloomington.in.gov/utilities/adopt-a-drain bloomington.in.gov/utilities/stormwater stormwater@bloomington.in.gov

ADOPT-A-DRAIN Introduction

Welcome to the City of Bloomington Utilities' **ADOPT-A-DRAIN** program. The primary goal of this activity is to help improve **stormwater quality** while decreasing risk of **erosion and flooding**.

In order to achieve this goal, you will have the opportunity to clean and mark storm drains as well as learn about negative impacts of urban stormwater (runoff, or rain water, that carries pollutants) on water quality in your neighborhood.

Storm drains are often misused for the disposal of paint, motor oil, antifreeze, pesticides, and other wastes. Improper disposal can seriously damage your community's water quality, our environment, and fish and wildlife habitat. In addition, each time it rains, stormwater runoff carries street litter, yard debris, pet wastes, and other pollutants into storm drains. This "nonpoint source pollution" can be a significant source of contamination of Indiana's urban streams and beyond.

Unfortunately, storm drains **do not purify and remove pollutants**. In many communities, stormwater is discharged directly into nearby streams, rivers, lakes, and even sinkholes and caves, which are conduits to groundwater.

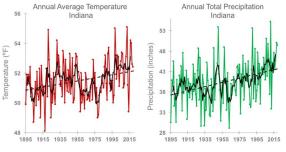
Your assistance is needed to keep our streams, rivers, ponds, and lakes healthy. **Healthy waterways** can supply clean water for drinking, agriculture, recreation, and industry. They also provide habitat for aquatic animals, including fish prized for their food and recreation value. **Stream** invertebrates are also **important** food resources for fish.

In order to maintain environmental integrity, the **Clean Water Act** was established. It is a U.S. federal law that regulates the discharge of pollutants into the nation's surface **waters**, including lakes, rivers, streams, wetlands, and coastal areas. Passed in 1972 and amended in 1977 and 1987, it was originally known as the Federal **Water** Pollution Control **Act**. You can learn more about this subject at the Environmental Protection Agency's website, https://www.epa.gov/npdes

As mentioned above, water quantity is also a concern. Indiana's climate is getting warmer and wetter. See the trends in the graph to the right. (Courtesy of Indiana Climate Change Impacts Assessment)

The following information provides additional details on pollutants and what you can do to help.





Climate Trends 1895-2019: Indiana has warmed 1.3°F and annual precipitation has increased 6.5".



The miracle is this the more we share, the more we have.

~Leonard Nimoy

Updated: 06/16/20

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Stormwater Quality and Quantity

Stormwater quality refers to what is in the water whereas **stormwater quantity** refers to the *amount* of water. Both stormwater quality and quantity affect our daily lives, as you will see by reading the information provided, below.

Stormwater pollutant sources are divided into two main types—**Point Source** and **Non-point Source**.

Stormwater Quality

25% of pollutants are considered to be *Point* Source.

Point Source pollution can be traced back to specific sources. A good example would be a pipe discharging a substance from a factory into a stream (also known as "end of pipe" discharges). Because the source is obvious, it is possible for regulations to limit point source pollution.

75% of pollutants are considered to be *Non-point* Source.

Non-point Source pollution enters our waters from many nonspecific sources. It is caused by stormwater runoff (rainwater carrying pollutants) from land surfaces such as farmland, poor soil conservation methods, forests that have been improperly logged as well as construction sites that have been improperly maintained (lack proper erosion and sediment control practices), and urban areas.

This type of pollution is difficult to control and regulate. Each time it rains, runoff from streets and the landscape in general, picks up litter, motor oil, pet wastes, gasoline, car washwater, excess fertilizers and pesticides, leaves, and grass clippings. The runoff reaches our waters via storm drains. All of these household activities, and others, contribute to the pollution of our waterways.

After being dumped, household wastes often enter our waterways via storm drains, negatively impacting water quality by depleting oxygen reserves and contaminating the water. Aquatic plants and animals need sufficient oxygen and clean water to survive. Storm drains should never be used to dispose of household waste.

Stormwater Quantity

Just like with everything, too much of something can be a bad thing. The same goes for stormwater. Too much stormwater can cause problems such as erosion and flooding. Erosion and flooding lead to soil loss, degraded streets and side-walks, building foundation issues, and more. Erosion and flooding can occur when a storm drain is blocked by debris including leaves, trash, and other pollutants.







The number one pollutant by volume in Indiana is... sediment!

Adopt-a-Drain Procedures

The following is a step-by-step process of signing-up for Adopt-a-Drain, along with information on before, during and after cleaning the storm drain.

Signing Up

Step 1: Choose a drain or drains to adopt

If you have a storm drain(s) in or near your yard, it would be an ideal candidate for you to adopt. We can help you with the decision.

Step 2: Obtain permission to adopt the storm drain

Most storm drains are on public property and in the Right-of-Way. If they are on private property, obtain permission to adopt the storm drain(s) from the owner of the property. A Memorandum of Agreement may be needed if it is on private property. Contact us for more information.

Step 3: Visit the ADOPT-A-DRAIN webpage and fill out the Volunteer Sign-up form

The Volunteer Sign-up form is a fillable PDF and is available on the Adopt-a-Drain webpage, https://bloomington.in.gov/utilities/adopt-a-drain

Step 4: Attend an orientation or individual training

Orientation dates/times are available on the Adopt-a-Drain webpage when applicable. If you have missed the deadline, you may contact us for an individual training. You will receive training, brochures, a yard sign, and more. Note: Due to COVID-19 protocols, only individual trainings are available at this time.

Step 5: Obtain Supplies

Helpful supplies to have on hand include:

- Safety vest
- Gloves
- Closed-toe shoes
- Grabbers
- Shovels
- Trash bags
- Storm drain marker(s) and glue (see Adopt-a-Drain Coordinator)
- Yard sign (see Adopt-a-Drain Coordinator)
- Brochures to hand out (see Adopt-a-Drain Coordinator)



Setting Up

Step 1: Notify your neighbors

Give your neighbors a heads up that you are participating in the program, it may just encourage them to join in the effort!

Step 2: Gather supplies

Gather the supplies that you have obtained to do the project.

Step 3: Set up your yard sign

Post your yard sign in a visible location and check to make sure no underground utilities will be affected.

Step 4: Mark your storm drain

Note: To ensure that the glue will dry, it must be at least 50 degrees F and the marking surface must be clean and dry.

- 1. Gather your materials Storm drain marker and glue
- 2. Clean and dry the area
- 3. Apply glue to the back of the storm drain marker using the pattern indicated.
- 4. Place the marker, glue-side-down, on either the top middle portion of the storm drain or sidewalk, which ever is flatter. If two drains are side-by-side, place the marker in a logical place between them so as not to waste markers, see Appendix B. The markers should be placed to be read when facing the drain. Note: If the curb area is painted yellow, be sure to place the marker as close to the painted area as possible rather than directly on it so that it (the marker) does not get painted over.

Cleaning the Storm Drain

Step 1: Check weather conditions

Check weather conditions to make sure it is safe to be outside. In addition, you may wish to be mindful of seasonal weather conditions. For example, the storm drains may need to be cleaned more frequently during the late Fall, Spring, and early Summer months.

Step 2: Follow safety precautions

Wear your protective equipment (safety vest, gloves, and close-toed shoes) and be sure to stand on either the sidewalk, yard or tree plot and not the road.



Step 3: Clean the Storm Drain

Clear the storm drain of accumulated debris by picking it up and spreading it thinly on the yard or tree plot temporarily. In addition, if there is a large accumulation, you may wish to dispose of the debris in the trash, or through recycling or composting as applicable. At this point, please do make a note of the amount, type, and weight of the material removed. We keep track of these criteria and ask that the debris be reported on the Report form, see below.

You are only responsible for removing debris from the TOP of the storm drain grate. Please follow the following steps for situations that may extend beyond normal maintenance.

 If the storm drain is filled with debris of a NON-EMERGENCY nature, such as grass clippings and/or sand, please 1) fill out a City of Bloomington uReport at https://bloomington.in.gov/ureport/, 2) notify us at stormwater@bloomington.in.gov, 3) report the situation in your monthly Report.



Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.

~Margaret Mead

 If the storm drain needs immediate attention of a NON-EMERGENCY nature, such as evidence of a recent dumping of paint, please 1) call CBU's 24-Hour Switchboard at (812) 339-1444, 2) notify us at storm-

water@bloomington.in.gov, 3) report the situation in your monthly Report.

• If the storm drain needs immediate attention of an EMERGENCY nature, such as a fuel spill entering the system, please 1) call 911, 2) notify us at stormwater@bloomington.in.gov, 3) report the situation in your monthly Report.

Note: It is not uncommon to come across hypodermic syringes in the course of area cleanups. For information on best practices regarding syringes or other "sharps," please visit the Monroe County Health Department Harm Reduction Program webpage at https://www.co.monroe.in.us/HarmReductionProgram.

In addition, the Monroe Solid Waste Management District provides approved sharps containers free of charge to Monroe County residents. For more information, please visit

http://www.gogreendistrict.com/hazardous#sharps or call (812) 349-2020.

Step 4: Talk to friends and neighbors and share educational materials

People will be curious. It's always a good idea to be kind, courteous, and helpful to everyone you meet. Remember, you are representing your community. Brochures can be handed out to individuals that inquire or just simply look interested. Feel free to reach out to them! *Note: Please do not place materials in mailboxes as it is illegal.*

After Cleaning the Storm Drain

Step 1: Dispose of cleared material

Sort and dispose of the cleared material as applicable — trash, recycling, and composting.

Step 2: Admire your work and feel good about it

This part is obviously optional, but it does feel good to stand back for a minute and admire your work, knowing you have done something good for yourself and your community.

Step 3: Talk to friends and neighbors and share materials

Feel free to share your experience as well as materials with friends and neighbors!

Step 4: Fill out the Report form

The Volunteer Sign-up form is a fillable PDF and is available on the Adopt-a-Drain webpage, https://bloomington.in.gov/utilities/adopt-a-drain

You will be expected to report the following on a monthly basis, including:

- How many times you have cleaned the storm drain.
- Type of material present and how much there is of it (we can calculate its weight).
- If the storm drain's catch basin is full of material that you cannot reach (remember, you are only responsible for cleaning the debris from the outside of the storm drain!).
- If the storm drain's catch basin needs any other maintenance.

Step 5: Continue talking with friends and neighbors about the program

Bring up Adopt-a-Drain to others, spread the word!



Indigenous (native) plants are a significant part of a region's geographic context—in fact, they help define it. They have proven themselves capable of surviving the landscape for millennia.

> ~ Michael Homoya State Bontanist, IDNR



Appendix A: Pollutants and How YOU Can Help

The following are common pollutants along with information on what you can do to help keep them out of our waterways.

Motor Oil. Motor oil can damage or kill underwater vegetation and aquatic life. Each year in the United States, do-it-yourself motor oil changers improperly dispose of 192 million gallons of used motor oil. One gallon of used motor oil can potentially contaminate one million gallons of water. When used motor oil is applied to roads, over 90% of it leaves the road surface on dust particles or in surface runoff.

Solutions:

- Repair any leaks in your vehicle.
- Put used motor oil into a sealed container (a plastic milk jug with a screw-on cap works well) and take it to a used motor oil collection site such as the Monroe County Solid Waste Management District. Do not mix used motor oil with any other substance.
- Do not apply motor oil as a dust suppressant on roads, parking lots, driveways, or other similar surfaces. There are soy-based liquids on the market now.
- If recycling is not available, used motor oil must be saved for a household hazardous waste collection, such as via the Monroe County Solid Waste Management District

Antifreeze. Antifreeze is primarily composed of ethylene glycol, a sweet and poisonous compound which can kill or injure pets, birds, fish, and other wildlife when disposed of carelessly. It can also contain heavy metal contaminants picked up from vehicle engines during use.

Solutions:

- Repair any leaks in your vehicle's radiator system.
- Take used antifreeze to the Monroe County Solid Waste Management District.
- Never pour antifreeze into a storm drain, septic system or lagoon.

Fertilizers. Fertilizers contain large amounts of phosphorus and nitrogen which can cause algal blooms in aquatic areas. These blooms can deplete oxygen levels in the water, resulting in fish kills. Always follow label directions. Note: Phosphorus-free fertilizers are now regularly available!

Solutions:

- Sweep and collect any fertilizer from driveways and walkways. Do not wash these
 materials into storm drains.
- Avoid overusing fertilizers. Determine the mineral needs of your soil and apply the necessary amounts.
- Never apply fertilizer before it rains.



- Donate unwanted fertilizer to a friend, local garden club, or other organization that can use it.
- Save unusable, unwanted, or leftover pesticides and bring them to the Monroe County Solid Waste Management District.

Pesticides. Pesticides contain toxic materials, some of which can be harmful to humans, animals, aquatic organisms, and plants. Always follow label directions. When it rains, these toxic materials can enter storm drains and waterways.

Solutions:

- Minimize the use of pesticides by using Integrated Pest Management practices. For more information, contact the Office of the Indiana State Chemist, https://www.oisc.purdue.edu/
- Always determine what the pest is and if the pesticide is specific for that pest.
- If you must use a pesticide, follow the label directions very carefully.
- Never apply a pesticide before rain unless instructed to do so on the label (obviously, this is in regards to outdoor use).
- Never rinse pesticide application equipment where the rinsewater can run into a storm drain.
- Consult with lawn care companies about the products they use on your property. Request that they use environmentally safe practices and ask to see safety data sheets on their products.
- If a pesticide is usable, is not canceled or restricted, and you no longer have a use for it, donate it to a friend, neighbor, or community group who will use it safely. Contact University Extension to determine if the pesticide is canceled or restricted. Locally, Purdue Extension—Monroe County, https://extension.purdue.edu/monroe
- Save any unwanted or unusable portions of these products for a household hazardous waste collection.

Pet Wastes. Pet waste is raw sewage. Allowing it to enter our waterways can release potentially harmful bacteria as well as lower the amount of oxygen in the water.

Solution:

• Dispose of pet wastes by flushing them down the toilet or in the trash can.

Street Litter and Plastics. Street litter such as plastic bags, cups, candy wrappers, and cigarette butts are

wrappers, and cigarette butts are washed from the street by stormwater and end up floating in area streams and lakes. Many animals mistake plastic for food and, as a result, become ill or die. Plastic can take hundreds of years to degrade and so presents a long-term problem when it is disposed of improperly.





One is not born into the world to do everything but to do something.

~ Henry David Thoreau Solutions:

- Never throw garbage into the street or down storm drains.
- Dispose of all garbage, including cigarette butts and fast food containers in garbage cans.
- Periodically collect garbage from your street that might be washed into a storm drain. Ask your family, friends, and neighbors to do the same.

Paint. Paint, even latex paint, can contain a variety of hazardous ingredients including lead, mercury, and organic solvents, all of which can impact the environment when disposed of improperly. Paint rinsewater can also be a problem when released into the environment (as can other decorating and construction waste such as drywall).

Solutions:

- Never rinse painting equipment where the rinsewater can run into a storm drain.
- If it is usable and less than 10 years old, donate the paint to a friend or a community group, such as a local school or theater, that can use it up.
- If the paint is unusable or older than 10 years, save it for the Monroe County Solid Waste Management District.

Car washing and maintenance. If you wash your car at home, wash it in a grassy area, using minimal amounts of no-phosphate soap. Be careful not to drive over your septic system! Another option is to take your car to a car wash that sends the wastewater to the wastewater treatment plant.

 Keep your engine-driven machines (cars, motorcycles, and lawn mowers) well tuned.

Yard Wastes and Erosion. When disposed of in large quantities, leaves and grass clippings allow bacteria, oxygen-consuming materials, phosphorus, and nitrogen to be released into our waterways. Yard wastes can also clog drains, making them ineffective and causing local flooding.

Soil that erodes from your yard increases the sediment load in waterways, and in sufficient quantities can block sunlight essential for aquatic plants and animals. It can also adversely impact animals by suffocating them, inundating their living and nesting areas, and causing it to be hard to see and find their food.

Solutions:

- Do not allow soil, leaves, or grass clippings to accumulate on your driveway, sidewalk, or in the street.
- Collect leaves and grass clippings and compost them or use a mulching mower.
- Contact us for more information on composting and the status of community composting services.





Bloomington is certified as a **Backyard Wildlife Habitat** by the National Wildlife Federation. To learn how you can turn your own yard into a wildlife habitat, visit: http://www.nwf/backyard

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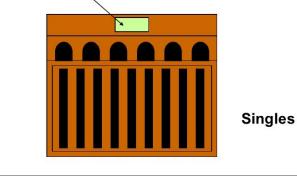
- Leave vegetation along drainages and waterways to slow and filter yard runoff when possible. Native plants are better designed for the area—they have deeper roots help disseminate stormwater and work better with the soil so they require less fertilizers and pesticides. For more on vegetation, see the City of Bloomington Municipal Code, https://bloomington.in.gov/municipal-code
- You may wish to considering a rain garden comprised of native plants. For more information, see Monroe County's storm water quality page, https://www.co.monroe.in.us and/or contact us at https://stormwater@bloomington.in.gov regarding a possible residential stormwater grant.

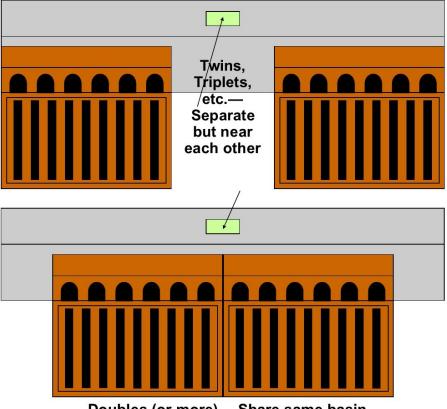
Other Household Hazardous Wastes. Many other household products such as paint thinners, automotive waxes, cleaners, and swimming pool chemicals contain hazardous ingredients that can be a problem when disposed of improperly.

Solutions:

- Purchase products which are less hazardous.
- Give unwanted but usable products to someone who can use them safely.

Appendix B. Where to Mark Storm Drains





Doubles (or more) —Share same basin

Appendix C. Top 10 Clean Stormwater Pledges

- I will pick up litter and dispose of it properly so it does not blow into the stormwater system.
- I will sparingly use lawn treatments or not at all so they don't run off and get in our waterways.
- I will compost grass clippings and leaves to reduce waste.
- I will dispose of medications at officially-dedicated facilities so they don't get in our water.
- I will wash my vehicles at a car wash because they drain to the wastewater sewer system, not streams.
- I will decrease my use of single use plastics because they get in the water cycle.
- I will make sure fats oils, and grease (FOG) do not reach the storm or sanitary (wastewater) sewer systems because FOG clogs the pipes.
- I will turn off the water while brushing my teeth to conserve water/energy.
- I will not dump anything down storm drains since only rain should go down the storm drain!
- I will maintain my septic tank as specified so it does not pollute the area.



References and Contact Information

References:

City of Bloomington Government

Monroe County Government

Indiana University

Purdue University

United States Environmental Protection Agency

https://www.epa.gov/nps/resources-students-and-educators-aboutnonpoint-source-nps-pollution

This training booklet has been adapted in part from the **Missouri Storm Drain Stenciling Project**, copyright © 1993 by the University of Missouri Extension Household Hazardous Waste Project and the Environmental Improvement and Energy Resources Authority. Materials originally adapted from information provided by the Center for Marine Conservation and the Watershed Committee of the Ozarks.

For more information on waste disposal, contact:

Monroe County Solid Waste Management District 3400 S. Walnut St. Bloomington, IN 47401 (812) 349-2020 mcswmd.org

To report dumping in or near our waterways, fill out a City of Bloomington uReport at https://bloomington.in.gov/ureport/

For questions on the Adopt-a-Drain program, contact:

Kriste Lindberg Stormwater Education Specialist **City of Bloomington Utilities Department** 600 E. Miller Dr. Bloomington, IN 47401 (812) 349-3617 stormwater@bloomington.in.gov https://bloomington.in.gov/utilities/adopt-a-drain https://bloomington.in.gov/utilities/stormwater Facebook: City of Bloomington, IN—Utilities

