

STORM DRAIN STENCILING

How-To Manual

Brought to you by the
Missouri Stream Team program



The Missouri Stream Team program is a network of more than 4,000 individual teams and more than 80,000 people concerned about Missouri streams. Members form teams because they value and enjoy rivers and creeks, and want them to stay clean. Team members also join because taking care of streams is fun and fulfilling!

The only membership requirement is a concern for Missouri's flowing water resources. The amount of time you commit to these efforts is subject only to your willingness to get the job done. Storm Drain Stenciling is only one of the many activities you can participate in through the Stream Team Program. Other options include litter pickups, water quality monitoring, stream habitat improvement, advocacy and education.



Thank you for participating in Stream Team’s Storm Drain Stenciling activity.

The primary goal of this activity is to change the way Missourians use and view storm drains. In order to achieve this goal, your group will need to communicate to the community your concerns about the negative impacts of stormwater runoff on water quality.

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 and fish and wildlife habitat.

In addition, each time it rains, stormwater runoff may carry street litter, yard debris, pet wastes and other pollutants into storm drains. This “nonpoint source pollution” can be a significant source of contamination of Missouri’s urban streams. Unfortunately, storm drains do not purify or remove pollutants. In most communities, stormwater runoff is discharged directly into nearby streams, rivers, lakes or even sinkholes, which are conduits to groundwater. In other communities, storm drains may empty directly into a wastewater treatment plant where pollutants adversely affect the quality of the discharged water and the sludge, which is eventually used as fertilizer.

By following the steps in this manual, you will successfully complete your stenciling project.

GOOD LUCK,
and thank you for your efforts!

Before You Begin

step 1 Choose An Area to Stencil

Identify a community, subdivision or cluster of streets where you would like to stencil the storm drains. Count and locate the storm drains on these streets. Do not select storm drains on highways or other busy streets. If youth are involved in this project, select sites where the traffic flow is light.

step 2 Obtain Permission

Obtain permission to stencil storm drains from all proper authorities prior to your storm drain stenciling activity. In many communities, this would be the storm drain utility or road maintenance division of a city or county, usually in a Public Works department. City or county staff may also provide storm drain maps and traffic safety supplies (traffic cones, flags, traffic-grade marking paint and safety vests). Some communities are now providing long-lasting storm drain markers (shown below). Storm drains on private property, such as neighborhood subdivisions, apartment buildings and business parking lots, require permission from the property owner in addition to permission from city or county authorities. Verify that you have received permission from the owner, not only from the tenant.

Request a permit or letter of approval from the Public Works department and all proper authorities, even if the property is privately owned. Bring copies of all letters of permission with you when stenciling so that concerned residents will know that the project has been approved. Make sure you know where you have permission to stencil—on maintenance covers, the storm drain inlet, the curb or the sidewalk behind the storm drain. Local authorities may also need to approve the color of the latex paint. In some communities, the Public Works authorities have painted white rectangular blocks in areas they agree to have stenciled. Stenciling can then be done with a dark-colored paint on top of the rectangular block and lasts much longer.



Some communities now provide adhesive storm drain markers.

step 3 Obtain Supplies

To stencil storm drains, your group will need supplies and services. One way to involve your community is to obtain these materials through donations. When people contribute to a cause, they feel a sense of ownership in its outcome. Become partners with the organizations and businesses in your community to protect water quality. Organize supplies so that each stenciling group has the necessary materials.

Your group should use exterior latex paint or traffic marking latex paint. Select a bright flat color in a container that can be reclosed. White is usually a good choice. You should obtain the Public Works department's approval of the paint color. Spray paints also work well. They are quick to apply and less messy. A "frame" for the stencil made from cardboard or poster board will help avoid overspray.

See the *Supply Checklist for a Stenciling Event* on page 16 of this manual for a complete list of supplies you will need.

step 4 Contact the News Media

Give news media organizations plenty of lead time (at least two weeks), and provide them with specific information about times, locations and contacts. It is a good idea to contact them again by phone one or two days before the event. You may want to use the sample news release provided on page 15 of this manual.

step 5 Prepare and Copy Flyers

You can educate your community by copying and passing out the flyer included on pages 17–18 of this manual. Fill in the appropriate sections with information about your group. Door hangers are also available.



When Ready to Stencil

step 1 Check Weather Conditions

To ensure that the paint will dry, it must be at least 50° F when you stencil. It must not be raining, and the pavement must be dry.

step 2 Follow Safety Precautions

Describe all the steps for stenciling storm drains to participants. When youth groups are involved, provide close adult supervision. Each participant should wear a safety vest while on the street. Set out traffic cones at the stenciling site. Watch out for cars while at the storm drain



Wearing safety vests will make your participants more visible to nearby traffic.

site. One person should hold a traffic flag and alert oncoming cars. Use the same caution that you would use while walking along the road right-of-way. Stay out of and away from driving lanes and face oncoming traffic. Review these rules prior to stenciling with all of your participants. Remember that drivers may not always see you. If cars are parked near enough to a storm drain so that participants are not visible, skip that storm drain and return to it later. Never stencil alone. *If in doubt, think and act safely first!*

step 3 Divide Into Groups

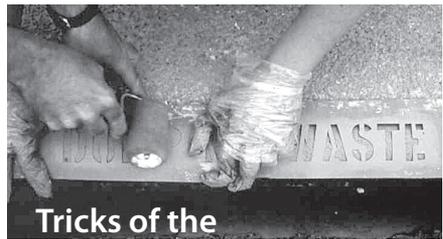
Form groups of three to five participants. Youth Stream Teams should have at least one supervising adult per group. Provide each team with the necessary supplies. Before beginning to stencil storm drains, it is a good idea to practice first on paper. A paper grocery sack cut flat works well.

step 4 At the Storm Drain Site

Set out traffic cones and outfit your team members with their safety equipment. Wearing protective gloves, place any nearby trash in garbage bags. (Remember, trash bags and work gloves are available to Stream Teams; call (800) 781-1989 or e-mail Streamteam@mdc.mo.gov.) Use caution when handling sharp objects. Consider establishing a policy for dealing with syringes and other medical waste. You may want to separate recyclable materials from trash. A volunteer should be responsible for properly disposing of the garbage and recyclable materials.

Using a broom, brush off the area to be stenciled so it is clean of debris. Decide as a group which way the stencil should read so that the most people will see it (legible from the sidewalk or the street). Two people should lay the stencil flat in the area you have permission to stencil. One person should apply the latex paint on the stencil. Take turns stenciling at each storm drain.

When you're finished, pick up the stencil carefully to avoid smearing. If the stenciled area is *not* legible, do not try to clean it off to start again. This will only make a bigger mess. Go on to the next storm drain and learn from the mistake. Clean up the stenciling site. Clean off excess paint from the stencil with paper towels or a rag. Dried latex paint strengthens the stencil, so there is no need to remove all of the paint. After the paint is dried, it can be flaked off the stencil. Loosely roll the stencil and place it and the paint brush or roller in a plastic bag to transport them to the next storm drain. Do not forget to collect your traffic cones and safety equipment.



Tricks of the stenciling trade

If not using spray paint, 3-inch trim roller brushes work best. Put very little paint on the sponge, brush or roller—you do not need much! If using a brush, dab the paint, rather than brushing it on. Do not apply the paint too thickly or it will run under the stencil. You do not need to completely fill in the stenciled areas with paint for the message to be legible.

step 5 Distribute Information to Nearby Homes

Take a flyer or door hanger to each home or business near your project area. Be prepared to answer questions regarding the storm drain stenciling activity if residents should ask. You can leave a door hanger if no one is home.

After the Stenciling Event

step 1 Send in a Stream Team Activity Report

Call (800) 781-1989 if you need activity report forms. You can also submit activity reports on-line at www.mostreamteam.org.

step 2 Save Unused Paint

Use extra paint during your next stenciling event or donate it to an organization that will use it (Habitat for Humanity, for example). Make sure all lids are securely closed.

step 3 Congratulate Yourselves on a Job Well Done!

You have helped to protect Missouri's water quality and educate your community!



Storage of the Kit

Although they were sent to you rolled, always store stencils *flat*. This will extend the life of the stencil. One way to store them is to create a cardboard sleeve from a flattened box taped closed on three sides. This way the stencil can slide in and out freely. Make one of these for each stencil, so that they cannot catch on each other and tear. Make sure any paint remaining on the stencil is dry before storage. As the paint ages, it will flake off and the stencil will still be usable.

Curriculum Materials

In addition to the stenciling activity portion of the program, curriculum materials and a video are available through the Missouri Department of Conservation. The curriculum, *Streets to Streams: Youth Investigations Into Water Quality*, contains hands-on activities for children in grades 5–9. If you are interested in receiving a copy of the curriculum and/or a video, please call or write to:

Missouri Department of Conservation

Stream Team

P.O. Box 180

Jefferson City, MO 65102–0180

(573) 522–4115, ext. 3591 or (800) 781–1989

More About Storm Drains and Water Quality

Point and Nonpoint Source Pollution

Point source pollution can be traced back to specific sources (you can point to where it came from). Some examples include discharge pipes from sewage or wastewater treatment plants, industries and combined storm and wastewater sewer systems. Because the source is obvious, it is possible for regulations to limit point source pollution.

Nonpoint source pollution enters our waters from many nonspecific sources and is a major cause of our nation's water problems. It is caused by runoff from land surfaces, such as farmland not using soil conservation methods, forests that have been improperly logged, construction sites and urban areas. Each time it rains, runoff from streets picks up litter, motor oil, pet wastes, gasoline, car wash water, excess fertilizers and pesticides, leaves and grass clippings. This runoff reaches our waters via storm drains. Because nonpoint source pollution comes from many sources, it is difficult to control.

Although water quality improvement has resulted from the regulation of point source pollution, Missouri's water resources are still at risk. These resources are threatened by improperly disposing of motor oil, not cleaning up after pets, leaving yard wastes on the streets and applying fertilizers and pesticides before rains. All of these activities, and others, contribute to the pollution of our waterways.



What You Can Do

The following information addresses specific types of wastes. This information will help you learn what you can do to prevent pollution from entering 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 contaminate 1 million gallons of water. When used motor oil is applied to roads to control dust, over 90% of it leaves the road surface on dust particles or in surface runoff.

Solutions

- ◆ Repair any oil 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. 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.
- ◆ If recycling is not available, used motor oil must be saved for a household hazardous waste collection.

Antifreeze

Antifreeze is primarily composed of ethylene glycol, a sweet and poisonous compound that 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.
- ◆ If available in your community, take your used antifreeze to an antifreeze-recycling center.
- ◆ If recycling is not an option, contact your local wastewater

treatment plant to determine if you can dispose of the antifreeze down a drain connected to the wastewater treatment plant. Never pour antifreeze into a septic system or lagoon.

- ◆ If no options are available, antifreeze must be saved for a household hazardous waste collection. Do not mix antifreeze with any other substance.

Fertilizers

Fertilizers contain large amounts of phosphorus and nitrogen, which can cause heavy algal growth (known as algae blooms) in aquatic areas. These blooms can deplete oxygen levels in the water, resulting in fish kills.

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 up safely.
- ◆ Save unusable fertilizer for a household hazardous waste collection.

Paint

Paint, even latex, 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 rinse water can also be a problem.

Solutions

- ◆ Never rinse painting equipment where the rinse water can run into the storm drain.
- ◆ If it is usable and less than 10 years old, donate the paint to a friend or community group, such as a theater or school, that can use it up.

- ◆ If the paint is unusable or older than 10 years, save it for a household hazardous waste collection.

Pesticides

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

Solutions

- ◆ Minimize the use of pesticides by using Integrated Pest Management practices. Contact University Extension (<http://extension.missouri.edu/>) for more information.
- ◆ 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 by the label.
- ◆ Never rinse pesticide application equipment where the rinse water can run into the 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 material 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. Save unusable, unwanted or leftover pesticides for a household hazardous waste collection.

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 that are less hazardous.
- ◆ Give unwanted, but usable, products to someone who can use them safely.
- ◆ Save any unwanted or unusable portions of these products for a household hazardous waste collection.

Pet Waste

Pet waste is raw sewage. Allowing it to enter our waterways releases both potentially harmful bacteria and oxygen-consuming materials.

Solutions

- ◆ Dispose of pet wastes by flushing them down the toilet or burying them away from any food-growing locations.

Litter and Plastics

Litter such as plastic bags, cups, candy wrappers and cigarette butts are washed away 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. Plastic can take hundreds of years to degrade and therefore presents a long-term problem when disposed of improperly.



Solutions

- ◆ Never throw trash on the ground or down storm drains.
- ◆ Dispose of all trash, including cigarette butts and fast food containers, in garbage cans.

Yard Wastes and Soil 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 storm drains, making them ineffective and causing local flooding. Soil that erodes from yards increases the sediment load in waterways, and in sufficient quantities can block sunlight essential for aquatic plants and suffocate aquatic animals.

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 mulch with them).
- ◆ Never sweep yard waste down a storm drain.
- ◆ Check with local authorities for information on composting and the status of community composting services.
- ◆ Let vegetation grow along drainages and waterways to slow and filter yard runoff.
- ◆ Mulch or plant areas of bare soil on your property

Other Water-Protecting Activities

- ◆ 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, lawn mowers) well-tuned.

Sample News Release

for Storm Drain Stenciling Project

From:

Contact:

Phone:

Date:

For release:

News Release

Did you know the water that flows down our streets and driveways and into storm drains isn't treated, cleaned or filtered before flowing into our local waterways? If you didn't know this, you're not alone; realizing this critical stormwater connection is the first step towards improving and protecting water quality.

Citizens around (*insert city here*) are spreading the word by labeling storm drains with the message "Dump No Waste, Drains To Stream." You may see this message on storm drains around your neighborhood. The message will serve as a reminder of the connection we have to our local rivers and streams and that storm drains should never be used to dispose of wastes.

Materials such as motor oil, antifreeze, pesticides and litter that make their way into our streams are called "nonpoint source pollutants." These wastes can seriously damage our community's water quality and our environment. To make things worse, some people intentionally dispose of waste, including yard waste, by pouring or sweeping it into nearby storm drains. Improper disposal is coupled with the fact that each time it rains, water runoff carries litter, yard debris, pet wastes and other pollutants into storm drains and this can mean problems for our waterways. In many areas, the same waters receiving runoff are supplies for drinking water.

Storm drain stenciling is an activity of the Missouri Stream Team Program. For more information or to get involved visit www.mostreamteam.org or call (800) 781-1989.

(Information about your Stream Team or volunteer group can also be added here.)

Supply Checklist

for a Stenciling Event



For each group:

- Stencil
- Broom or whisk broom
- Bucket or box to carry stenciling equipment
- Flyers (To estimate the number needed, count the storm drains to be stenciled and multiply by 10.)
- Latex paint (See manual for the correct paint type.)
- Letter of approval from Public Works Department and other storm drain authorities
- Map of the area to be stenciled with storm drain locations marked
- Paint can opener (flathead screwdrivers work)
- Paint rollers (no more than 3" wide) and rolling pan, sponges or stencil brush (See manual for painting instructions.)
- Paint stirrers
- Paper towels
- Garbage bags
- Traffic cones and flags

For each participant:

- Latex or nitrile gloves
- Work gloves
- Safety vest
- T-shirt of a bright color with the stencil image *OR* Stream Team t-shirts (optional)

STORM DRAIN STENCILING



the Problem

Storm drains are commonly misused for the disposal of paint, motor oil, anti-freeze, pesticides and other wastes. This improper disposal can seriously damage our community's water quality. In addition, each time it rains, stormwater runoff carries street litter, yard debris, pet waste and other pollutants into storm drains. This "nonpoint source pollution" is a significant source of contamination of Missouri's water resources.

Unfortunately, storm drains do not purify or remove pollutants. In most communities, stormwater runoff is discharged directly into nearby streams, rivers, lakes or even sinkholes, which are conduits to groundwater. In other communities, storm drains empty into the wastewater treatment plant which can cause further problems.

the Solution

In order to protect our water resources, members of our community are labeling storm drains with the message "DUMP NO WASTE, DRAINS TO STREAM." This message is meant to be a reminder that storm drains should never be used to dispose of wastes.

Please help protect our precious water and help spread the word.

*For more information
on the stenciling project
or the Missouri Stream
Team Program, contact:*

Stream Team Program

P.O. Box 180
Jefferson City, MO 65102-0180
(573) 522-4115, ext. 3591

VOLUNTEERS FROM

**HAVE WORKED
TOGETHER
TO COMPLETE
THIS PROJECT.**

STORM DRAIN STENCILING



the Problem

Storm drains are commonly misused for the disposal of paint, motor oil, anti-freeze, pesticides and other wastes. This improper disposal can seriously damage our community's water quality. In addition, each time it rains, stormwater runoff carries street litter, yard debris, pet waste and other pollutants into storm drains. This "nonpoint source pollution" is a significant source of contamination of Missouri's water resources.

Unfortunately, storm drains do not purify or remove pollutants. In most communities, stormwater runoff is discharged directly into nearby streams, rivers, lakes or even sinkholes, which are conduits to groundwater. In other communities, storm drains empty into the wastewater treatment plant which can cause further problems.

the Solution

In order to protect our water resources, members of our community are labeling storm drains with the message "DUMP NO WASTE, DRAINS TO STREAM." This message is meant to be a reminder that storm drains should never be used to dispose of wastes.

Please help protect our precious water and help spread the word.

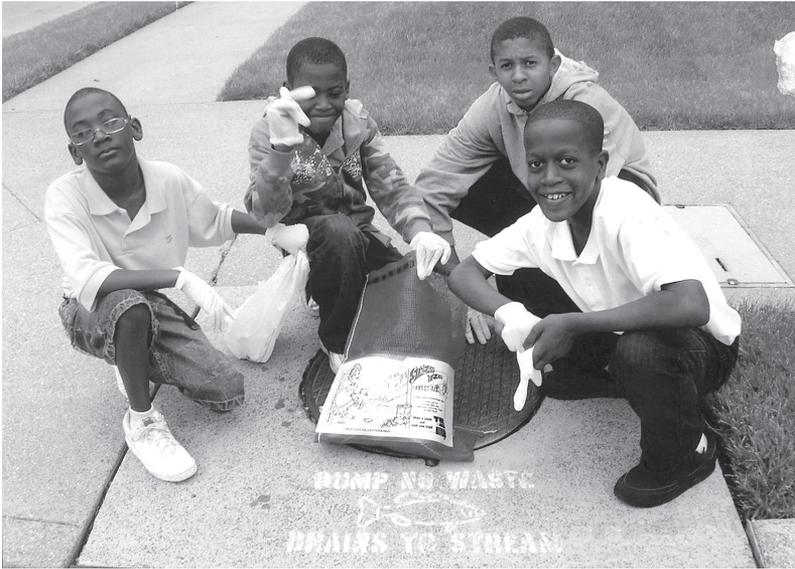
*For more information
on the stenciling project
or the Missouri Stream
Team Program, contact:*

Stream Team Program

P.O. Box 180
Jefferson City, MO 65102-0180
(573) 522-4115, ext. 3591

VOLUNTEERS FROM

**HAVE WORKED
TOGETHER
TO COMPLETE
THIS PROJECT.**



Stream Team Program
P.O. Box 180
Jefferson City, MO 65102-0180
(573) 522-4115, ext. 3591
(800) 781-1989 (voice mail)
www.mostreamteam.org

Adapted 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.