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Of Special Interest:

- Why Worry About Pesky Little Mosquitoes?
- What Every Leaf Blower Should Know . . .
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- Where Does Stormwater Go?

What is an MS4 Permit?

Roanoke County is classified as a small urban locality because its population falls under 100,000. As such, it has been issued a “General Permit for Discharges of Stormwater from Small **M**unicipal **S**eparate **S**torm **S**ewer **S**ystems” (MS4s) from Virginia’s Department of Environmental Quality (DEQ).

The permit, commonly called the MS4 permit, authorizes the County to discharge stormwater from its municipal system (comprised of underground pipes, ditches, drainage structures, etc.) into “surface waters within the boundaries of the Commonwealth of Virginia. . .”

The County’s current MS4 permit has an effective date of July 1, 2013 and an expiration date of June 30, 2018. Under this general permit, small MS4s, like Roanoke County, must develop, implement and enforce a program that includes the following six “Minimum Control Measures” (MCMs), which are aimed at reducing pollutants in stormwater runoff:

MCM 1 - Public education and outreach on stormwater impacts

MCM 2 - Public involvement and participation

MCM 3 - Illicit discharge detection and elimination

MCM 4 - Construction site stormwater runoff control

MCM 5 - Post-construction stormwater management in new development and redevelopment

MCM 6 - Pollution prevention/good housekeeping for municipal operations



Pollutants reach streams thru storm drainage inlets and underground pipes.

Pursuant to the MS4 permit, the County’s program must be designed and implemented to control the discharge of pollutants from the storm sewer system to the maximum extent practicable in a manner that protects the water quality in nearby streams, rivers, wetlands and bays. ■

Which Programs in Roanoke County Relate to Stormwater?

There are several programs operated by Roanoke County that relate to Stormwater Management, which include the following:

*** Total Maximum Daily Loads (TMDLs)** - requires the County to lower the discharge of certain pollutants (PCBs, sediment, and bacteria) to meet numeric limits for its DEQ-designated impaired streams, including the Roanoke River and 11 creeks/streams.

*** Floodplain Management Program** - regulates land development in the floodplain and helps to lower flood insurance rates.

*** Virginia Erosion and Sediment Control Program** - regulates land development projects during construction that disturb 2,500 square feet or more of land area.

*** Virginia Stormwater Management Program (VSMP)** - regulates projects during construction and long-term runoff after construction.

All of these programs are state-mandated; Roanoke County opts to fund them through its General Fund, and the Department of Community Development takes the lead in implementing them. ■

Why Regulate Stormwater?



Stormwater is not treated before it discharges directly into local receiving waters.

Remember, whatever goes into the storm drainage system ends up in the nearest receiving waterway.

Stormwater runoff from new land development is regulated for both *water quantity control*, to help minimize flooding due to increases in volume and velocity of stormwater, and *water quality control*, to help limit pollutants that are carried by stormwater runoff to receiving waters. Why are such requirements needed? Here are the top five reasons:

1. Despite common belief, stormwater runoff travels across the land surface to the nearest waterway via pipe, channel, ditch, or roadway swale and is not treated. Thus, any pollutants it picks up along the way end up in the same receiving waterway, damaging habitat, fish, and water-dependent critters.
2. Actual water quality monitoring of area waters still shows decline in stream health due to the input of polluted stormwater.
3. Even with today's more stringent regulatory standards, areas of the state still experience significant flooding and channel erosion, including Roanoke County. These conditions not only damage local streams but also impact the area's roadways and neighborhoods.
4. Stormwater runoff is considered "non-point source pollution" because it can become polluted in multiple ways and from various places. For example, construction activities can cause hefty sediment pollution in waterways due to sediment-laden runoff water leaving denuded [un-vegetated] construction sites. After construction, many pollutants are picked up by stormwater runoff due to careless handling and improper disposal of everyday products around homes and businesses, such as used motor oil, kitchen grease, lawn fertilizer, pet waste, leaves, lawn clippings, paints, and household chemicals.
5. Addressing stormwater pollution serves as a major component to improving Virginia's streams, lakes, and rivers, including the Roanoke River and most of its tributaries. (Note that other efforts are also needed to address impacts from agriculture, sewage treatment plants, septic fields, etc.) ■

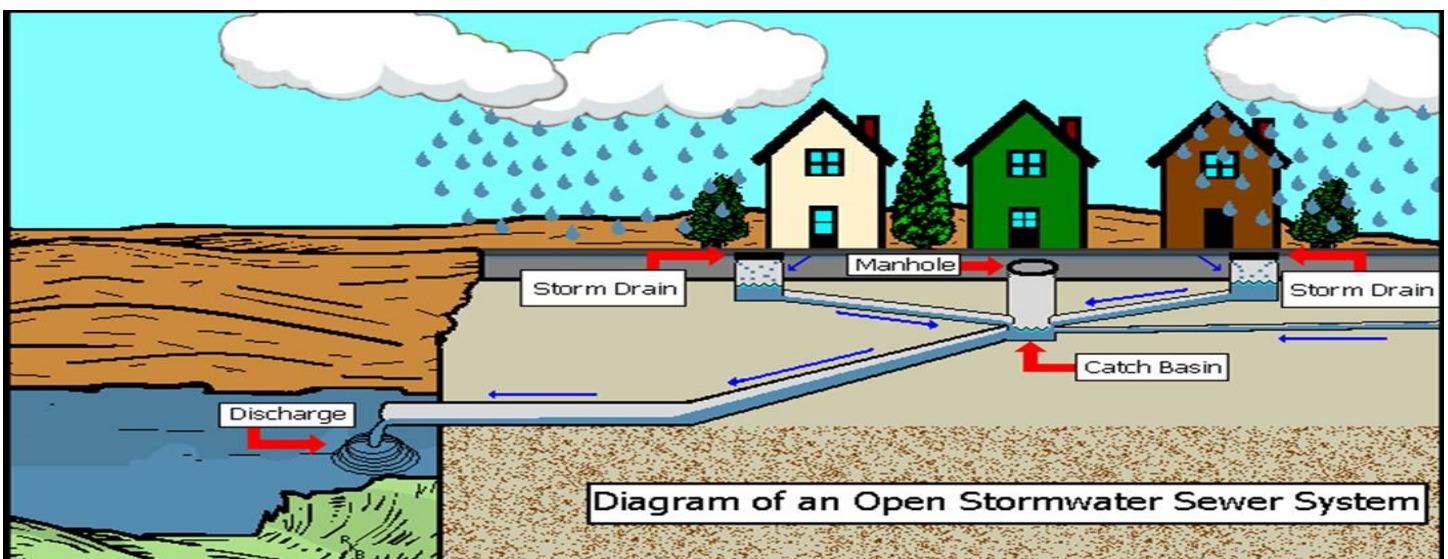


Diagram courtesy of South Coventry Township, Pottstown, PA <http://southcoventry.org/departments/stormwater/>

Minimizing Mosquitoes Around the Home

Mosquitoes not only inflict painful bites that itch, these pesky insects can also transmit a variety of dangerous diseases, including West Nile virus, dengue, heartworms for dogs, chikungunya, malaria, eastern and western equine encephalitis, and Zika virus, among others. The West Nile virus has been detected in all of the lower 48 states and most of the other listed diseases can be contracted when traveling overseas. For specific information on these and other mosquito-borne diseases, refer to the Centers for Disease Control and Prevention (CDC) website, at:

www.cdc.gov/Features/stopmosquitoes

Tips to Limit Mosquito Breeding

Adult mosquitoes lay their eggs in slow-moving or ponding water and on moist soil or leaf litter in areas likely to collect water. The best way to limit mosquito production is to eliminate such water sources. Here are some helpful tips from the CDC:

- Keep all outdoors garbage or recycling containers covered to keep water out.
- Keep gutters clean and unclogged. Be sure that downspouts properly drain and do not leave puddles in the drainage area. Reroute downspouts or add extensions to carry water away from buildings.
- Keep swimming pools cleaned and chlorinated, even when not in use. Homeowners who go on vacation without chlorinating their pools may return to find a mosquito hatchery.
- After rain, look for areas in the landscape that are not draining well. If puddles remain for four or more days, re-grade the area.
- Aerate ornamental ponds to keep water moving, which will discourage mosquitoes from laying eggs. Also, consider stocking the pond with mosquito-eating fish.
- Dump standing water in bird baths, garbage can lids, non-chlorinated wading pools, buckets, pet bowls, flower pot saucers, and pottery at least twice a week, as these items will all attract breeding mosquitoes.



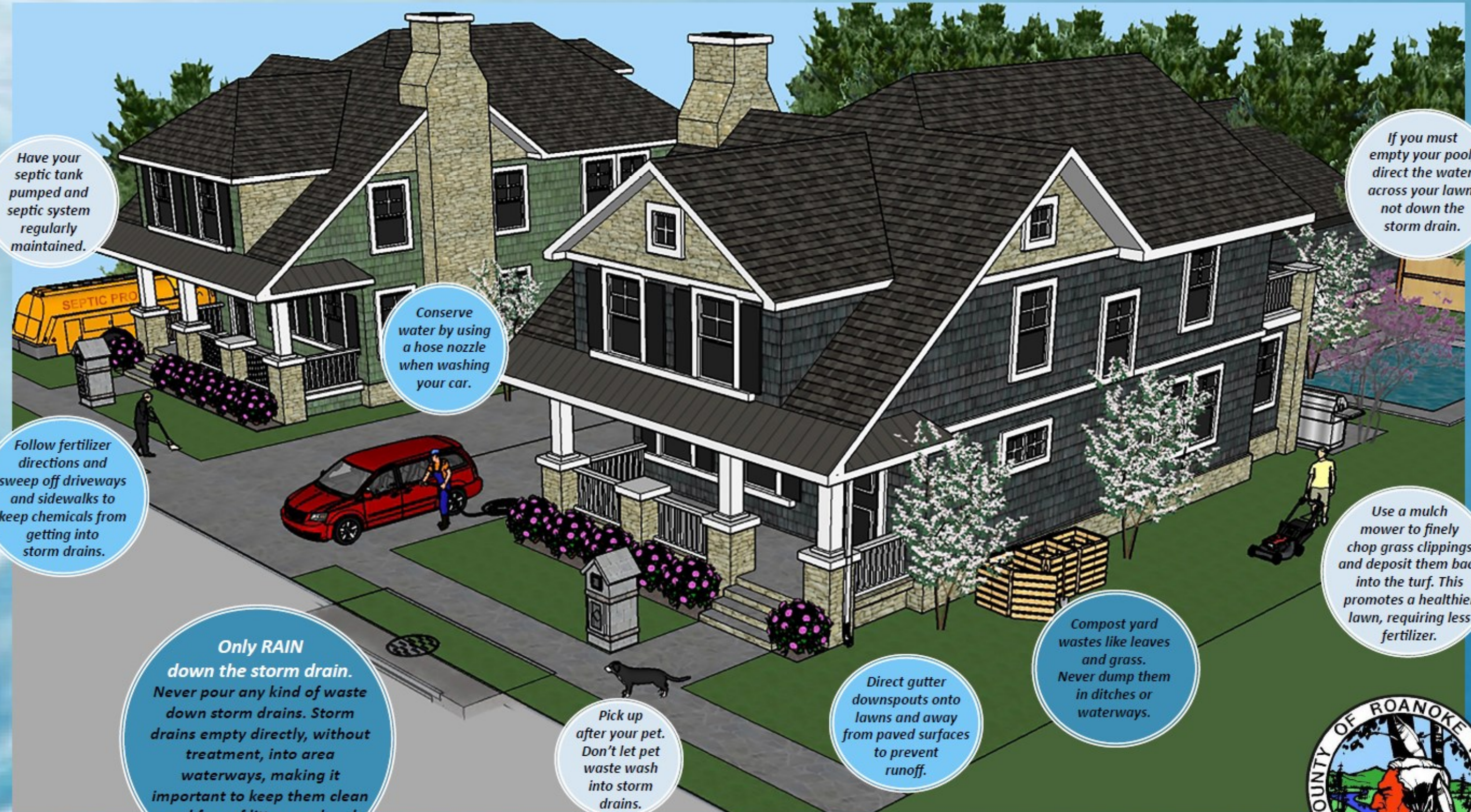
Mosquitoes . . .

- **Inflict painful, itchy bites on humans and pets**
- **Can carry serious diseases**
- **Breed in water**

What is the best way to prevent mosquito bites?

- **Wear insect repellent!** When used as directed, insect repellent is the BEST way to protect yourself from mosquito bites, even for children and pregnant women. Higher percentages of the active ingredient provide longer lasting protection. Here are some repellents to consider:
 - ⇒ **DEET:** Products containing DEET include Cutter, OFF!, and Skintastic.
 - ⇒ **Picaridin** (also known as KBR 3023, Bayrepel, and icaridin). Products containing picaridin include Cutter Advanced, Skin So Soft Bug Guard Plus, and Autan.
 - ⇒ **Oil of lemon eucalyptus (OLE):** Repel contains OLE.
 - ⇒ **IR3535:** Products containing IR3535 include Skin So Soft Bug Guard Plus Expedition and SkinSmart.
- **Cover up.** Wear long-sleeved shirts and pants, if possible.
- **Keep mosquitoes outside.** Use air conditioning or ensure that window and door screens are in good repair.
- **Research before traveling.** Learn about your destination's specific health risks by visiting the CDC Travelers' Health website, at:
www.cdc.gov/travel ■

CLEAN STORMWATER STARTS AT HOME



Have your septic tank pumped and septic system regularly maintained.

If you must empty your pool, direct the water across your lawn, not down the storm drain.

Conserve water by using a hose nozzle when washing your car.

Follow fertilizer directions and sweep off driveways and sidewalks to keep chemicals from getting into storm drains.

Only RAIN
down the storm drain.
Never pour any kind of waste down storm drains. Storm drains empty directly, without treatment, into area waterways, making it important to keep them clean and free of litter, yard and household waste.

Pick up after your pet. Don't let pet waste wash into storm drains.

Direct gutter downspouts onto lawns and away from paved surfaces to prevent runoff.

Compost yard wastes like leaves and grass. Never dump them in ditches or waterways.

Use a mulch mower to finely chop grass clippings and deposit them back into the turf. This promotes a healthier lawn, requiring less fertilizer.



Help keep Roanoke County's stormwater clean & safe.

Kids Corner:

The A-MAZE-ING Journey of Stormwater

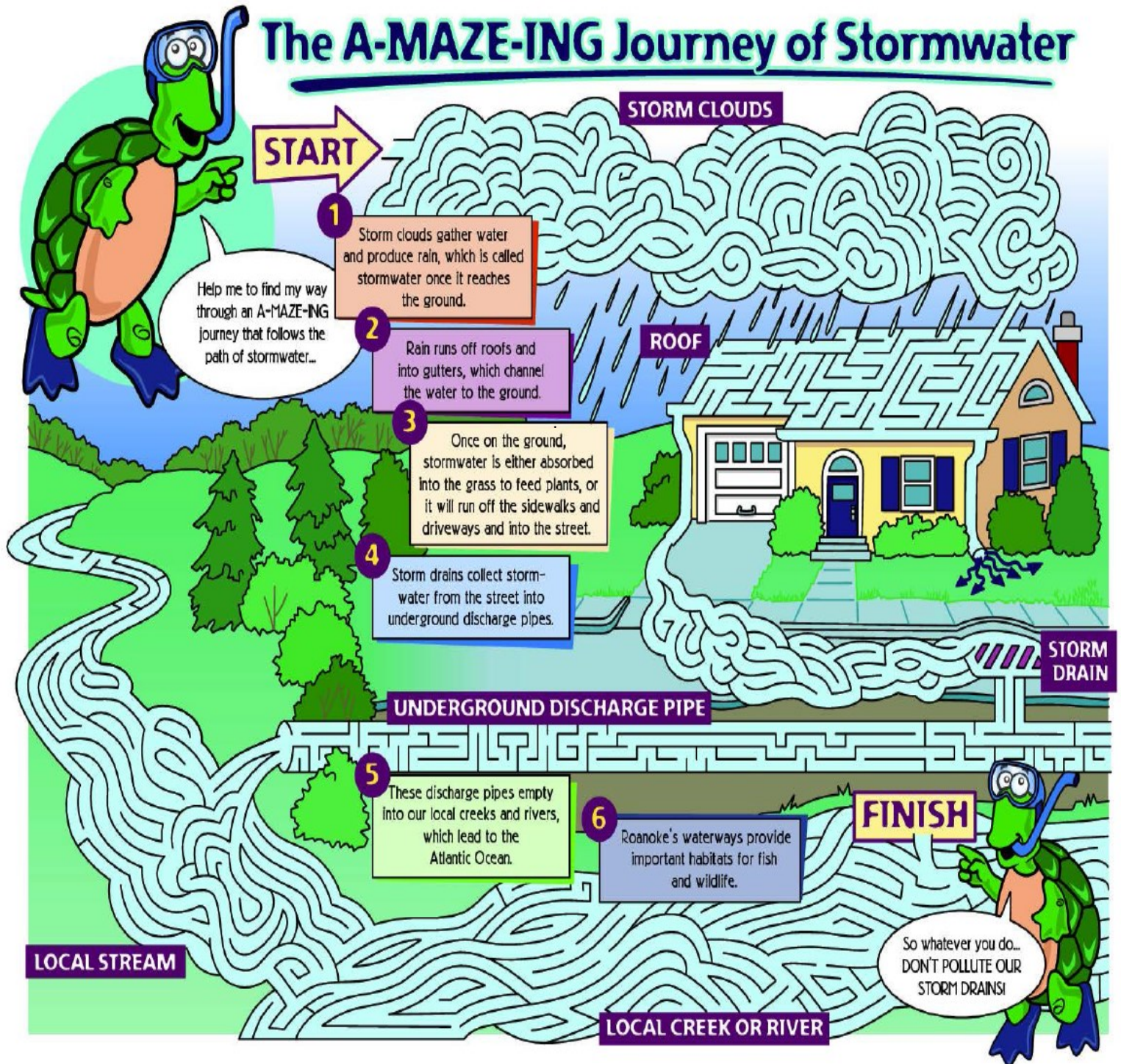


Diagram courtesy of www.manassascity.org/DocumentCenter/View/22744

Before You Blow, You Should Know . . .

A Guide for Leaf Blowing and Lawn Care

Spring is finally here and it brings us warmer weather and sunshine-filled days. It also lures many of us outside to start our annual lawn care rituals to make them look green, healthy, neat, and tidy.

While we are eagerly cutting, pruning, fertilizing, and clipping to create that beautiful curb appeal, we often do not realize that our landscaping activities can be detrimental to the very environment that we are trying to beautify! The improper handling of grass clippings, yard wastes, leaves, limbs, fertilizers, pesticides, and herbicides often causes pollutants to end up in our stormwater system, where they travel straight to and are openly discharged into nearby receiving waters.

One of the most common mistakes we make is to blow leaves and grass clippings into the street, storm drain inlets, or drainage ditches. Though it may seem insignificant, these activities not only pollute waterways by adding extra nutrients, they also block drainage inlets and ditches, leading to or exasperating street flooding. The underground storm drainage pipes and drainage ditches are designed for one thing and one thing only: to carry stormwater.

Most localities across the Commonwealth have codes that make dumping, blowing, or washing anything into the storm drainage system (which includes roads, curb and gutter, pipes, inlets, and ditches) a crime.

In Roanoke County, an open discharge of most any substance onto the ground or into any facet of the drainage system is considered an illicit discharge,

because it has the potential to pollute the drainage system and the area's receiving waters. A violation of the Illicit Discharge Ordinance may result in being charged with a Class I misdemeanor or a fine, up to \$2,500 per violation per day, pursuant to Section 24-5 of the Ordinance. The same penalties apply to the open disposal of motor oil or other hazardous wastes.

The County's Illicit Discharge Ordinance is available for viewing on its website, at:

www.roanokecountyva.gov/IDO



To protect local waters, never blow leaves into the street or drainage system.

So, the next time you get working in your yard, please take the time to rake, sweep, and bag your leaves and lawn clippings. Once collected, you should put them out with your regular trash or use them in a compost pile. Another good option for grass clippings is to use a mulch mower. The clippings are cut into small pieces and left on the lawn, naturally decomposing and returning nitrogen back into the soil. This may help you save money on fertilizer, too. ■

Report Illicit Discharges

If you see someone placing anything into the storm drainage system, which includes storm drainage inlets, curb and gutter systems, roadside ditches, and underground drainage pipes, please report the activity to the County by clicking on "Report a Concern" on the County's website at www.roanokecountyva.gov/ReportID or call us at (540)772-2065. If possible, take a picture of the illicit discharge activity when it is occurring and forward the pictures to the County's Stormwater Program Manager in the Department of Community Development, Stormwater Division, 5204 Bernard Drive, 2nd Floor, Roanoke, VA 24018, or by email: stormwater@roanokecountyva.gov. County staff will investigate the incident and attempt to resolve the issue. Also, to learn more about the harmful effects of illicit discharges on the area's receiving waters, please see the County's various public education videos, under Stormwater, at: <http://www.roanokecountyva.gov> ■

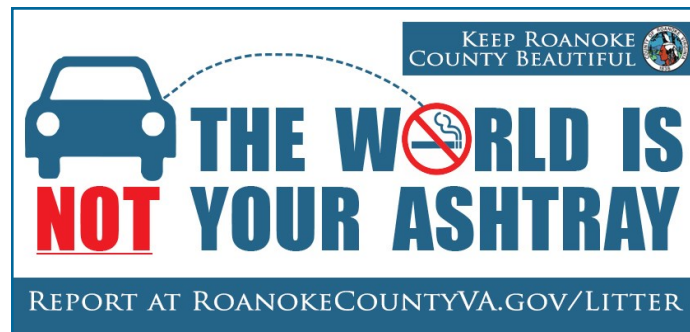


Please, only rain down the storm drain.



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This publication is a public service message brought to you by Roanoke County, Department of Community Development. As regulated by federal and state laws, the County's Stormwater Management Program must include public information strategies to encourage the prevention of stormwater pollution. For more brochures or information on ways to prevent stormwater pollution, please contact the County's Department of Community Development, Division of Stormwater Management, at 540-772-2065.



Have you ever noticed how many cigarette butts are in the streets? In fact, cigarette butts are the most littered item in America. They make cities and counties ugly, and worst of all, they can be harmful to children, pets, and wildlife if ingested, and they also pollute the local waterways.

Many folks think cigarette butts are biodegradable, and therefore not harmful to the environment. Not True! The cigarette filter is made of cellulose acetate, which is NOT biodegradable, and the butts contain toxic residues. In addition, if these little “nasties” are tossed out when they are still lit, they can cause forest fires or house fires, and the chemicals in them may contaminate groundwater or receiving waters.

It is for all of these reasons that Roanoke County developed “The World is Not Your Ashtray” ad campaign. Citizens are encouraged to report littering on the County's website at www.roanokecountyva.gov/litter. ■

