

CITY OF TOMBALL
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT
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What is stormwater runoff?¹

Stormwater is any precipitation from a storm event (rain, snow, sleet, etc). Stormwater runoff is any precipitation that does not soak into the ground but instead runs off its surface. Non-porous or impervious surfaces such as driveways, sidewalks, and streets block precipitation from soaking naturally into the ground. Stormwater can carry and deposit chemicals and other harmful substances into surface-water bodies.

Why should you care about Stormwater?

Impaired water quality: Contaminants, such as oil, grease, metals, and pesticides tend to build up on surfaces in urbanized areas. The contaminants come from sources such as pavement deterioration, tire and brake pad wear, vehicle emissions and spills. They may also come from yard and garden care, and pet feces. Stormwater runoff picks up these substances and transports them DIRECTLY to lakes, streams, rivers, or wetlands. In most cases, whatever enters a storm sewer system is discharged UNTREATED into the water bodies we use for swimming and fishing and from which we get our drinking water. Degradation of water quality can also result in a decline in plant and animal diversity.

Increased soil erosion: Raindrops hitting the soil's surface and the movement of water (runoff) across it cause soil erosion. Disturbed soil, lack of vegetation, or both amplify such impacts increasing erosion. Poorly controlled construction sites are also a cause of soil erosion. Not only can these sites harm aquatic environments, but adjacent properties, public roadways and drainage systems.

Isn't stormwater runoff treated? *Storm drain systems* consist of natural and manmade channels and underground pipes that transport rainwater from streets, yards, rooftops, and other areas *outside* your home. This water goes directly to creeks, rivers, streams, and lakes carrying pollutants with it. Water entering the storm drain is not treated.

Sanitary Systems are composed of a branching network of pipes and manholes. This system is used to collect and transport the water (also known as wastewater) from sinks, washing machines, toilets, and other *indoor* plumbing. **Wastewater** entering the sanitary system flows directly to a wastewater treatment plant where it is treated, disinfected, and then released to area streams and bayous. These two systems are not connected.

¹ Adapted from the City of Arlington's "The Citizen's Guide to Stormwater Pollution Prevention."

Why isn't stormwater treated?

Many people wonder why stormwater goes untreated. Here's why: Simply, gutters (curb inlets/catch basins) are designed to prevent flooding. Their job is to remove water from the street as quickly as possible during a rainstorm or other precipitous event. The storm drain system they deposit into is designed to remove water from the streets and dispose of it quickly. The quickest way to dispose of thousands of gallons of water is to allow it to flow into rivers, lakes, or streams, *immediately*.

In addition, because stormwater comes in large amounts at unpredictable times, treating it as wastewater would be very expensive and quite unmanageable. If the sanitary and storm sewer systems were combined, many treatment plants would not be able to handle the quantity and velocities of water that intense storms produce.

Pollution Prevention

One of the key ways to achieve the goals of stormwater management is prevention. Preventing stormwater pollution is more cost effective via **front-of-pipe** rather than **end-of-pipe** measures. That is, the best way to prevent pollution from entering the storm sewer system is to manage it *before* it enters the storm drain.

Municipalities, businesses and individuals can put pollution prevention measures into practice. This chapter includes information on **Best Management Practices (BMPs)** that can be utilized in preventing stormwater pollution around your home.

Pollution prevention measures and BMPs apply to everyday activities that occur inside and outside the home. These include the following categories: vehicle maintenance, lawn & garden care, pet waste, vehicle & pressure washing, swimming pool & spa drainage, litter prevention, **household hazardous waste**, tree planting, rain barrels, and rain gardens.

Vehicle Maintenance

At-home vehicle maintenance is a common practice. Many individuals choose to repair or maintain their vehicles at home rather than visit an auto repair service center. While the actual maintenance work of personal vehicles is not a problem, the byproducts that result from this kind of work can add significant amounts of pollutants into the storm sewer system.

These byproducts (i.e. oil, grease, brake fluid, gasoline, diesel, kerosene, antifreeze, etc), all contain toxins that are harmful to fish and birds, aquatic vegetation, wildlife and humans. Maintaining and repairing vehicles at home can allow these byproducts to leach into the street and then into the storm sewer system, transporting these pollutants to area waterways. When repairing or maintaining your vehicle at home, adopt these few simple practices that can reduce the detrimental impacts of pollutants on our local waterways. And remember two simple rules:

1. Only rainwater may be discharged to the storm sewer system.
2. Minimize the contact of rainfall & runoff with pollutants. Do this by keeping hazardous materials covered and by managing wastes responsibly.

Your Work Area

Be aware of where you work. Any drips or spills on the ground can be carried away by rainwater to a storm drain and into a nearby waterway. So:

- NEVER work on a vehicle in the street or near a storm drain.
- Work on a flat concrete surface where you can easily clean up accidental spills.
- NEVER hose down your work area unless the resulting wash water is contained and disposed of properly.
- Keep storage and work areas clean and dry. Follow these tips for changing your oil and other fluids.
- Use funnels or pumps when handling liquid products or wastes to avoid spills.
- Capture vehicle fluids in separate drip pans or containers.
- Drain and recycle used oil filters. Poke holes in the filter and let it drain into your oil pan for several hours before you recycle them.
- If spills occur, use kitty litter, sawdust, or oil absorbent to clean spills. Apply to the spill, sweep it up and dispose of the waste in the trash.
- NEVER sweep or wash used oil products or other fluids into the storm sewer system.
- Collect your used motor oil and other fluids in separate containers and transport to the Environmental Collection Center.

Be sure to verify that your waste materials are accepted at the local collection center.

Follow these tips when replacing brakes and brake parts.

- Don't hose down brake pads, rotors or drums. Remember, brake pads contain copper, which can erode as the pads wear and contribute to stormwater pollution.
- Use shop cloths to wipe as much brake dust as possible from rotors and drums before using brake cleaner fluid.
- Recycle cleaner fluid by using a drip pan.
- Never discharge cleaning solutions from cleaning into the storm sewer system.

Lawn and Garden Care

Yard Waste entering storm drains or streams and other water sources, increases the risk of flooding and adds pollutants to the environment. Not only does yard waste cause blockages to the drainage system which can lead to localized flooding, it can also quickly "super-fertilize" streams and lakes and can lead to algae blooms and fish kills. Sweeping or blowing grass

clippings, fallen leaves, or other yard waste into the street or down the storm drain can cause serious damage to the storm sewer system and to the water resources to which storm drains lead. Leaves, grass clippings and other yard waste (depending on type) should be composted, left on your lawn, or placed in acceptable containers for curbside pick-up.

If you have to use fertilizers, pesticides, and herbicides, carefully read all labels and apply products sparingly. According to surveys conducted by the Center for Watershed Protection, over 50% of lawn owners fertilize their lawns, yet only 10% to 20% perform soil tests to determine whether fertilization is even needed (CWP, 1999). Conduct a soil test on your lawn and follow the practices listed here to reduce the need to fertilize on your lawn and garden.

Fertilizers & Pesticides

Fertilizers are essentially nutrients used by plants to live. Most fertilizers contain nitrogen, phosphorus, and potassium but can contain other elements as well. Just like humans, plants can only use so much food. Fertilizer that is not used by the plant is available to mix with rain and become stormwater pollution. Nutrients from fertilizers, like nitrogen and phosphorus, promote algae blooms and excessive plant growth in water. Algae deplete oxygen, making it unavailable to fish and other aquatic life. Algae blooms and excessive plants also limit much needed sunlight.

Texas homeowners pour approximately four million pounds of pesticides on their lawns and gardens each year. More pesticides per square inch are applied to a typical yard than to the most intensely sprayed farmland. An estimated 1/3 of the pesticides used at home are wasted because more is used than is needed.

- **TEST** your soil to determine the type of fertilizer needed.
- **USE** fertilizers sparingly and apply fertilizers exactly where you want them.
- **SLOW RELEASE (ORGANIC) FERTILIZER** does not have to be applied as frequently and the risk of burning your grass is reduced.
- **LEAVE** grass clippings on your lawn as natural fertilizers.
- **STORE** fertilizers in areas that are covered to avoid mixing them with rain.
- **DO NOT** apply fertilizer if rain is predicted or on frozen ground or dormant lawns.
- **WASH** spreader equipment on a pervious (penetrable) vegetated area, like the lawn, to allow for the natural absorption of excess fertilizer.
- **DO NOT** apply any pesticides if rain is predicted.
- **SWEEP** any pesticides from paved surfaces onto your lawn.
- **READ** the label instructions before applying any chemical product.
- **SPOT TREAT** areas of pest damage instead of treating the whole yard. If you have fire ants, they may be controlled or eliminated by ant baits.
- **INSECTICIDAL SOAP** is an alternative to traditional pesticides.

Pets and Pet Waste

Pet waste left on streets, pavement, yards, driveways, or along the sides of the road does not magically disappear or fertilize the ground. Improperly disposed animal feces can be picked up by stormwater runoff and carried into storm drains or nearby water sources. Storm drains do not connect to sanitary sewer systems and treatment facilities, so pet waste can be the cause of significant stormwater pollution and present health risks to adults, children and other pets. Pets and children who play in yards or parks and those who garden in yards where pets defecate are at risk for infections from disease-causing viruses, bacteria and parasites found in pet waste.

Some of the diseases that can be transmitted from pet waste to humans include:

- **Salmonellosis:** the most common bacterial infection transmitted to humans by other animals. Symptoms include fever, muscle aches, headache, vomiting, and diarrhea.
- **Toxocariasis:** roundworms usually transmitted from dogs to humans, often without noticeable symptoms, but may cause vision loss, rash, fever, or cough.
- **Toxoplasmosis:** A parasite carried by cats that can cause birth defects such as mental retardation and blindness if a woman becomes infected during pregnancy; also a problem for people with suppressed immune systems.
- **Campylobacteriosis:** a bacterial infection carried by dogs and cats that frequently causes diarrhea in humans.
- **Fecal Coliform Bacteria:** found in the feces of warm blooded animals; poses potential health risk for those exposed to it in water.

Summing it Up: Preventing Pollution Starts with You!

Pollution prevention and good stormwater management is essential to protecting water quality. All activities from agriculture, urban development, industrial, and RESIDENTIAL activities influence how much stormwater will enter our water sources and what potential pollutants it will carry. EVERYONE is responsible for working to reduce the impacts of stormwater runoff. Remember these pollution solutions:

- Do **not** dispose of household hazardous wastes in sinks, toilets, or storm drains. Use a commercial carwash that treats or recycles its wastewater, or wash your car on your lawn so that water infiltrates the ground. Washing your car and degreasing auto parts in your driveway can send detergents and other contaminants through storm sewer systems.
- Do **not** dump automotive fluids into storm drains. In some cases this has the same result as dumping these materials directly into a water body.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

- When walking your pet, remember to pick up wastes and dispose of them properly. Pet waste can be a major source of bacteria and excess nutrients in local waters. Flushing pet waste is the best disposal method.
- Use pesticides and fertilizers sparingly. Excess fertilizers and pesticides applied to lawns and gardens wash into storm sewers and pollute streams.
- Do not water your lawn too much, as it causes runoff.
- Compost or mulch yard wastes. Yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.
- Use non-colored mulch from native trees whenever possible.
- Use pest control methods minimizing pesticide applications whenever possible.
- Cover piles of dirt or mulch used in landscaping projects.
- Inspect your septic system every 3 years and pump your tank as necessary. Leaking and poorly maintained septic systems release nutrients and pathogens—bacteria and viruses—that can be picked up by stormwater and discharged into nearby water bodies. Such pathogens can cause public health problems and environmental concerns.
- Volunteer in your City's next litter clean-up event.
- Attend public hearings or meetings on stormwater so that you can express your concerns.
- Report all stormwater violations to the City.
- Keep learning about stormwater runoff and tell a friend!