

Water WoRDs

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Where Does Stormwater Go?

As we welcome spring, we also welcome wet weather such as rain and snowmelt. Wet weather produces stormwater runoff. When it comes to urban areas, the U.S. Environmental Protection Agency ranks urban stormwater runoff as one of the leading sources of water quality impairment in surface waters. So, where does stormwater runoff go when it rains? Often in urban communities, stormwater will enter into a municipal separate storm sewer system (MS4). An MS4 includes public roads, catch basins, curbs, gutters, parking lots, and roadside ditches. Urban pollutants that are commonly discharged through an MS4 include sediment, nutrients, metals, pesticides, pet waste, and salt, which make their way into Michigan's lakes and streams. An urban landscape prevents much of the stormwater runoff from soaking into the ground due to impervious surfaces, like building roofs and pavement, leaving pollutants to be picked up in the runoff and carried untreated to surface waters. For example, think about a parking lot and a car that leaks oil and grease onto that parking lot or a truck that tracks sediment onto the parking lot. During a storm event, stormwater will flow across a parking lot picking up the oils, greases, and sediment before discharging to surface waters.



The Grand River receives stormwater discharges from MS4 permittees in the Lansing and Grand Rapids urbanized areas.

Since 2003, the Water Resources Division (WRD) has required a municipal agency in an urbanized area with an MS4 that discharges stormwater to surface waters, to have a permit authorizing the discharge of the runoff. The goal of the MS4 permit is to reduce the discharge of pollutants from an MS4 to surface waters of the state through the implementation of best management practices (BMP). Currently, there are over 300 municipal agencies under an MS4 permit, including cities, villages, townships, drain commissioners, road commissions, universities, and public school districts.

The MS4 program requires the development and implementation of a stormwater management program consisting of BMPs to:

- educate the public on the impacts of stormwater pollution;
- encourage public participation and involvement;
- detect and eliminate pollutants entering the MS4;
- address stormwater runoff during construction;
- ensure long term management of stormwater runoff after construction is completed; and
- prevent pollution and maintain good housekeeping at municipal properties.

What's a BMP? If you live in an urban area, you have probably observed municipal staff performing activities that serve multiple functions for your community, including reducing the discharge of pollutants. For example, in addition to the desire to have clean-looking streets, municipalities with an MS4 permit are also street sweeping as a BMP. As stated above, pollutants are deposited onto roads and parking lots during dry weather conditions, only to form a slug of pollutants that are discharged during the next storm event. By removing the pollutants prior to the wet spring and fall seasons, the slug of pollutants is prevented from making its way to surface waters.



The City of Lansing conducts street sweeping as a best management practice.

A catch basin is a common BMP for the treatment of stormwater runoff. The top of the catch basin is the grate you see in a traditional curb-and-gutter setting serving a paved road or parking lot. Many grates are casted with the saying "Drains to River" to inform the public that the storm sewer does not convey pollutants to a wastewater treatment plant.

A catch basin has a sump which is the part you see when you look inside it. It is connected to a storm sewer pipe that ultimately discharges to surface waters. That sump allows pollutants to settle out prior to flowing through the storm sewer pipe, much like the trap in your kitchen sink traps objects. There are a lot of catch basins out there quietly doing their job of removing pollutants; however, a municipality with an MS4 permit is responsible for cleaning out the catch basin sump to ensure that pollutants do not reenter the storm sewer pipe. In the warmer weather seasons you may see a specialized truck used to clean out catch basins, working like a big vacuum to remove pollutants.

An MS4 is often an interconnected network of MS4s with one municipal agency discharging to another municipal agency's MS4. The distance to a lake or stream can be short or the MS4 network can be large and complex. With the overall MS4 permit goal of reducing the discharge



A catch basin grate casted with a reminder that stormwater drains to waterways.

of pollutants to surface waters and the interacting network of MS4s, many MS4 permittees have opted to work collaboratively to share the cost and resources of implementing BMPs to meet MS4 permit requirements. For example, MS4 permittees educate the public on topics related to all MS4s such as: what is an MS4, what is a watershed, and how do individuals impact the quality of stormwater runoff. By working collaboratively, MS4 permittees can repeat the same message to the public resulting in a greater awareness of the impacts of stormwater pollution.

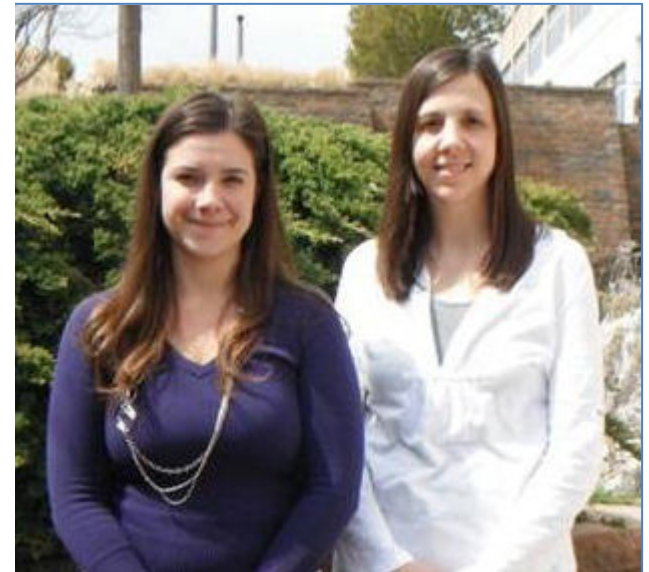
The WRD has incorporated the successes of previous permitting options, such as the collaborative approach, into the permit reissuance process for all MS4 permittees expected to be complete in the next five years. To learn more about the MS4 program go to www.michigan.gov/degstormwater and click on "Municipal Program/MS4 Compliance Assistance."

What do you do in the WRD?

Meet Christe Alwin and Heather Krieger

Christe has worked for the WRD for 12 years, beginning in the Permits Section and then moving to the WRD's Lansing District Office. She is currently the MS4 Compliance Program Coordinator, a position that never came to mind when she volunteered to participate in the early days of Michigan's municipal stormwater permitting program. She currently resides in an MS4 permitted community, near a catch basin.

Heather has worked for the WRD for eight years in the Water Enforcement Unit. She is currently a Senior Enforcement Specialist concentrating on the MS4 and industrial stormwater programs. She has fond memories of growing up in Michigan - climbing trees, swimming in lakes and rivers, catching crayfish, and going fishing. She wants to help protect our state's natural resources for others to enjoy as well.



Heather Krieger (left) & Christe Alwin (right)
