

## Clean Water is Important To All of Us

In recent years, sources of pollution like industrial wastes from factories have been greatly reduced — that's great! Now, the greatest source of water pollution (60 percent) comes from everyday things like residential car washing; cars leaking oil; fertilizers from farms, lawns, and gardens; pet waste; and failing septic systems. All these seemingly harmless sources add up to a BIG pollution problem. BUT each of us can do small things to help clean up our water too —and that adds up to a pollution solution!

## Why Do We Need Clean Water?

Having a clean environment is of primary importance for our health and economy. Clean waterways provide recreation, commercial opportunities, fish habitat, and add beauty to our landscape. All of us benefit from clean water — and all of us play a role in keeping our lakes, rivers, wetlands, and ground waters clean.

Your actions can help  
keep our water clean.  
Find out how and  
spread the word!



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Responsible Car Washing

## What's the Problem with Washing My Car?

There's no problem with washing your car – it's just how and where you do it.

When you wash your car in the driveway or road, the soap — together with the dirt, wax, oil, grease, grime, and grit — washes from your car, flows along the curb, and then deposits into nearby storm drains.

From there, the mess flows through the storm sewer system and directly into our rivers, streams, wetlands, and lakes. This impacts water quality for both humans and aquatic life.



## Where Do Storm Drains Lead?

Did you know that most storm drains are NOT connected to treatment plants?

The purpose of a storm drain is to prevent flooding by diverting stormwater runoff away from developed areas and into bodies of water. Unfortunately, this means any pollutants on the ground can be swept up with the run-off and discharged – untreated – into our lakes, rivers, and streams.



When water from car washing enters a waterway, it harms fish and impairs water quality. The phosphates from the soap cause excess algae to grow, which reduces oxygen levels as it decays. The soap's surfactants damage fish gills and kill their eggs. Even if soap isn't used, the oils, heavy metals, brake linings, and rust washed from vehicles enter storm drains and impact our shared surface water resources.

## Help Keep Our Water Clean

The best way to minimize your environmental impact is to use a commercial car wash, especially if you plan to clean the engine or the bottom of your car. The average homeowner uses 116 gallons of water to wash a car, but commercial operations use 60 percent less water for the entire process than a homeowner uses just to rinse! Most car washes also reuse wash water several times before sending it to the sanitary sewer system for treatment, ensuring pollution stays out of our waterways.

However, if you choose to wash your car at home, follow these tips:

- If allowed by your local community, wash your car on the lawn so the ground can filter the water naturally.\*
- Use soap sparingly.
- Use a hose nozzle with a trigger to save water when you don't need it.
- Pour your bucket of soapy water down the sink when you're done, NOT in the street.
- Avoid using engine and wheel cleaners or degreasers.

\*Please check local ordinances before washing or parking your vehicle on the lawn!



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Lawn & Garden Care



## What's the Problem with Fertilizer?

Fertilizer isn't a problem if it's used carefully. But if you use too much or apply it at the wrong time, it can easily wash off your lawn or garden and into storm drains. From there, it flows into our rivers, streams, wetlands, and lakes without undergoing treatment.

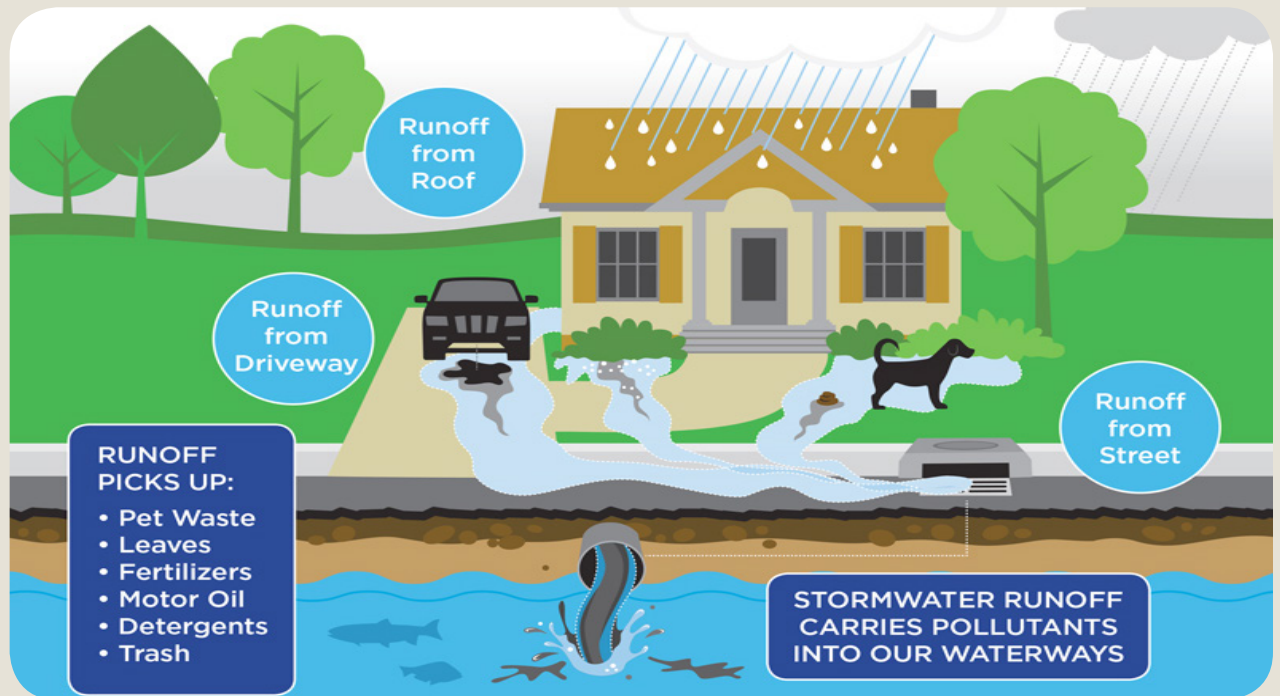
Just like in your garden, fertilizers make aquatic plants grow. But while fertilizer may help our lawns, excess phosphorus and nitrogen in waterways causes algae to grow faster than aquatic ecosystems can handle. Large algal blooms reduce oxygen levels, increase toxicity, and spur bacterial growth, making the water unsafe for human recreation and aquatic life. By properly applying and limiting usage of lawn fertilizer, you can help protect our surface water resources from nutrient pollution.



## Where Do All of Those Storm Drains Lead?

Did you know that most storm drains are NOT connected to treatment plants?

The purpose of storm drains is to carry rain runoff and snowmelt away from developed areas to prevent flooding. The untreated stormwater and the pollutants it carries flow directly into our creeks, rivers, and eventually the Great Lakes. By keeping pollutants off the ground, you help keep them out of our waterways.



## Help Keep Our Water Clean

- Use fertilizers and pesticides sparingly. Test the soil to determine if fertilizers are necessary, and if so, use the minimum amount needed.
- Leave grass clippings on the lawn to decompose and recycle nutrients back to the soil.
- Consider using organic fertilizers and pest control methods whenever possible.
- Use compost - your plants will need less chemical fertilizer and it puts waste to good use.
- Don't over-water your lawn and garden.
- Consider using a drip system or soaker hose instead of a sprinkler.
- Don't fertilize before a rain storm.
- Sweep up grass clippings and fertilizer from paved surfaces and properly dispose of them.
- Mulch mow, compost, or bag leaves. Keep them away from storm drains, as they can block water from flowing and increase nutrient levels in waterways when decaying.
- Install green infrastructure like rain barrels and rain gardens. Native plants do not need as much water or fertilizer.



## Calculate Roof Runoff

To estimate the amount of stormwater runoff your roof produces in a 1-inch rain event, take the square footage of your roof and multiply it by 623, then divide that number by 1,000.

Michigan's average yearly precipitation is 32 inches, meaning a 2,000 square foot home produces nearly 40,000 gallons of stormwater runoff each year! Driveways and decks add even more.

Capture and reuse some of this water by utilizing a rain barrel at your home. You can reduce your water bill during dry periods, prevent erosion from gutter downspouts, and help limit the amount of runoff that could otherwise transfer pollutants through the stormsewer system!



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Green Infrastructure at Home



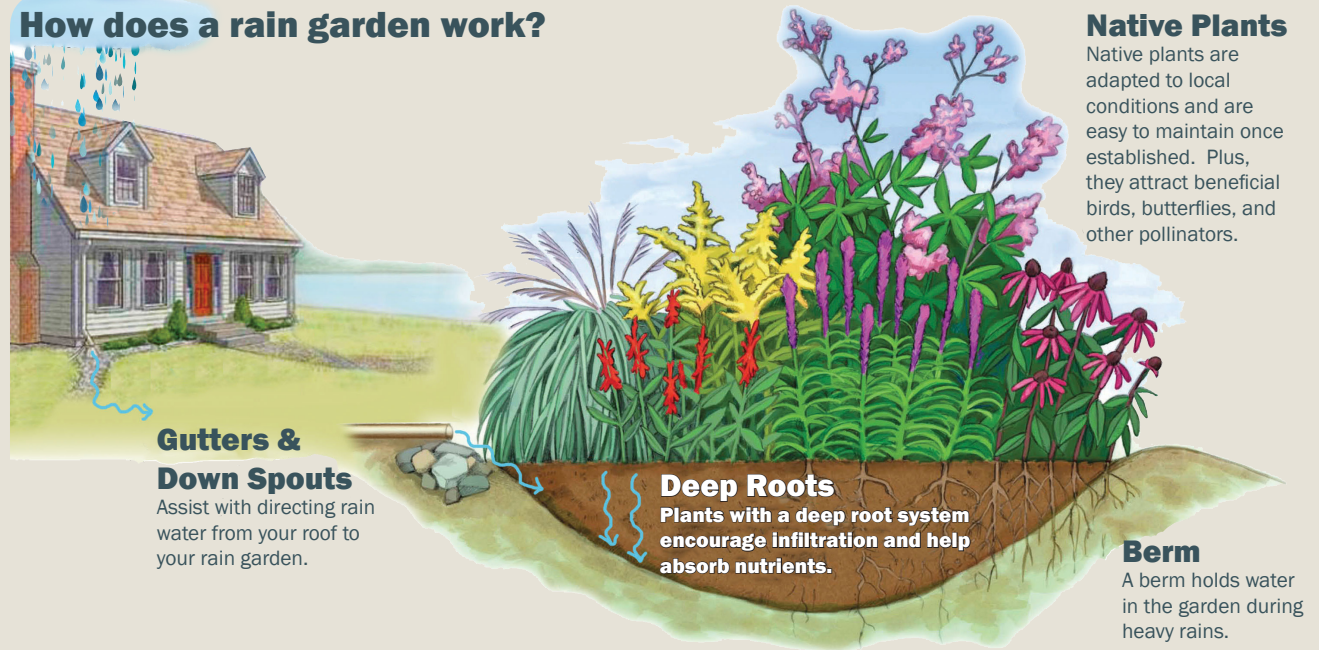
# Green Infrastructure at Home

When rainwater falls on a natural landscape, the vegetation and soils collect and absorb much of it. But when rainwater falls on impervious surfaces like a parking lot or rooftop, the water flows off into storm drains and drainage ditches. Pollutants such as pet waste, chemical fertilizers and leaking motor oil are swept up with the runoff that eventually discharges into our lakes, rivers, and streams without undergoing any treatment.

Green infrastructure mimics natural landscapes by capturing excess runoff on site, reducing runoff volumes and filtering out pollutants that would otherwise enter and impact our surface water resources. You can help protect local water quality by utilizing a rain barrel, planting a rain garden with deep rooted native plants, and incorporating other forms of green infrastructure at your home.

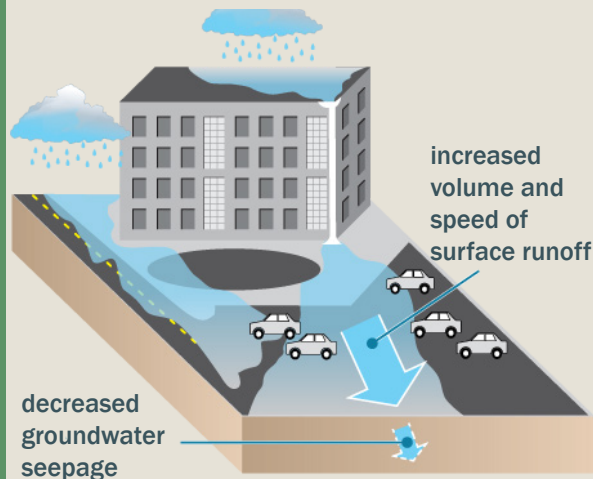
Visit [MyWatersheds.org](http://MyWatersheds.org) for ideas, planting guides, and other green infrastructure resources!

## How does a rain garden work?

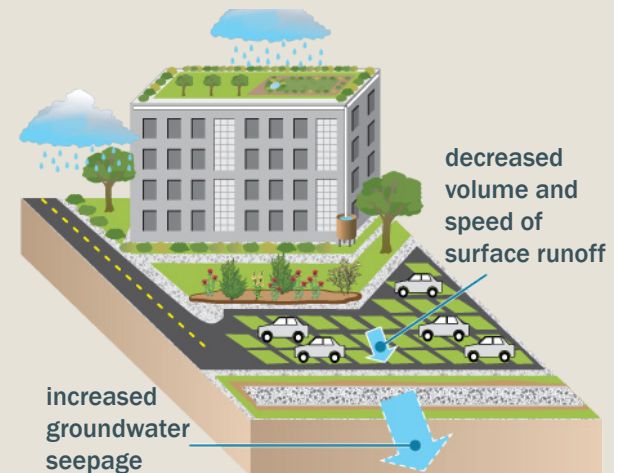


A rain garden is a planted depression in the landscape that collects water from roof downspouts, driveway runoff or sump pump discharges and allows it to soak into the ground rather than enter the storm sewer system. Planted with native grasses and flowering perennials, rain gardens are a cost effective, low maintenance and beautiful way to reduce and filter runoff from your property. Create a butterfly habitat, prevent flooding, and make your lawn more attractive by installing a rain garden at your own home!

## Impervious Surfaces



## Pervious Surfaces





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WEED KILLER  
ROAD SALT  
NAIL POLISH  
FERTILIZER  
SEWAGE  
PET WASTE  
SOIL EROSION  
MOTOR OIL**



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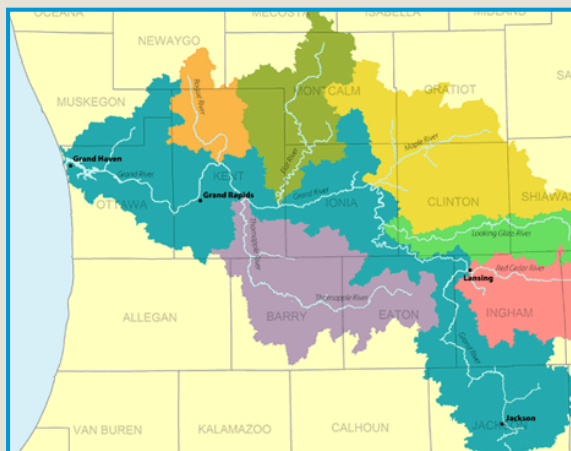
Motor Oil Management

## What's the Problem with Motor Oil?

Most oil pollution is different than the pictures you see of oil covered beaches following a major spill or accident. In fact, poorly maintained vehicles are one of the biggest causes of oil pollution in our waterways. Leaking automotive fluid goes from car to street, street to storm drain, and from the drain to our rivers, lakes, and streams. With over 250 million cars on the road, small spills add up to big problems.

It's estimated that Americans spill 180 million gallons of used oil each year. That's 16 times the amount spilled during the Exxon Valdez disaster! By quickly fixing leaks, you can help protect both your vehicle and our water resources.

## Help Keep Our Water Clean



In the Grand River watershed, pollutants on the ground eventually make their way to Lake Michigan! Protect the Great Lakes by regularly checking for automotive leaks and fixing them promptly.



One pint of used motor oil can make a slick larger than a football field.

## Together We Can Stop Water Pollution at the Source

- Stop drips. Check for leaks regularly and fix them promptly. Keep your car tuned to reduce oil use.
- Use ground cloths or drip pans beneath your vehicle if you have leaks or are doing engine work; clean up spills immediately; collect all used oil in containers with tight fitting lids; and do not mix different engine fluids.
- Never dispose of oil or other fluids down the storm drain, on the ground, or into a ditch.
- Recycle used motor oil. Many auto parts stores and gas stations will accept used oil.
- Buy recycled (re-refined) motor oil to use in your car.

To find out more about where you can take used oil for recycling in your community, visit [www.MyWatersheds.org](http://www.MyWatersheds.org)!

**Dumping automotive fluids into storm drains has the same result as dumping them directly into our shared surface water resources.**



## Pet Waste Facts

- Just one gram of dog waste can contain as many as 23 million fecal coliform bacteria.
- The 90 million dogs in the United States produce over 10 million TONS of dog waste each year!
- The waste produced by the dogs and cats in the Tri-County area is about the same as what 50,000 people – roughly the population of East Lansing – would produce.
- Hookworms, ringworms, tapeworms, and salmonella can be spread by contact with infected dog waste.
- Due to the high-protein, highly processed diets of modern dogs, their waste can contain more bacteria and pathogens by weight than that of cows.
- If left on the ground, pet waste can be washed into storm drains, discharge into surface waters, and impair water quality.

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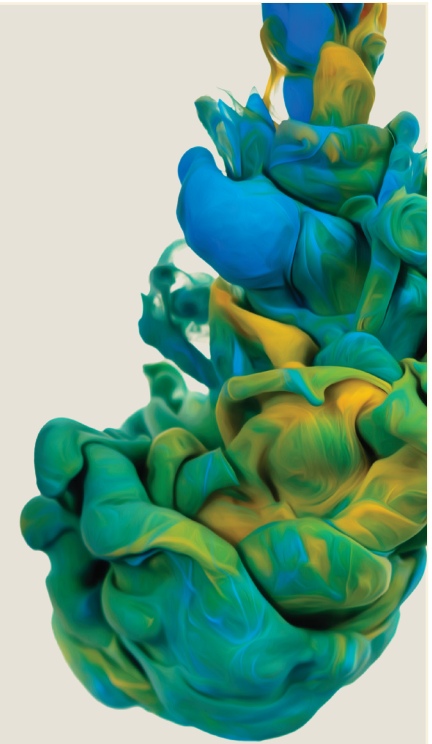
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Pet Waste Management

## What's the Problem with Pet Waste?

Pet waste isn't just a nuisance in yards and parks, it's full of bacteria that can make people and aquatic habitats sick. When left on the ground, precipitation and sprinkler runoff can wash pet waste (and the bacteria it carries) into storm drains. Since most storm sewers discharge into rivers, lakes, and streams without undergoing any treatment, runoff polluted with pet waste and other contaminants can impair our surface water resources.



## Help Keep Our Water Clean

There are many threats to the health of our watershed, but picking up after our pets is a simple and easy way to limit one common source of pollution.

- Frequently pick up pet waste from your yard or hire a pet waste removal company to clean it on a routine basis.
- Pick up after your pets before watering your yard or cleaning patios and driveways. Never hose pet waste into the street or gutter.
- Carry a plastic or biodegradable bag when walking pets and be sure to pick up after them. Either throw the waste in the garbage, flush it, use a pet waste compost, or:
- Bury small quantities in your yard where it can decompose slowly. Dig a hole one foot deep, put three to four inches of waste at the bottom of the hole, and cover the waste with at least eight inches of soil. Bury the waste in several different locations in your yard, just make sure to keep it away from vegetable gardens!

### If they can't do this...



### Please do this!

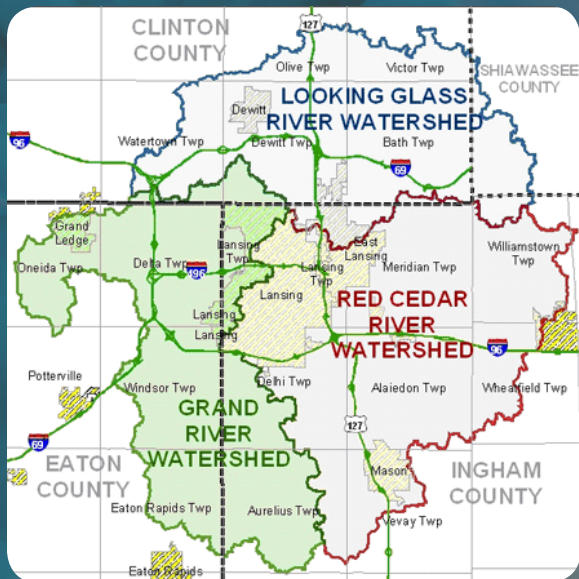




## Urban Watershed Areas

In the urban watershed area, storm drains (or catch basins) are designed to carry stormwater away from developed, highly impervious areas to prevent flooding. However, any pollutants on the ground (like motor oil, pet waste, and litter) can be picked up by stormwater runoff and drain into our waterways. This type of pollution is the number one water quality problem in the nation.

If you live in the Greater Lansing Region, you live in either the Red Cedar River, Looking Glass River, or Grand River urban watershed. You can help protect water quality by visiting [www.MyWatersheds.org](http://www.MyWatersheds.org) for more educational information and a calendar of local water-focused events!



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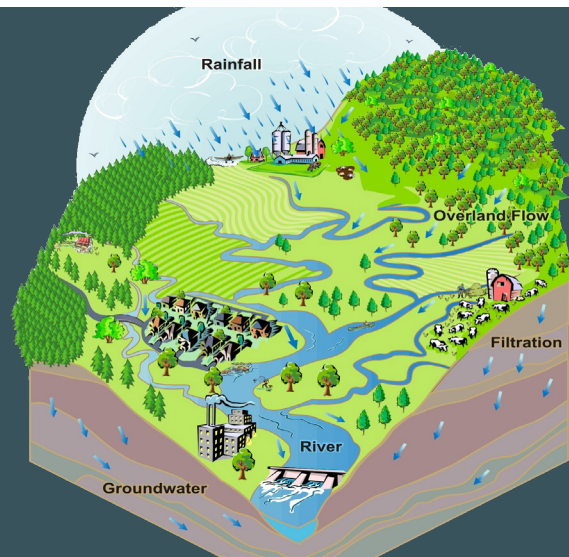


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**DO YOU KNOW YOUR  
WATERSHED?**

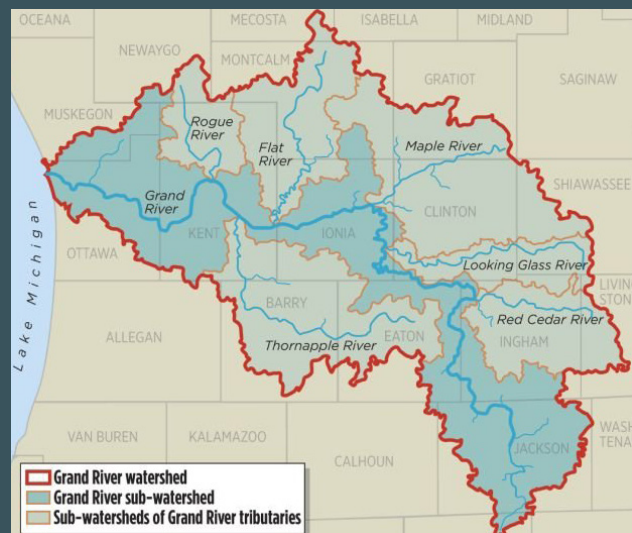
We All Live In A Watershed.  
Help Protect Yours.



Source: Arkansas Watershed Advisory Group

A watershed is an area of land that drains to a common point. That common point may be a lake, the outlet of a river, or any point within a river system.

In the Grand River watershed, all land drains to Lake Michigan and eventually the Atlantic Ocean! This means that pollution on the ground at home can impact water quality much further “downstream.”



## Upper Grand River Watershed

### Looking Glass River Watershed

(urbanized area only)

Population (2016): 54,792

Political Jurisdictions: 14

Land Area: 80,290 acres

Wetlands: 16,070 acres

Miles of Rivers & Streams: 183



### Grand River Watershed

(urbanized area only)

Population (2016): 118,256

Political Jurisdictions: 13

Land Area: 93,622 acres

Wetlands: 8,586 acres

Miles of Rivers & Streams: 325



### Red Cedar River Watershed

(urbanized area only)

Population (2016): 170,304

Political Jurisdictions: 15

Land Area: 105,629 acres

Wetlands: 13,967 acres

Miles of Rivers & Streams: 225



## Top 10 Things You Can Do To Protect Our Watersheds

- Always conserve and reuse water wisely.
- Soil test before applying lawn fertilizers - you may not need them at all!
- Landscape with native vegetation and wildflowers that do not require fertilizers and excess watering. They will help filter pollutants from runoff water.
- Install a rain barrel to capture, reuse, and control stormwater runoff.
- Dispose of pet waste properly in the trash or toilet (not in onsite septic systems).
- Wash your car on the lawn instead of pavement (if allowed in your community). Suds and grease can flow from driveways to storm drains but can be filtered by soils if washed on lawns.
- Maintain all vehicles, eliminating leaks and spills.
- Recycle and dispose of household chemicals properly (motor oil, household cleaners, paint, etc).
- Inspect and maintain onsite septic systems.
- Join a watershed organization!