



# Managing Your Home Watershed





water is all connected!



## Welcome!

We're all part of a watershed! That means your home is directly connected to the streams, rivers, lakes, and oceans we depend on. By managing the water at your home, you can help to keep our water resources healthy for everyone and everything that depends on them.

## RAINWATER AND YOU

Thanks to gravity, water flows downhill. Rain that falls on your home will eventually flow into streams, rivers, lakes and eventually the Gulf or Ocean. It will also flow through your neighbor's gardens, other communities and positively or negatively affect thousands of people. Before your home was built on your property, there was a dense native landscape such as a forest or prairie that naturally cleaned and absorbed much of the rain that fell there throughout the year.

Your home, driveway, and other pavement greatly increases the amount of rainwater runoff that may pickup pollutants from your home watershed, which is described below, and carry them downstream. Your actions affect the cleanliness of the water as well as the quantity of water that when combined with others' runoff may increase the flood risk. It is important to remember that this runoff affects not only you but also everyone else downstream, and we are all downstream...

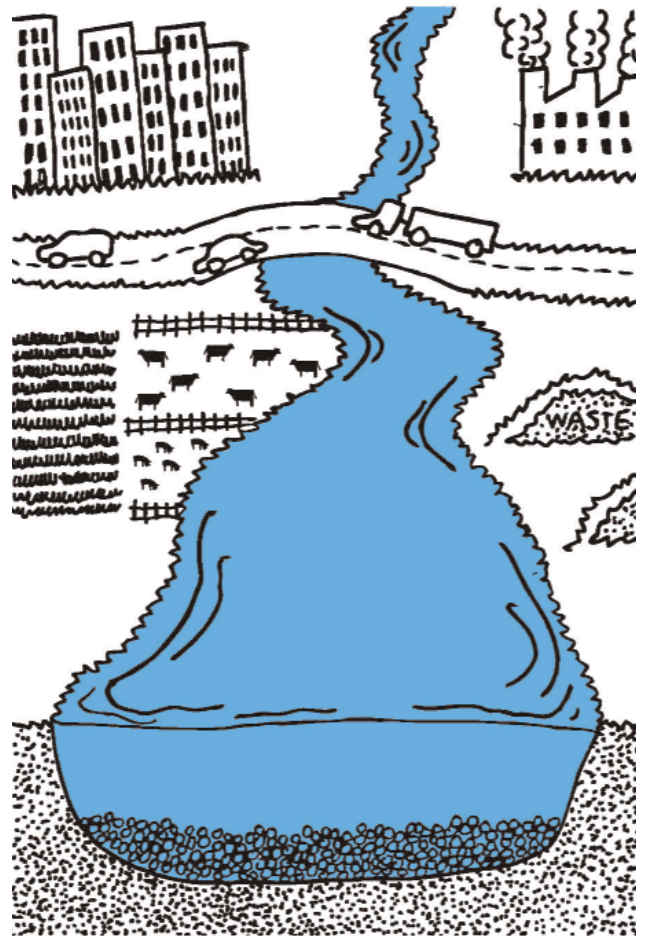
Proper management of home watersheds results in the following benefits for communities:

**Pollution Reduction,**

**Flood Protection,** and

**Water Conservation.**

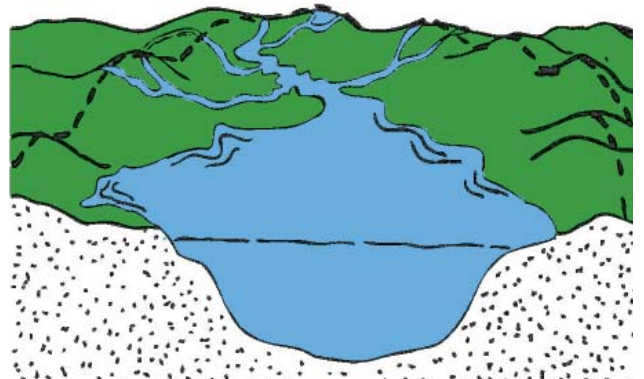
The last page of the brochure provides links to technical information to help you implement the ideas you'll discover in the following pages.

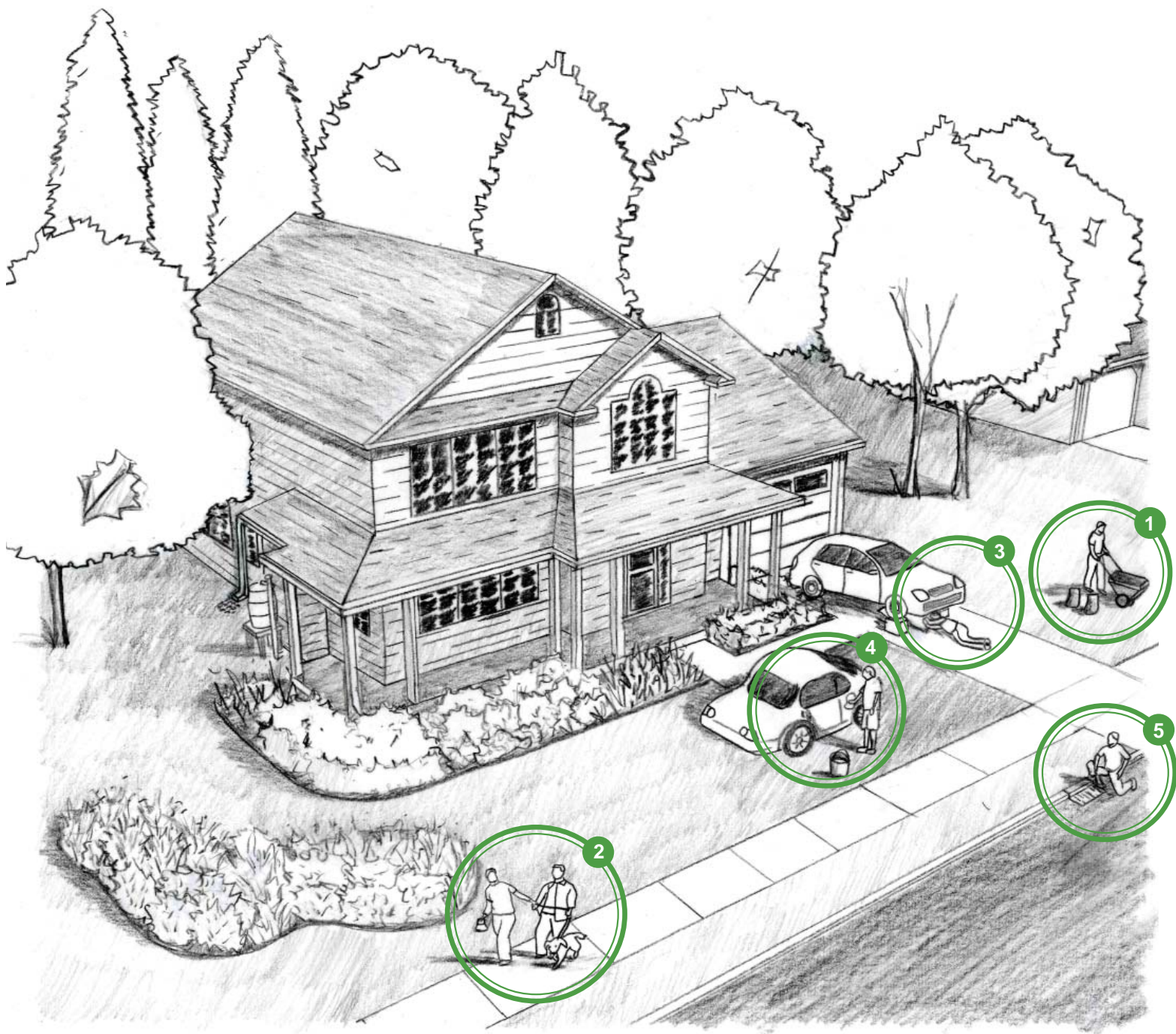


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## WHAT IS A WATERSHED?

A watershed is an area of land within which water from rain or snow drains into a body of water, such as a stream, river, lake, or ocean. Your home's watershed is an area of land around the home within which its water drains to the nearest stream, swale, or stormwater drain. We typically describe watersheds based on the land area that drains to a specific stream, river, or waterbody because they are nature's natural drainage areas.





# Pollution Reduction

Pollution from your home and yard eventually reaches a local stream and then continues to travel down stream. Common pollutants are excess fertilizers, sediment, pet waste, and oil.



## 1 LAWN CARE

If lawn fertilizers such as nitrogen and phosphorus are used improperly, they may contribute to water pollutions. You can help keep excess nutrients out of our streams by having your soil tested by the state extension service to avoid over-fertilizing. Check the rain forecast to ensure that it is not expected to rain heavily after you apply fertilizers. Clean excess fertilizers off pavements to ensure they will not wash away. Finally, you can mulch grass clippings back into your lawn to reduce the amount of nutrients you will have to add later.

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## 2 PET WASTE PICK-UP

Pet waste (yes, that stuff) is a common source of pollution in watersheds but is easily managed. The improper disposal of pet waste causes cloudy and green water; dead fish, and even illness in humans. The simple solution for this common problem is for pet owners to be good neighbors and flush or throw away the waste with household garbage.

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## 3 CAR MAINTENANCE

Proper car maintenance involves checking for leaks, using non-toxic antifreeze, properly disposing of old batteries, and using the correct oil change process. To change your oil at home, you should use a drip pan and dispose of oil at a designated disposal location.

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## 4 CAR WASHING

Carwash soap reduces water quality and carries oils and dirt from your car. To minimize the impacts of washing your car, you can simply wash your car over lawn or on gravel to filter out pollutants. It is recommended to use biodegradable soap to keep your lawn healthy. Another option is to use a commercial car wash that uses water efficiently and disposes of waste water properly.

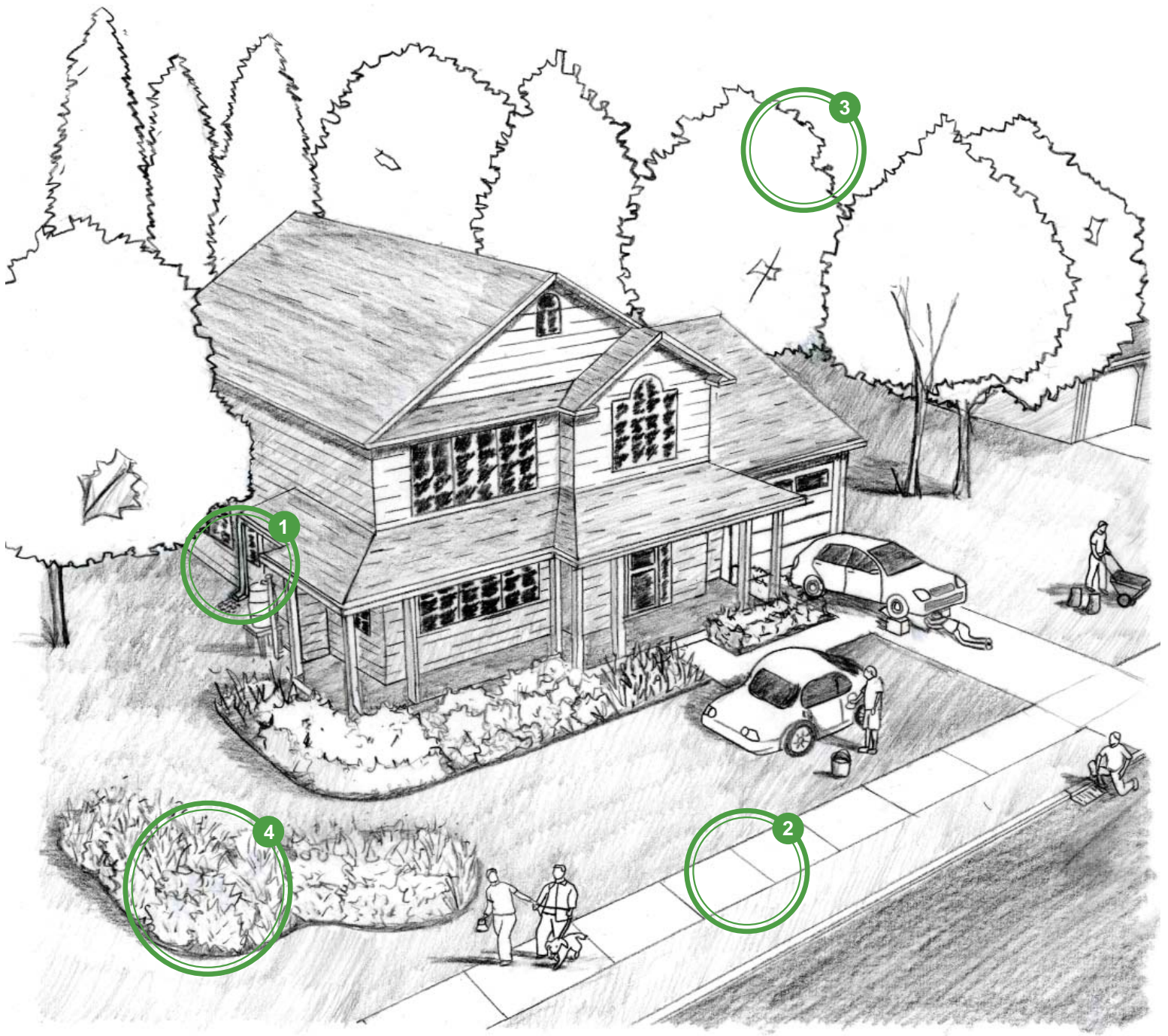
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## 5 WASTE DISPOSAL

You can help to protect our streams and drinking water by properly disposing of excess fertilizers, paints, chemicals, cooking oils, and car fluids. These items can pose severe problems to our watershed's health if they're simply poured down the storm drain. Dispose of these at household hazardous waste pickup days. Unused medications can be turned in at drug take-back events. Remember, clean water starts with you!





# Flood Protection

When water hits pavement instead of a tree or goes into a pipe instead of running across a prairie, it changes how fast and how much water leaves the area. Reducing imperviousness allows water to run over natural materials and mitigates flows.



## 1 FEWER PIPES

Man-made flooding is caused by greater amounts of water moving faster through drainages. Directing water into pipes limits its ability to be absorbed by soil and plants and sends it downstream much faster. You can look for opportunities at home to direct water from gutters to lawn and garden areas and away from your foundation. You can discourage the use of pipes along streets and look for ways to use dry-swales to move water away from your home. The longer rainwater is on lawns and gardens and not in a pipe, the less chance water and pollutants will have in making their way directly into streams.

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## 2 LESS PAVEMENT

It's really simple... more hardscape = more runoff. Streets, roofs, driveways and patios in a neighborhood create 3 to 4 times more runoff than a forest or even your home garden. When we create new hardscapes we can reduce their negative effects with technologies like rain gardens, described below, or use less water-resistant materials like gravel instead of concrete for driveways. There are also some very cool alternatives like pervious concrete and pervious pavers that allow water to flow right through them to the ground below.

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## 3 MORE TREES\LESS LAWN

Perhaps the single biggest impact you can have on reducing runoff from your yard is simply planting more large shade trees. Up to 1" of rain can be stored in a mature tree canopy and a mature tree can transpire up to 40 gallons of water a day.

Lawn is much better than pavement but it's still not as good as a garden. Deep rooted plants in healthy soil encourage rainwater to infiltrate much better than lawn areas. So, minimizing lawn area not only saves mowing costs and effort but it's also better for the watershed.

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## 4 RAIN GARDENS

Rain gardens collect, filter, and allow rainwater to soak into the ground before it leaves your yard. Rain gardens are a planted depression with 12" to 24" of a sandy loam soil mix underneath. The plants and soil are specially designed to absorb rainwater, which will infiltrate into the surrounding soil. Rain gardens are fairly easy to install and can be an attractive, sustainable addition to any landscape.







# Water Conservation

On average, Americans use almost 30 billion gallons of clean, fresh water each day at their homes. Irrigation alone consumes 32% of that water.



## 1 HOME WATER USE

We call clean, fresh, drinking water that is safe for human consumption potable water. It is a valuable resource and one that we all pay for. Homeowners can help reduce water use by making small changes inside the home. These can include turning water off while brushing teeth and washing dishes, taking shorter showers, and running full loads in clothes washers and dishwashers. Replacing old fixtures and appliances can also save plenty of potable water but is not quite as easy as simply reducing our usage.



## 2 DROUGHT-TOLERANT PLANTS

Of the potable water Americans use at home, about one third is used to water lawns and gardens. The first step in reducing irrigation demand is to plant native, drought-tolerant plants. There are many, beautiful native or adapted plants that will grow well in your garden with little or no irrigation. Consult your local county extension for drought-tolerant plants. By using drought tolerant plants, you can help your local environment, reduce the demand for clean water, and lower your water bill.



## 3 OPTIMIZED IRRIGATION

When irrigation is needed, the overall demand can be reduced by watering early in the morning and making sure sprinklers are not running when it's raining or sprinkling on pavement. More advanced sprinkler systems can use moisture sensors and even check the weather to see if irrigation is needed.



## 4 RAINWATER HARVESTING

Why keep paying for something that falls on us for free??? The use of rain barrels is the simplest form of rainwater harvesting, which is basically storing water when it rains for later irrigation. Larger cisterns can easily store over a thousand gallons of water and fulfill all of your garden irrigation needs.



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# Pollution Reduction

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## LAWN CARE

EPA, Lawn Care (<http://www2.epa.gov/nutrientpollution/what-you-can-do-your-yard/>)

Clinton River Watershed Council (<http://www.mda.state.mn.us/protecting/waterprotection/lawnsheds.aspx>)

Lowe's ([http://www.lowes.com/cd\\_Fertilizer+Buying+Guide\\_543192373\\_](http://www.lowes.com/cd_Fertilizer+Buying+Guide_543192373_))

## PET WASTE PICK-UP

NJ Department of Environmental Protection ([http://www.state.nj.us/dep/watershedmgt/pet\\_waste\\_fredk.htm](http://www.state.nj.us/dep/watershedmgt/pet_waste_fredk.htm))

Gill's Creek Watershed Association ([http://gillscreekwatershed.org/dog\\_poop\\_disposal.html](http://gillscreekwatershed.org/dog_poop_disposal.html))

## CAR MAINTENANCE

City of Gresham, Oregon (<http://greshamoregon.gov/city/city-departments/environmental-services/watershed-management/template.aspx?id=6672>)

## CAR WASHING

EPA ([http://cfpub.epa.gov/npstbx/files/KSMO\\_CarWashing.pdf](http://cfpub.epa.gov/npstbx/files/KSMO_CarWashing.pdf))

Philadelphia Water Department ([http://www.phillywatersheds.org/whats\\_in\\_it\\_for\\_you/businesses/vehicle-maintenance-and-repair](http://www.phillywatersheds.org/whats_in_it_for_you/businesses/vehicle-maintenance-and-repair))

## WASTE DISPOSAL

Baltimore County (<http://www.baltimorecountymd.gov/Agencies/environment/groundwatermgt/hazwaste.html>)

Indiana Household Hazardous Waste Task Force ([http://www.greenwood.in.gov/egov/documents/1317993275\\_429656.pdf](http://www.greenwood.in.gov/egov/documents/1317993275_429656.pdf))

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# Additional Resources

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Follow the above links to find out details and ideas about how to improve your home watershed our watershed. Good luck, we're all counting on you!!!



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## Flood Protection

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### FEWER PIPES

City of Chicago ([http://www.cityofchicago.org/dam/city/depts/water/supp\\_info/ManagingStormwaterAtHomeBrochure.pdf](http://www.cityofchicago.org/dam/city/depts/water/supp_info/ManagingStormwaterAtHomeBrochure.pdf))

Alliance for the Chesapeake Bay (<http://stormwater.allianceforthebay.org/take-action/structural-bmps/downspout-disconnect/>)

### LESS PAVEMENT

Sierra Club Green Home (<http://www.scgh.com/go-green/landscaping-and-outdoors/permeable-paving/>)

City of Seattle ([http://www.seattle.gov/util/groups/public/@spu/@usm/documents/webcontent/spu01\\_006286.pdf](http://www.seattle.gov/util/groups/public/@spu/@usm/documents/webcontent/spu01_006286.pdf))

### MORE TREES/LESS LAWN

Sustainable Cities Institute ([http://www.sustainablecitiesinstitute.org/view/page.basic/class/feature.class/Lesson\\_Benefits\\_Urb\\_Forest\\_Trees](http://www.sustainablecitiesinstitute.org/view/page.basic/class/feature.class/Lesson_Benefits_Urb_Forest_Trees))

EPA, Trees (<http://www.epa.gov/greenacres/index.html#Benefits>)

### RAIN GARDENS

University of Wisconsin (<http://learningstore.uwex.edu/assets/pdfs/GWQ037.pdf>)

This Old House (<http://www.thisoldhouse.com/toh/how-to/intro/0,,20517496,00.html>)

MSU Cares (<http://msucares.com/lawn/landscape/sustainable/rain.html>)

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## Water Conservation

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### HOME WATER USE

Office of Compliance Assistance & Pollution Prevention (<http://epa.ohio.gov/Portals/41/p2/fact117.pdf>)

EPA (<http://water.epa.gov/polwaste/nps/chap3.cfm>)

Center for Watershed Protection (<http://www.cwp.org/2013-04-05-16-15-03/what-you-can-do>)

### DROUGHT-TOLERANT PLANTS

Better Homes and Gardens (<http://www.bhg.com/gardening/flowers/perennials/perennials-with-drought-tolerance/>)

MSU Cares (<http://msucares.com/lawn/garden/tips/01/010625.html>)

### OPTIMIZED IRRIGATION

California Department of Water Resources (<http://www.water.ca.gov/wateruseefficiency/sb7/docs/20x2020plan.pdf>)

EPA (<http://water.epa.gov/polwaste/nps/chap3.cfm>)

### RAINWATER HARVESTING

wikiHow (<http://www.wikihow.com/Build-a-Rainwater-Collection-System>)

This Old House (<http://www.thisoldhouse.com/toh/photos/0,,20405190,00.html>)

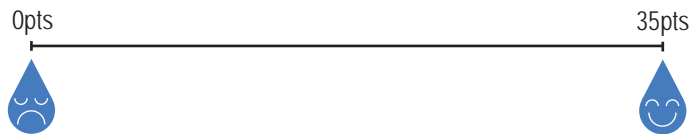
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## RESULTS

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### SCORE

To see how you are doing in your home watershed, check all boxes that apply to you at home and add up the points to see where you land on the score line below.



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# Home Watershed Scorecard

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Use this scorecard to find out how well you are managing and protecting your home watershed.



## — WATER CONSERVATION —

### HOME WATER USE

- 1pt  I turn off water while brushing teeth or washing dishes.
- 1pt  I take short showers.
- 1pt  I reuse dishwater for watering plants.
- 1pt  I run full loads in clothes washers and dishwashers.
- 2pts  I use water-efficient appliances.
- 2pts  I have low-flow faucets or shower heads.

### DROUGHT-TOLERANT PLANTS

- 1pt  I have drought-tolerant, native plants.

### OPTIMIZED IRRIGATION

- 1pt  I water early in the morning.
- 1pt  I make sure sprinklers are off when it's raining.
- 1pt  I make sure sprinklers water plants and not pavement.  
*or*
- 2pts  I use an advanced sprinkler system that senses when irrigation is needed.  
*or*
- 3pts  I do not irrigate at all.

### RAINWATER HARVESTING

- 1pt  I use a rain barrel or cistern to harvest rainwater for reuse.

## — POLLUTION REDUCTION —

### LAWN CARE

- 1pt  I have my soil tested to avoid over-fertilizing.
- 1pt  I check the forecast to ensure it won't rain directly after I fertilize.
- 1pt  I clean excess fertilizer off pavements.
- 1pt  I mulch grass clippings to add nutrients to my lawn.  
*or*
- 4pts  I do not fertilize at all.

### PET WASTE PICK-UP

- 1pt  I always flush or throw away my pet's waste.

### CAR MAINTENANCE

- 1pt  I check my car for leaks.
- 1pt  I use non-toxic antifreeze.
- 1pt  I properly dispose of old batteries.
- 1pt  I properly collect and dispose of oil.

### CAR WASHING

- 1pt  I wash my car over the lawn or on gravel.
- 1pt  I use biodegradable, ammonia-free soap.  
*or*
- 2pts  I take my car to a commercial car wash.

### WASTE DISPOSAL

- 1pt  I properly dispose of fertilizers, paints, and chemicals.
- 1pt  I never flush or pour old medications or cooking oils down the drain.

## — FLOOD PROTECTION —

### FLOOD PROTECTION

- 1pt  I direct water from gutters to lawn and garden areas.
- 1pt  I have a swale, not a pipe, along the street in front of my house.
- 1pt  I use dry-swales instead of pipes to move water away from my home.

### MORE TREES/LESS LAWN

- 1pt  More than one-half of my yard is garden or forested.
- 1pt  I have large shade trees in my yard.

### LESS PAVEMENT

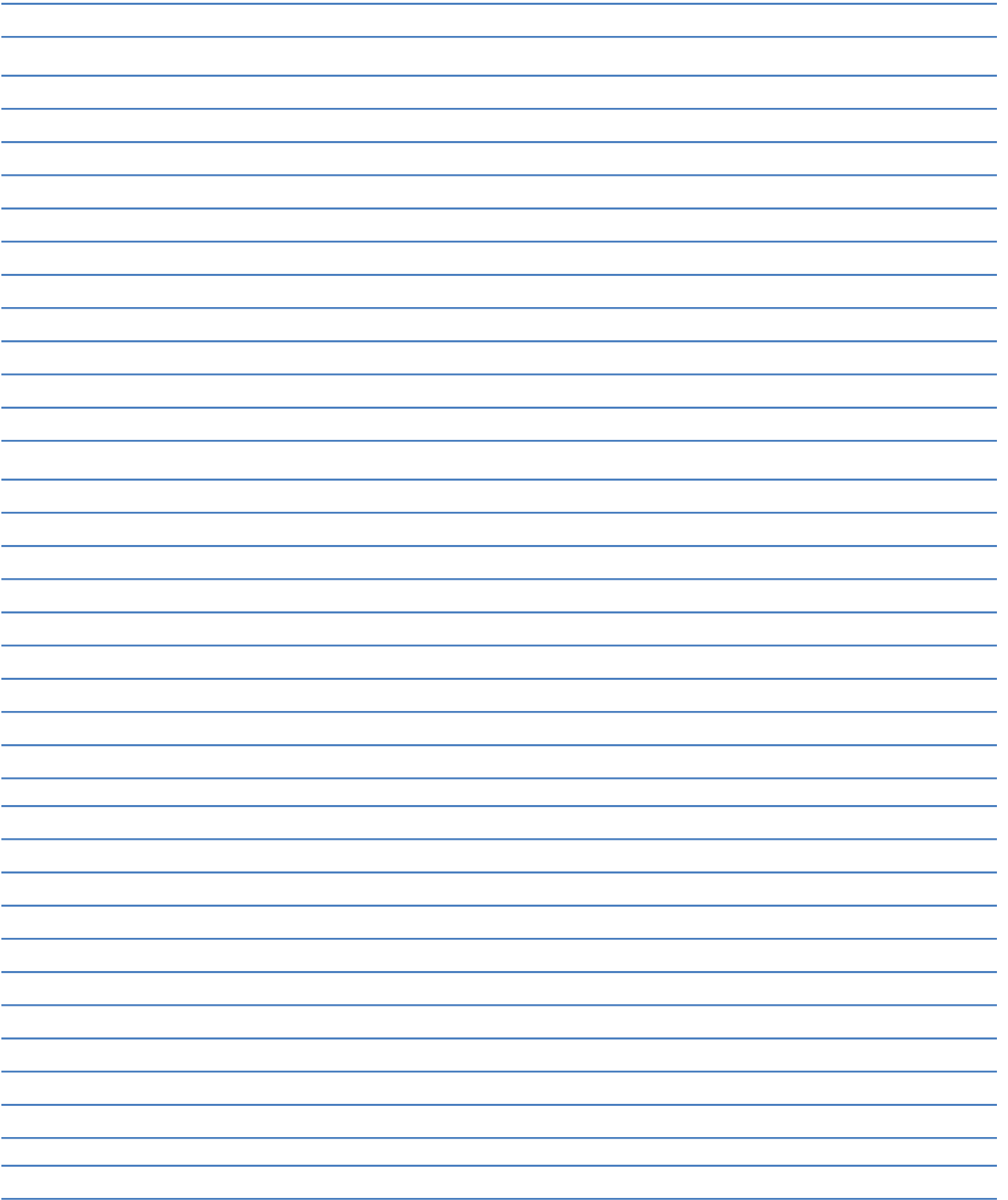
- 1pt  I have a pervious driveway made out of gravel or pervious pavers.
- 1pt  I do not have an oversized driveway.  
*or*
- 2pts  I do not have a driveway.
- 1pt  I have a pervious patio made out of gravel or pervious pavers.

### RAIN GARDENS

- 1pt  I have a rain garden in my yard.







## **PRODUCTION NOTES**

This document was produced by the Mississippi Water Resources Research Institute at Mississippi State University for the Mississippi Department of Environmental Quality in November, 2013.

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