

What is Stormwater?

Stormwater is any water running off the land's surface after a rainfall or snowmelt event. Run-off is carried off hard (impervious) surfaces, into the storm sewer systems, and eventually into surface waters.

The Problem

Water running off impervious surfaces like rooftops, roads, and driveways is not natural and harms our lakes and wetlands. This water, which does not absorb into the ground, causes flooding, increases erosion, and carries pollution to our surface waters.

You Can Make a Difference

The key to solving this problem is to *stop water from running off* your property. Techniques used to stop stormwater runoff are summarized in this pamphlet. Runoff water that is stopped either soaks into the ground (infiltrates), evaporates, or can be collected for gardening or other purposes.

How to be a Hero

Easy and economical techniques are available to stop runoff and increase infiltration. A homeowner can reduce stormwater runoff by *several thousand gallons* per year.

Money is Available!

Local agencies now offer cost-share programs to help pay for water resources projects of all sizes. It is now even easier to stop stormwater runoff! See back panel for a list of programs.



A downspout directing water to a garden.

Local Cost Share Programs

Ramsey-Washington Metro Watershed District
www.rwmwd.org
651-792-7950

Ramsey Conservation District
www.co.ramsey.mn.us/cd/index.htm
651.266.7275

Washington Conservation District
www.mnwcd.org
651.275.1136

Useful Websites

MPCA - Stormwater Program
www.pca.state.mn.us/water/stormwater/index.html

MN DNR— Native Landscaping
www.dnr.state.mn.us/gardens/nativeplants/index.html

University of Wisconsin - Rain Gardens
<http://clean-water.uwex.edu/pubs/index/htm>

Permeable Pavement Fact Sheet
http://builditgreen.org/resource/index.cfm?fuseaction=factsheet_detail&rowid=16

Michigan State University— Green Roof Program -
www.hrt.msu.edu/greenroof/

Come See How it Works!

All of the techniques mentioned here can be seen at the Ramsey-Washington Metro Watershed District office, 2665 Noel Drive in Little Canada. www.rwmwd.org

Ramsey County has developed a Stormwater Pollution Prevention Plan (SWPPP) following MPCA and EPA guidelines. The purpose of the SWPPP is to protect our water resources by reducing the impacts/amount of stormwater runoff. The SWPPP can be viewed on the Public Works website.

www.co.ramsey.mn.us/pw/stormwater.htm

This pamphlet is a modification of original work RWM-009.bro (2006) done by:

Ramsey-Washington Metro
Watershed District

Be a Stormwater Hero!



Stop water where it drops!



Basic Techniques

Downspouts - Direct water onto lawns.

- Having roof runoff spread across your lawn will allow some water to infiltrate.



Rain Barrels - Capture water from roofs.

- An 80 gallon barrel emptied regularly can capture 3,275 gallons of water per year from one side of a house.
- Gardeners favor rainwater for watering flowers and vegetables.
- The cost for a rain barrel: \$100 - \$200.



Trees - Catch rainwater and help infiltration.

- A mature tree canopy will intercept 1,600 gallons of water per year.
- The cost of a 6 ft tree: \$50 - \$100.



Prairie - Deep rooted prairie plants work to slow water runoff and increase infiltration.

- An additional 370 gallons of water would be infiltrated per year if you were to convert 1/2 of your lawn into prairie.
- The cost to seed a 4,500 sq. ft area:
Do-it-yourself: \$300
Professionally installed: \$1,000



Rain Gardens - Are low areas designed to capture runoff from rooftops and driveways.

- A 100 sq. ft. garden can capture and infiltrate 9,000 gallons of water per year.
- Native plants increase infiltration & attract a variety of birds and butterflies.
- Cost: Do-it-yourself: \$300
Professionally installed: \$1,200

Be A Hero:

Stop Water Runoff



How much water can I stop?

We receive 24 in. of rain during an average year. **49,000 gallons** of water will run off a residential lot- this is stormwater. We will be able to stop and infiltrate roughly **33,000 gallons** of water each year, reducing storm water runoff by **67 percent** if we use the techniques described here! This will help reduce flooding, erosion, and pollution entering our waters.



How much will it help?

Reducing stormwater runoff offers cumulative benefits. **Millions of gallons** of water can be stopped and infiltrated into the ground when each homeowner uses some of these techniques. This helps our lakes and wetlands, and recharges groundwater.

The figures provided are based on a typical residential lot in the Metro area. Average precipitation, lawn area, roof dimensions, and driveway length were used in determining runoff and gallons of water trapped. Cost estimates are from 2006 figures. The benefits of each technique will vary for every lot in the watershed. The house drawing is a modification of original artwork by Di-
anne Hanson in *Green Spaces, Clean Waters* ©Tree Trust, 2005. Rain barrel photo ©2006 National Gardening Association/www.garden.org.

Advanced Techniques

Pervious Pavement and Pavers -

Are special materials used to make driveways, sidewalks, and patios that allow water to seep through and infiltrate into the soil.

- A 1000 sq. ft. pervious driveway will infiltrate 12,100 gallons of water per year.
- It is possible to direct runoff from rooftops and lawns for additional water treatment.
- Pavers are quite attractive and some have a 50-year lifespan.
- The average cost - professionally installed:
Pervious pavers: \$10,500
Pervious asphalt: \$14,000



Green Roofs - Are vegetated roof covers. Hearty plants are established in a special growing media.

- This is a new technology that is quickly evolving in the United States.
- A few demonstration sites are currently found in the Metro area.
- A 620 sq. ft. green roof will capture and hold 6,500 gallons of water per year.
- Other benefits to green roofs, include roof insulation, noise dampening, and an attractive landscape feature.
- The average cost - professionally installed:
Garage— 620 sq. ft.: \$13,600



Re-grading - Changing the slope of the land to slow runoff and increase infiltration.

- Consider changing the slope of newly installed sidewalks, patios & driveways are installed to send rainwater onto lawn, garden, and prairie areas.
- Directing water onto areas with taller, deep rooted vegetation will increase the rate of infiltration.