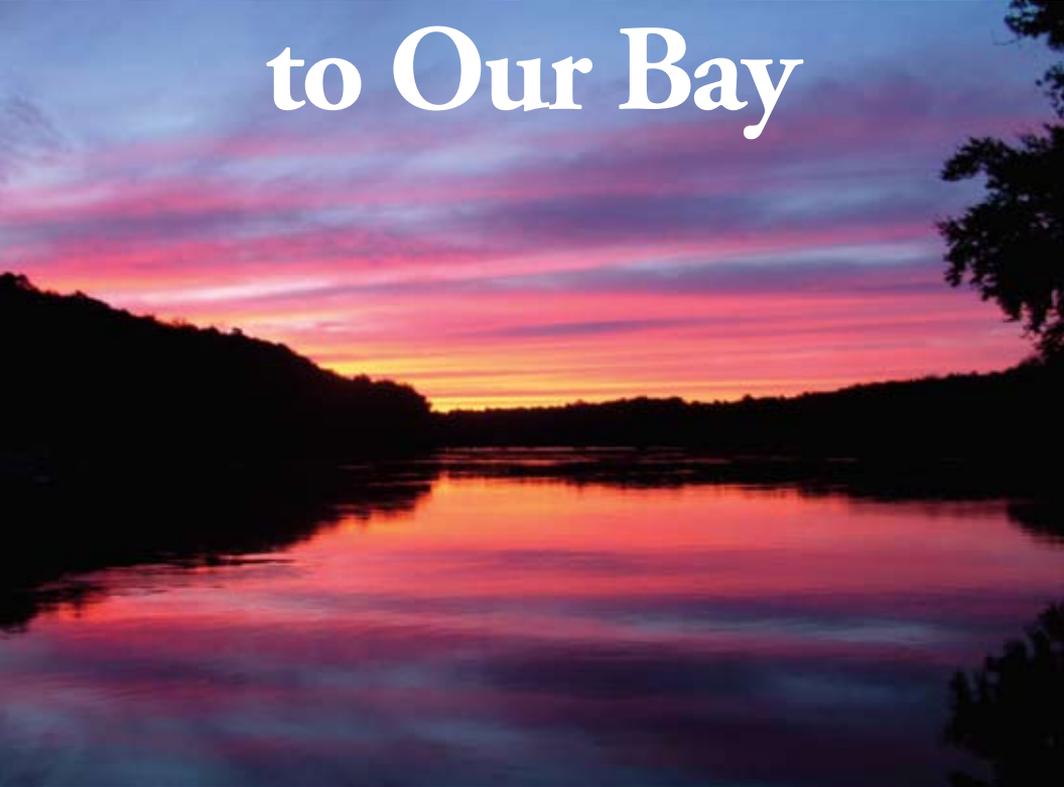




From My Backyard to Our Bay



**A Howard and Montgomery County Resident's Guide to
Improving Our Environment and Our Drinking Water**

The Chesapeake Bay is in Peril

What's threatening the Bay?

Nitrogen. Phosphorus. Sediment. These are the major contributors to the decline of water quality in the Chesapeake Bay and its tributaries.

Nitrogen and phosphorus are nutrients—essential food in the right quantities, but too much can be lethal to the Bay. Too many nutrients encourage the growth of algae that turns the water a sickly green and can be toxic to marine life, pets, and humans. When those algae die, they rob the water of life-giving oxygen and create “dead zones” where fish, oysters, clams, and crabs can't live because they can't breathe.

Sediment is soil that washes into the Bay when it rains. It clouds the water and prevents underwater grasses from growing—grasses that produce oxygen and provide a place for young fish and crabs to develop and prosper.

So who's responsible?

Every one of us. Every drop of water that falls on Howard and Montgomery Counties will make its way to the Bay or one of its tributaries. Along the way it will pick up and carry with it the things that we put on the ground.

What can I do?

From My Backyard to Our Bay offers tips for living in harmony with the Bay. It provides ideas for how you can contribute to the health of your local watershed, maintain an environmentally friendly lawn, and manage storm-water runoff, wells, and septic systems—all in ways that will reduce the flow of nutrients and sediment into the Bay.

This resident's guide is available online:
www.montgomerycountymd.gov/agservices
www.hceda.org/agriculture/
www.mdfarmbureau.com

or by calling

301-590-2823 in Montgomery County
410-313-6500 in Howard County

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Environmental Issues in Your Community

Restoring the Chesapeake Bay

The Chesapeake Bay is a national treasure—but one that has been so badly mistreated that it desperately needs our help. There is only one way to restore the Chesapeake Bay, and that’s “one river at a time.” But the problems don’t start in the rivers; they start on the land surrounding the rivers—their watersheds. You live in a watershed. We all do. The way we treat the land in our watersheds affects the health of our streams, our rivers, and ultimately the Chesapeake Bay.

What is a Watershed?

A watershed is all the land area that drains to a given body of water. Topography (the elevation and the contour of the land) determines where and how fast stormwater runoff will flow and eventually drain to a surface water body such as a stream, creek, or river. Every resident of Howard and Montgomery County lives in a watershed that drains to the Chesapeake Bay, one of its tributaries or to a reservoir of the water supply system.

WHERE TO GET HELP FOR...

WATERSHED QUESTIONS

Howard County Department of Planning and Zoning

<http://www.co.ho.md.us/dpz/environment/environment.htm>

Howard County Department of Public Works

http://www.co.ho.md.us/DPW/watershed_management.htm

Columbia Association Watershed Management

<http://www.columbiawatershed.org/html/links.html>

Montgomery County Department of Environmental Protection

<http://www.montgomerycountymd.gov/dep>

Maryland Department of Natural Resources

<http://www.dnr.state.md.us/watersheds/surf/proj/wras.html>

Maryland Tributary Strategies

<http://www.dnr.state.md.us/bay/tribstrat>

Maryland Department of the Environment

<http://www.mde.state.md.us>

Watersheds: Everything Flows to the Bay

We **all** must understand that in a watershed, **everyone's** actions and attitudes affect the health of the water that flows to the Bay. Attitudes that affect the watershed's health negatively include "The little bit of pollution from my property won't make a difference" or "Those other guys (developers, farmers, industry, etc.) are causing all the problems." To make a positive difference, **everyone** must accept responsibility for careful land management, even if it's just a small backyard.

Over the last 25 years, the efforts of thousands of people and the expenditure of billions of dollars have been aimed at cleaning up the Chesapeake Bay. But the Bay is still suffering. To meet the goal of a healthy and stable Bay, all of us must play our part. Every resident in the Chesapeake Bay watershed can do something to help.

How Do Pollutants Get Into the Water?

There are two general sources of pollution in our watersheds: point sources and non-point sources. A **point source** is a concentrated discharge, like the outflow from a pipe at an industrial operation or a sewage treatment plant. A **non-point source** is stormwater runoff from non-specific sources such as parking lots, lawns, farms, and roads.

Over the last 30 years, many advances have been made in technology to reduce and control point source pollution. Point sources are easier to monitor because they come from identified sources.

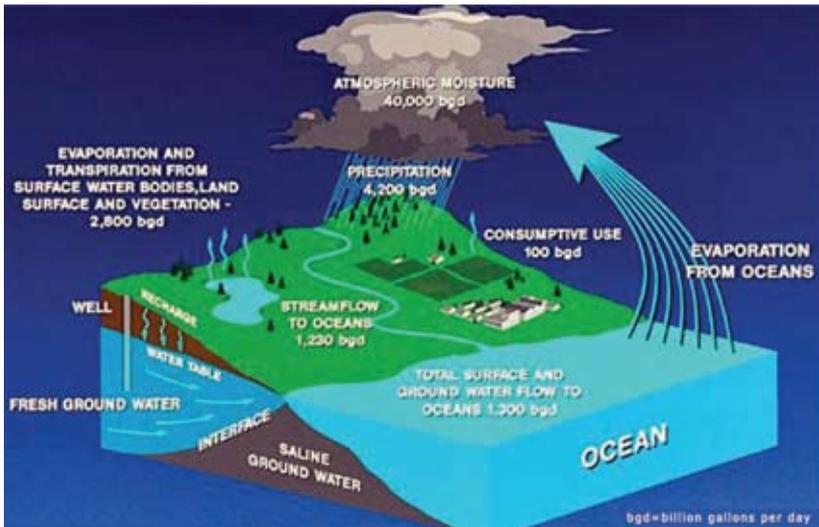
Polluted runoff from non-point sources, however, can result from stormwater flowing over large areas. It is substantially more difficult to locate and control the sources of the pollutants that the runoff picks up.

The Hydrologic Cycle

Water is one of the most important natural resources on earth. Seventy-five percent of the earth's surface is covered by water. Most of the water, however, is seawater. Seawater becomes usable, safe for drinking, and free of harmful salt and minerals through the **hydrologic cycle**.

The hydrologic cycle begins with the sun. Energy from the sun converts water from the oceans, rivers, and land into water vapor. Air masses move the water vapor over land, where it condenses and becomes precipitation. Rain, sleet, snow, and hail are all forms of precipitation. Some precipitation evaporates while falling toward the earth. Some evaporates when it is intercepted by plants, buildings, and cars. Most of the precipitation soaks into the soil and eventually returns to rivers and oceans.

A person can survive on 1 gallon of clean water a day for drinking and cooking. The average American household uses 80 to 150 gallons of water per person, per day. It is important to remember that water is a natural resource. What we put into our water and how we use that water today will affect the quality and availability of water in the future.



Soil is More Than Just Dirt

Have you ever noticed how your yard can grow things that your friend's yard cannot? This is probably due to the **quality of the soil** and its suitability for what you or your friend are trying to grow.

The Montgomery and Howard County Soil Surveys have maps and descriptions of the soil types found in different areas. Each soil type has a unique set of characteristics relating to its structure, texture, tendency to erode, and depth to bedrock and subsurface layers. This information helps people to understand a certain soil's strengths and limitations for different land uses, such as farming, forestry, recreation, and development.

It is important to understand your soil type before you make plans for what to plant! Contact the Montgomery (301-590-2855) or Howard (410-489-7987) Soil Conservation District for more information, or access the online version of the soil survey at <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

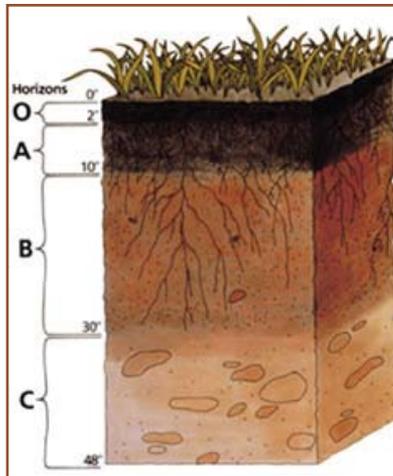


Image credit: http://soils.usda.gov/education/resources/K_12/lessons/profile/

Sights, Sounds, and Smells of Farming

Agriculture is a major land use in both Howard and Montgomery County, and because of this, both counties have protections for agricultural producers. Montgomery County has a zoning notification requirement in agricultural areas of the county and Howard County has a Right-to-Farm Ordinance. As a resident of a county with agricultural lands, you will see, hear, and smell things that are quite different from the urban or suburban area where you may previously have lived. Many residences have been built in sight of, and perhaps downwind of, farmers' fields. Farmers sometimes receive complaints from their new neighbors about routine agricultural operations, dust, noise, and smells.

Agriculture is the foundation of rural communities, and farmers expect and hope to live peacefully with their neighbors. The interface between agricultural and residential neighbors requires some cooperation and understanding on both sides to keep peace in the community.

Most farming operations use herbicides and pesticides to control weeds and insects. The Maryland Department of Agriculture requires a Pesticide Applicator's License to perform this work. Training and passing an exam are required before a license is issued. Modern pesticides are approved for use by the U.S. Environmental Protection Agency (EPA) after years of testing. Newer generation pesticides are used in very small quantities and are more environmentally friendly.

A big part of farming involves working with conditions that people can't control, especially the weather. As soon as the soil warms up and dries out enough to plant, farmers must get their crops in the ground to take advantage of the maximum number of days in the growing season. Harvesting is a particularly critical time, and farmers must work every available hour until the crops are harvested from the fields and processed. Part of the urgency is that crops can be seriously devalued or completely ruined if they get wet during harvest time.

While harvesting, farmers may work from dawn to dusk to get their crops in. Also during this time, harvesting equipment and wagons may need to use the highway to get from fields to barns. Be patient when slow-moving farm equipment is on the road—that could be the producer of your dinner up ahead!



When the farm is a livestock or dairy operation, the efficient and environmentally safe disposal of manure is a major consideration. Whenever possible, farmers use manure as organic fertilizer on crop fields, reducing their need for commercial fertilizer, which is both an economic and environmental benefit. Manure is usually stored in a facility that will protect it from runoff and therefore prevent it from being washed from the barnyard into streams. This facility provides storage, but eventually the manure is spread on the fields. Manure handling involves odors, but under normal conditions the odor from manure spreading quickly dissipates.

If there are problems with new neighbors, especially ones who have never lived in a rural area before, it is critical to address problems in a cooperative manner with an attitude that might allow changes on both sides for a peaceful solution. In some cases, a friendly visit to the farm to learn more about the operation can eliminate many misunderstandings.



WHERE TO GET HELP FOR...

AGRICULTURAL QUESTIONS

University of Maryland Extension

Howard County: 410-303-2707 - <http://www.howard.umd.edu>

Montgomery County: 301-590-9638 - <http://montgomery.umd.edu>

Howard Soil Conservation District: 410-489-7987

Montgomery Soil Conservation District: 301-590-2855

Howard Economic Development Authority at 410-313-6500

<http://www.hceda.org/agriculture/>

Montgomery County Department of Economic Development

– **Agricultural Services Division** at 301-590-2823

<http://www.montgomerycountymd.gov/agservices>

Maryland Department of Agriculture at <http://www.mda.state.md.us>

Environmental Issues in Your Backyard

Impacts of Urbanization

When we say *From My Backyard to Our Bay*, there are two issues we need to think about. The first is the amount and speed of the water that moves across the ground—your backyard. The second is what that water picks up as it crosses your yard on its way to the Bay or its tributaries.

In a rainstorm, some rainfall “infiltrates,” or soaks into the ground. Infiltrated water percolates through the soil and replenishes the groundwater that eventually supplies water to wells.

In developed areas where land is covered by houses, parking lots, roads, and other impervious surfaces, rainwater cannot be absorbed by the ground. Instead, rainwater becomes runoff and is forced to the closest drainpipe. The resulting runoff is discharged to the nearest body of water and is not treated. Runoff from residential areas can quickly pick up pollutants on its path to the nearest storm drain or stream.



The most common pollutant is sediment. Soil particles carried by the runoff make “muddy” streams. When runoff slows down enough, the sediment settles out of the water and is deposited.

Pollutants such as fertilizers or pesticides can be dissolved in runoff or attached to sediment particles. Other water-borne pollutants include pathogens, fecal coliform (which could come from wild animal or pet waste), gas, oil, grease, and exhaust particulates that wash off streets and parking lots.

It is far easier and more cost effective to solve pollution problems at the source. Once polluted runoff leaves your property, it becomes a public problem—and a much more expensive one to fix.

Stormwater Ponds

Suburban developments built since 1984 are required to provide permanent stormwater management practices to treat runoff and slowly release it to the nearest stream. This slow release prevents the concentrated flow that results in stream bank erosion, which can cause many thousands of tons of sediment from eroded stream banks to be moved downstream.

Stormwater ponds must be maintained if they are to do their job of protecting our tributaries. Keeping the grass cut and other maintenance tasks usually fall to homeowners' associations. Make sure your association is maintaining your stormwater pond. It protects not only the Bay, but also you and your neighbors from the expense of repairing a failed pond.

What Can I Do to Control Runoff?

Even if your neighborhood has a stormwater pond—and especially if it does not—you can do a number of things to slow down or reduce the volume of water that runs off your property and into our Bay.

The first and simplest rule of conservation is to maximize infiltration of rainfall and minimize runoff. Protecting soil with grasses, shrubs, trees, or mulch will make the soil more resistant to erosion and more likely to absorb the maximum amount of rainfall before runoff begins to occur.

WHERE TO GET HELP FOR...

RUNOFF & EROSION PROBLEMS AND SOIL QUESTIONS

Howard Soil Conservation District at 410-489-7987

Howard County Department of Public Works

http://www.co.ho.md.us/DPW/DPW_SWM_Division.htm

Montgomery Soil Conservation District at 301-590-2855

Maryland Department of the Environment at 800-633-6101 or

[http://www.mde.state.md.us/Programs/WaterPrograms/](http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/index.asp)

[SedimentandStormwater/index.asp](http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/index.asp)

USDA – Natural Resources Conservation Service at 410-666-1188

<http://soils.usda.gov>

Backyard Best Management Practices

Pet Waste

Animal waste can be carried easily by rainwater, untreated, to the nearest stream or storm drain. Pet waste contains many harmful bacteria and may contain parasites, both of which can be harmful to your pet and your family. It is important to keep these bacteria out of drinking water sources and off the lawn. In addition, pet waste acts as a fertilizer in the water system and promotes the unhealthy growth of aquatic plants, including algae. The increased abundance of aquatic plant life can rob other aquatic life of much-needed oxygen.

When walking the dog, take a plastic bag along. Pick up the pet waste and flush it down the toilet, where it will be properly treated, or dispose of it with your other trash. If flushing is not an option, dig a small trench in the yard and layer pet waste with leaves, grass clippings, and dirt. Do not put pet waste down a storm drain or leave it exposed in your yard!



Rain Gardens

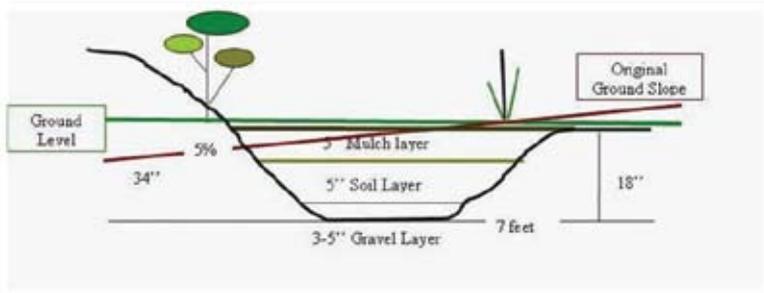
During a 1-inch rainstorm, more than 750 gallons of water fall on 1,200 square feet (about half the space of ground covered by the average American house). That's a lot of water rushing off into storm drains, saturating lawns, and heading for the Bay and its tributaries.

Rain gardens are gaining popularity as a way to control stormwater runoff on residential properties. A rain garden is more than just a bed of pretty plants; properly sized and installed, it can collect and filter large quantities of water. This helps keep pollutants such as fertilizers, motor oil, and heavy metals out of our streams, and saves time and money that may otherwise be spent watering a lawn or delicate flowers.

The difference between a traditional garden and a rain garden is that the watering system lies underground and the plant selection. A rain garden is positioned slightly downslope of a gutter in order to catch the rainwater. The ground is dug to a depth of about 6 inches and refilled about halfway with a mixture of topsoil and organic material, compost, or shredded leaves and sand. If heavy clay soils are present, other techniques (such as vertical cores of gravel) may be needed.

Rain gardens are generally best sited in sunny locations, and the plants that do best in them often prefer full to partial sun. Plants selected for rain gardens must tolerate drought as well as periodic flooding; large root systems are also good. Luckily, many attractive native plants fit these requirements. A 2- to 3-inch layer of mulch keeps the plants moist and provides additional filtration.

<http://www.montgomerycountymd.gov/Content/DEP/Rainscapes/garden.htm>



Rain Barrels

Rain barrels are plastic drums that are connected directly to a downspout. They temporarily store rainwater from rooftops, reducing the flow of water into our streams, rivers, and the Bay. Less runoff can help reduce pollution entering our streams and rivers. Plus, you can use the water in the rain barrels later when it's not raining to water lawns and gardens and to wash cars. Of course, rain barrels must be emptied before the next storm to function properly, but that lets you control when and how fast the water is released.



www.montgomerycountymd.gov/Content/DEP/Rainscapes/barrels.htm
www.howardcountymd.gov/SCD/SCD_HomePage.htm

Keeping Water Away From Your House and Basement

Drainage of surface and subsurface water is an important concern for every homeowner, and keeping your house and basement protected from water damage goes hand in hand with rain gardens and rain barrels. Another factor in good drainage is proper grading, so that gentle slopes convey runoff away from the house and basement and water is not left standing against walls or causing water pressure to build up under the basement floor.

Inspect all areas where downspouts from the gutters around the house discharge onto the ground. Twice a year, clean out all gutters and downspouts to prevent overflows that will drip water too near the foundation.



Because the flow from a downspout will be forceful in a storm, make sure that the area where it drains across the ground is adequately protected with sturdy vegetation, stone, or gravel. Usually a splash block of concrete or

plastic placed directly under the downspout outfall will absorb the initial force of water gushing from the downspout. This will help disperse the water's erosive energy and move it away from the foundation.

In some situations, due to poorly drained soils in low-lying areas or difficult terrain, the only solution may be an underground drainage system. There are several options for creating such a system:

- A **dry well** is a small pit filled with crushed stone. An infiltration test must be conducted prior to construction to determine if the dry well is appropriate to the site.
- An **infiltration trench** collects and filters rainwater and then permits it to soak into the soil rather than flow directly into the water system. The trenches are backfilled with stone aggregate and lined with filter fabric. Research has shown that infiltration trenches can remove up to 90% of sediments, metals, coliform bacteria, and organic matter from water. Up to 60% of phosphorous and nitrogen can also be removed by infiltration trenches.

Contact the Montgomery (301-590-2855) or Howard (410-489-7987) Soil Conservation District for more information on drainage issues.

Composting and Yard Waste

In 2006, the EPA estimated that each person in the U.S. contributes 4.6 pounds of garbage (municipal solid waste) daily. That equals 1,679 pounds of garbage per person per year! Much of this waste is organic and could degrade naturally if composted, saving space in landfills and reducing greenhouse gases. Composted organic material can also be used to improve soil for lawns and gardens, further reducing the need for fertilizers. Start reaping the benefits by setting up a backyard compost pile.

<http://www.mde.state.md.us/programs/landprograms/recycling/education/compostinfo.asp>

Tips for Composting

- There are many different ways to compost: the bin system, tumblers, trench, sheet, and vermicomposting (using worms to break down material). Some methods are simpler than others.
- Add coffee grounds and kitchen scraps from vegetables and fruits to a compost pile. Yard waste such as leaves, lawn clippings, and other materials are also great for composting.
- Do not add pet waste, grease, meat, or dairy products to a compost pile. These items may attract pests and do not compost well.



Controlling Noxious Weeds and Invasive Plants

Some weeds are so persistent, destructive, and difficult to eradicate that they have been designated as noxious. **Maryland has a noxious weed law that requires landowners to control Canada thistle, johnsongrass, shattercane, and multiflora rose on private property.** For effective control, both the seed and the root system of these weeds must be managed by mowing, cultivating, or treating with an approved herbicide. For information on identifying or controlling these plants, contact the **University of Maryland Extension** office in your county.

Plants that are widely known to out-compete native plants and quickly take over natural areas, but have not been designated as noxious weeds, are called invasive plants. Most of these non-native plants come from other countries or habitats and are introduced into new landscapes where they quickly take over. Invasive plants are often spread by windborne seeds or by birds and other animals. These plants can overrun nearby wetlands, meadows, or forests, crowding out native plants that provide habitat for birds and other wildlife.



multiflora rose



johnsongrass



shattercane



Canada thistle

Many common invasive plants are used in landscapes. Before you purchase a plant, be sure it is not a listed invasive plant. Some of these plants include phragmites, purple loosestrife, miscanthus, winged euonymus, Bradford or Callery pear, English ivy, vinca, periwinkle, and Japanese stilt grass. Assistance is available for the removal of many invasive species.

www.mdinvasivesp.org

Tree Planting

Though you may not realize it, your yard is part of the “Urban Forest.” “Urban Forestry” is the term commonly used to describe the care of individual yards, street trees, and parks, as well as forest fragments like wooded parkland and unimproved lots.



The urban forest is critical to the health of the Chesapeake Bay. Deep root systems anchor trees, control erosion, and take up pollutants that would otherwise enter the Bay via groundwater. Leaf canopies help reduce the erosive effect of heavy rains. The forest floor with its layers of twigs, leaves, and understory vegetation, acts like a sponge for stormwater. Trees also provide important wildlife habitat—many animals and birds depend on trees for a place to live and for food. Trees also store carbon and intercept airborne pollutants.

Trees can contribute to energy savings, too. The shade from trees planted at a proper exposure near a home can reduce summer cooling costs by 40%.

<http://www.dnr.state.md.us/forests/programs/urban/>

Plant Native Trees

More than 60 species of trees are native to Howard and Montgomery counties. They are good choices for adaptability to the local environment and for attracting birds and animals. Some of the most common choices are red and white oak, pin oak, white pine, redbud, eastern red cedar, yellow poplar, black cherry, dogwood, hickory, black walnut, sycamore, red maple, and persimmon.



<http://www.dnr.state.md.us/criticalarea/trees.html>

Keeping a Healthy Lawn

In the pursuit of maintaining a green, weed-free lawn, some homeowners may over apply fertilizer to encourage vigorous growth and pesticides to control weeds, insects, and diseases. According to the Maryland Department of Agriculture, there are nearly 1 million acres of residential lawns statewide. **In 2007, more fertilizer was applied to residential lawns than to agricultural lands.** If each of us over-fertilizes our lawn by just 1 pound, a huge amount of excess nutrients will end up polluting groundwater, streams, rivers, reservoirs, and



the Chesapeake Bay. **Excess nutrients are part of what causes serious water quality problems in the Bay.** To avoid this problem, **soil fertility should be tested** before seeding a new lawn and every 3 years for an established lawn to determine the amount of fertilizer and lime needed.

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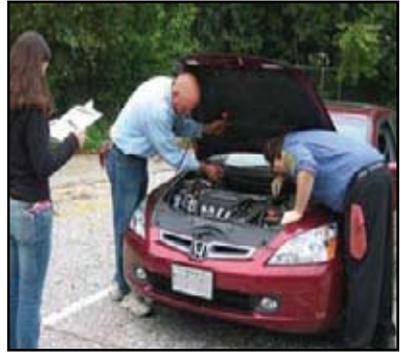
www.mda.state.md.us/pdf/Tip2.pdf

Lawn Care Tips

- Most lawns in this area are cool season grasses that naturally go dormant and turn brown in summer but become green again in the fall. Watering your lawn during the dormant season may cause undue stress to your lawn. **For a healthy lawn, do not water between July 4 and Labor Day.**
- In the spring or fall, watering slowly to wet the soil to a depth of 4–6” will prevent runoff from leaving your property. Early morning is the best time for watering.
- Mow at an appropriate height to maintain a healthy lawn. Maintaining grass height of at least 2 ½ inches helps keep the soil cool, encourages root growth, and therefore provides drought protection. Mowing too short may reduce root and stem development and encourage weed problems. **Proper mowing height helps to reduce weeds by as much as 50–80%.**
- Mow with a mulching blade to fertilize the lawn naturally with grass clippings. Routinely leaving grass clippings on the lawn lowers nitrogen fertilizer applications by 25% or more.
- **Test your soil and apply only the recommended amount of fertilizer.** Use no more than 1 pound of actual nitrogen per 1,000 square feet of lawn per application. Keep fertilizer off paved areas by sweeping it back onto the grass.
- If fertilizer is needed, spread 2 or 3 small applications, 1 month apart (early September, October, and November), rather than 1 large application.
- Do not apply fertilizer to frozen ground in the winter or dormant turf in the summer.
- Slow release and low or no phosphorous fertilizers are optimal to promote a healthy environment. New lawns may require some phosphorous, but require very little once established. **Don't over-fertilize!**
- For some areas (like steep slopes and shady places), groundcover or planting islands (areas with groupings of trees, shrubs, and flowers) may be a better choice than turf grass.

Maintaining Your Vehicle

Vehicle maintenance is an important and easy way to prevent oil, heavy metals, and other toxic chemicals from reaching our drinking water and the Bay. After oil has leaked from a car onto a driveway, rainwater washes it into the street, toward the nearest storm drain, or into the yard, toward a Bay tributary. It is estimated that 180 million gallons of oil are disposed of improperly each year. **A single quart of oil can contaminate 250,000 gallons of drinking water.**



Used oil or antifreeze can be recycled at any Montgomery County solid waste transfer station or at the Howard County Alpha Ridge Landfill. Motor oil, antifreeze, transmission fluid, or other engine fluids should never be dumped onto roads, into gutters, down a storm drain or catch basin, onto the ground, or into a ditch.

<http://www.epa.gov/climatechange/wycd/road.html>

Winter Deicing

When soil and ice pile up, salt is commonly used to speed up the melting process. However, salt can be harmful to the environment in high concentrations. Excess salt can breakdown the structure of soil, causing it to erode more easily and kill species of plants and aquatic life that are not tolerant of high salt concentrations. Salt can also leach through the soil, contaminating groundwater that becomes drinking water. There are several alternatives to reduce the amount of salt needed for deicing. Alternatives include potassium chloride, calcium chloride, magnesium chloride, corn processing by-products, and calcium magnesium acetate (CMA). These alternatives can be found under several brand names, so be sure to read the labels. Keep in mind that any substance used for deicing, when used improperly, can be harmful to the environment.



www.mde.state.md.us/assets/document/WINTER_2.pdf

Recycling

Recycling helps the Chesapeake Bay in several ways:

- It helps control the amount of trash and litter in the environment. Like any other pollutant, trash and litter are carried by runoff into our streams and rivers and into the Bay. Once there, the trash may cause harm to aquatic and marine life.
- It reduces your energy consumption. Just think about all the energy that is saved when an aluminum can is recycled, as opposed to the energy used mining, transporting, and smelting to make a can from scratch! Or think of the forests that can be preserved by reusing paper products.



The **Montgomery County Division of Solid Waste** offers once-a-week curbside

recycling service to all residents of single-family and town homes, except for those in municipalities. Call 240-777-6410 to find out your recycling day in Montgomery County. **Howard County** offers once-a-week curbside recycling service to all residents of the county. Call 410-313-6444 for more information in Howard County.

Getting Rid of Household Hazardous Waste

The average household contains between 3 and 10 gallons of materials that are hazardous to human health or to the environment. The improper disposal of household hazardous wastes can cause problems for the entire community. Sewers have exploded and garbage trucks have burned because people have carelessly discarded flammable or reactive wastes.



It is important to learn about the products you use in your home, garden, and workshop, and how to dispose of them when they are no longer needed. Use the County's hazardous waste recycling and disposal facilities to dispose of hazardous waste. To prevent leaks, store your waste materials in their original containers until you can take them for disposal.

Howard: <http://www.howardcountymd.gov/DPW/HazardousWaste.htm>

Montgomery: http://www.montgomerycountymd.gov/content/dep/solidwaste/Collection_services/hw/hhw.index.asp

Household Best Management Practices

Instead of *From My Backyard to Our Bay*, this booklet could easily be titled *From My **Lifestyle** to Our Bay*. A few simple modifications to each of our daily routines can cut down on our water and energy use as well as reduce pollution. All together, we can help to relieve the strain on the Bay.

Energy Conservation

Scientists tell us that about 25% of the excess nitrogen entering the Chesapeake Bay comes from air pollution that is deposited on the land and then washed into the Bay's tributaries. Where does that air pollution come from?



The great majority of it comes from motor vehicles and from coal-fired power plants that produce the electricity we all use. As the demand for energy increases in the United States along with population and development demands, it is important to begin conserving energy on an individual scale. Every household and every family can help reduce energy demand and the flow of pollutants to the Bay.

Tips for Conserving Energy

- Turn off the lights when leaving a room.
- Keep doors, windows, and drapes closed when running the air conditioning and the drapes open during the day when running the heat.
- If your air conditioning unit is old, consider replacing it. A new energy-efficient model could save up to 50% on your electricity bill.
- Air dry dishes instead of using the drying cycle on your dishwasher.
- Clean the lint filter in the clothes dryer after every load to improve circulation.
- Consider buying a laptop for your next computer upgrade; laptops use less energy than desktop computers.
- Plug appliances and electronics such as TVs and DVD players into power strips. When the appliance is not in use, turn off the power strip. Appliances still use energy when plugged in and not in use. Twenty percent of a typical American's electric bill is from appliances.
- Replace your conventional thermostat with a programmable thermostat. In winter, reducing your thermostat from 72 to 68 degrees for 8 hours a day (when at work) can lower your heating bill up to 10%.
- Lighting accounts for 15% of household electricity use. Fluorescent bulbs reduce energy use by 75% and last 10 times longer than incandescent bulbs. Since fluorescent bulbs contain mercury, dispose of them properly.
- Consult your local power company for information on online or in-home energy audits.

WHERE TO GET HELP FOR...

CONSERVING ENERGY

Maryland Energy Administration

410-260-7655 - <http://energy.maryland.gov/incentives/residential>

U.S. Environmental Protection Agency

<http://www.epa.gov/climatechange/wycd/home.html>

Montgomery County Department of Environmental Protection

240 -777-7700 - <http://www.montgomerycountymd.gov/content/dep/Energy/homes.asp>

Easy Ways to Save Water

As the population grows in our counties and region, more people vie for the same sources of water and conserving water becomes ever more critical. By adopting a few simple habits, you can help extend precious water supplies and reduce the load you place on your septic system or public sewer system.



- Repair all leaks and drips around the house. A single running toilet can waste 200 gallons of water per day.
- Turn off the faucet while you brush your teeth, shave, or lather up.
- Install low-flow fixtures on showerheads, sinks, and toilets.
- Run only full loads of dishes or laundry.
- Make your next washing machine a front loading model (they use less water).
- Be savvy about lawn and garden care. Add organic matter to the soil to increase water absorption.
- Mulch bare areas to conserve moisture.
- Water deeply, thoroughly, and infrequently—early morning is the best time to water.
- Install drip irrigation and/or timers to reduce water use.
- Use nozzles on outside hoses and wash cars with a bucket of water, using the hose only to rinse.

WHERE TO GET HELP FOR...

WATER CONSERVATION

University of Maryland Extension

Howard County: 410-313-2707 - <http://www.howard.umd.edu>

Montgomery County: 301-590-9638 - <http://montgomery.umd.edu>

Maryland Department of the Environment

800-633-6101 - http://www.mde.state.md.us/Programs/WaterPrograms/Water_Conservation/index.asp

USDA Natural Resources Conservation Service

<http://www.nrcs.usda.gov/feature/backyard/watercon.html>

Washington Suburban Sanitary Commission

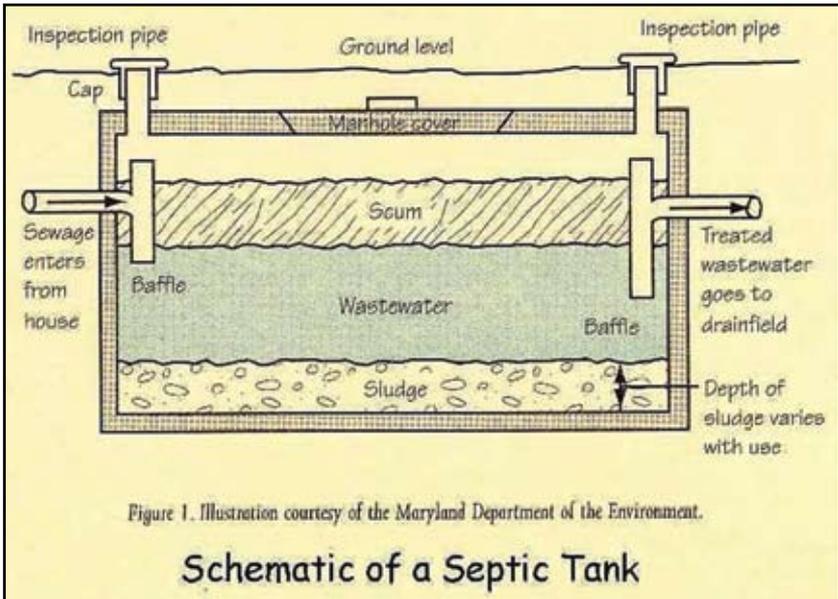
<http://www.wssc.dst.md.us/info/tips.cfm>

Country Living

Taking Care of Your Septic (Wastewater) System

In areas without public sewer service, household wastewater (from the bathroom, kitchen, and laundry) is treated by individual septic systems. A septic system has two major components: a septic tank and a drain field. Wastewater sewage flows from the house to the septic tank, which retains wastewater long enough for the heavy solids to settle to the bottom. A solid pipe leads from the septic tank to a distribution box, where the untreated wastewater is channeled to the drain field—one or more perforated pipes set in trenches of gravel. Here the water slowly infiltrates into the underlying soil. Dissolved or suspended wastes and bacteria in the water are trapped or absorbed by soil particles or decomposed by microorganisms.

These microorganisms perform the only treatment of the water before it percolates into the groundwater. Under normal conditions, the microorganisms perform well, unless very toxic materials overwhelm the septic system. Microorganism performance can also be diminished if the drain field becomes saturated with stormwater.



Best Available Technology (BAT) for septic systems is an advanced onsite sewage treatment system that will greatly reduce the amount of nitrogen emitted from a septic system. BAT units combine settling of solids, extended aeration, and recirculation to produce a greatly reduced amount of nitrogen in the effluent. The typical traditional household septic system produces 24.7 pounds of nitrogen per year. BAT systems can cut that load in half.

Tips for Septic System Care

Tanks generally need to be pumped out every 2 to 3 years, depending on use, the size of the tank, and the number of people in the house. If the tank gets too full, sludge particles will flush out of the tank and clog the drain lines. The EPA recommends tanks be pumped before sludge and scum accumulations exceed 30% of the tank volume.

Do not add starter enzymes or yeast to your system. Additives have not been scientifically proven to improve the performance of your system.

Do not pour fats and oils, chlorine bleach, solvents, chemicals, pesticides, paint thinner, or auto products down the drain. These substances can kill the bacteria that make the system function.

Do not put trash in the toilet such as paper towels, tissues, cigarette butts, disposable diapers, sanitary napkins, tampons, or condoms. These items do not break down quickly and can fill the septic tank.

Direct downspout discharges and runoff away from the septic field to avoid saturating the drain field area with excess water.

Do not overload the system—this is the primary cause of system failures. Early morning and bedtime are peak use times in the bathroom. Run dishwashers and washing machines at other times of the day. Try not to do more than one load of laundry each day.

Dense grass cover and other shallow-rooted plants are beneficial over a drain field. However, do not plant trees near a drain field because large plant roots can clog or break the pipes.

Avoid compacting the soil over a drain field to ensure proper percolation of effluent.



Using a garbage disposal can double the amount of solids in the tank. Instead, consider composting organic matter.

Look into getting a BAT unit for your septic system. BAT systems are made more affordable through grant money available from the Bay Restoration Fund. For information in Howard County go to: <http://www.co.ho.md.us/health/docs/BayRestorationFundInfo.pdf>.



Best Available Technology (BAT) septic system

WHERE TO GET HELP FOR...

SEPTIC SYSTEM ISSUES

Howard County Health Department, Well & Septic Program

410-313-1771 - http://www.howardcountymd.gov/Health/HealthMain/EnvironmentalHealth/EnvironmentalHealth_WaterSewerage.htm

Montgomery County Department of Permitting Services – Well & Septic

240-777-6320 - <http://permittingervices.montgomerycountymd.gov/permitting/ws/wellandseptic.asp>

University of Maryland Extension

<http://www.extension.umd.edu/environment/water/files/septic.html>

Maryland Department of the Environment - Bay Restoration Fund

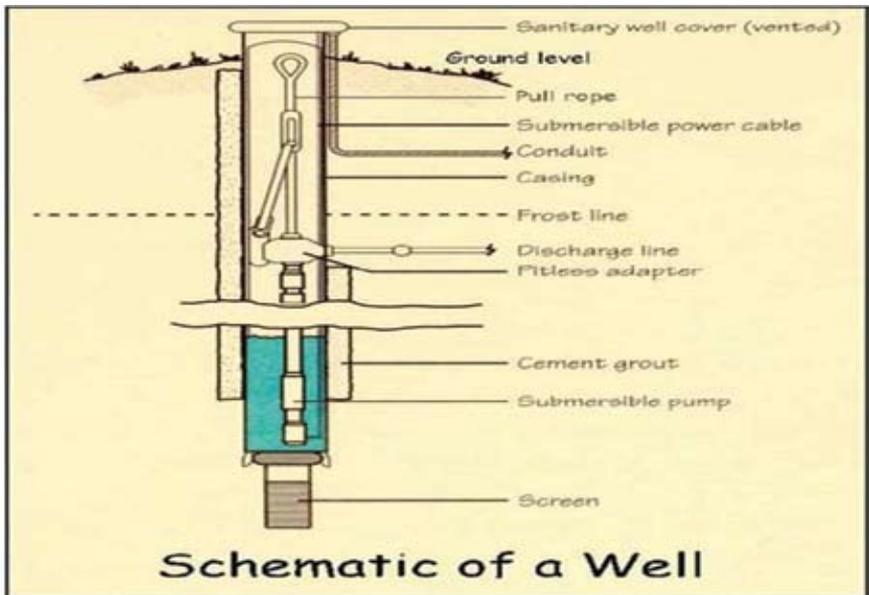
<http://www.mde.state.md.us/Water/CBWRF/osds/index.asp>

Living on Well Water

If you have a home well, you are responsible for maintaining the safety and quality of your drinking water. When your well system is suitably located, correctly installed, properly maintained, and regularly tested, you should have few problems with water quality.

Depending on the depth of the well, residential wells are replenished by rainwater that falls anywhere from several hundred feet to miles away from the location of the well. For this reason, the way you and your neighbors use the landscape can be an important factor in the quality of your water supply.

Be alert to possible sources of well water contamination, such as runoff from large paved areas, faulty septic systems, leaking underground fuel tanks, landfills, industrial spills or discharges, and inappropriate use of animal wastes, fertilizers, and pesticides.



Tips for Safeguarding Well Water

- Test your water supply once a year for bacteria and nitrates. Consider seasonal testing if one sample shows elevated levels of contaminants. Prolonged periods of heavy rain can flush contaminants into groundwater.
- At the least, test your water any time you notice unusual odors, colors, or cloudiness or if you note an interrupted supply, such as pumping air or sediment.



WHERE TO GET HELP FOR...

WELL WATER PROBLEMS

Montgomery County Department of Environmental Protection

240-777-7700 - <http://www.montgomerycountymd.gov/content/dep/Groundwater/home.asp>

Howard County Health Department – Well & Septic Program

410-313-1771 - http://www.howardcountymd.gov/Health/HealthMain/EnvironmentalHealth/EnvironmentalHealth_WaterSewerage.htm

Agricultural Best Management Practices

EPA figures show that while agricultural nutrients are often cited as the leading cause of trouble in the Chesapeake Bay, 93 percent of the nitrogen and 92 percent of the phosphorus comes from sources other than Maryland farms.

Agriculture is the single largest land use in Maryland and is a significant industry in the state. Agribusiness ranks among the top five industries in Howard County with sales exceeding \$200 million annually. Each year in Montgomery County, farming contributes over \$243 million to the local economy. In addition to providing local foods and jobs, farmers conserve natural resources on their land. As we learned earlier, soils are an important resource and farmers rely on their soils to grow crops and livestock to make a living. Therefore, farmers want to keep their farm fields from eroding away the valuable topsoil on which they depend. The conservation practices that farmers install on their farms also help to protect water quality in local streams and rivers, and ultimately the Chesapeake Bay. According to the Maryland Department of Agriculture, farmers installed over 4,000 conservation practices on their farms in 2007 and 2008 alone. As a result of these efforts, 5.1 million pounds of nitrogen and 287,000 pounds of phosphorus have been prevented from impacting waterways. In addition, farmers manage 23,565 tons of soil annually and 3,437 tons of manure daily to keep it from entering waterways.



Remember, fertilizers and pesticides cost money. No farmer wants to over apply these valuable amendments and waste money in the process.



Montgomery and Howard County farmers have more than 58,000 acres of cropland covered by a Soil Conservation and Water Quality Plan. This equals more than 86% of the total cropland in the two counties. A Soil Conservation and Water Quality Plan is a tool that helps farmers improve water quality and reduce soil erosion to enhance the natural resources that support productive and profitable farming operations. On an annual basis, farmers in both Montgomery and Howard County implement conservation practices that benefit water quality on between 8,000-9,000 acres. Some of these conservation practices are listed below:

Winter Cover Crops are planted after the harvest of corn and other crops in the fall to soak up unused fertilizer, thereby preventing excess nutrients from reaching streams and the Chesapeake Bay and causing problems there. *Over each of the past four years, Farmers have planted an average of 6,500 acres of cover crops in Montgomery County and 1,100 acres in Howard County.*



Livestock exclusion from streams using fencing along waterways, carefully designed stream crossings to prevent erosion in the stream bed itself, and alternative drinking water sources such as troughs to keep animals from lingering in the stream. *Since 1999, more than 10 miles of stream fencing has been installed by Montgomery County farmers and nearly 15 miles has been installed by Howard County farmers.*



Grassed waterways follow the natural drainage patterns in farm fields and help protect the soil from washing away during storm events. This prevents valuable topsoil from leaving the farm field and choking nearby streams with sediment. *Montgomery County farmers have planted more than 26 acres in grassed waterways, Howard County farmers have planted more than 16 acres since 1999.*



Agricultural Land Preservation in Montgomery County

Montgomery County has 93,000 acres, or about 1/3 of the County's land area, in an **Agricultural Reserve**. This portion of the county is specially zoned to encourage agricultural uses.

Since its inception in 1980, over 70,000 acres, or about 75% of the land within the Agricultural Reserve, have been further protected by **Preservation Easements**. These easements restrict residential, industrial, and commercial development so the land is protected from development in the future.

Today, Montgomery County has the highest percentage of farmland under agricultural land preservation easements in the nation.

(See Map of Montgomery County's Agricultural Reserve on page 34.)



Preserving farmland promotes cleaner air, improves regional water quality, provides opportunities for local food production, contributes to scenic vistas and rural open space, provides wildlife habitat, and creates recreational opportunities such as biking, hunting, fishing, and horseback riding.

Agricultural Land Preservation in Howard County

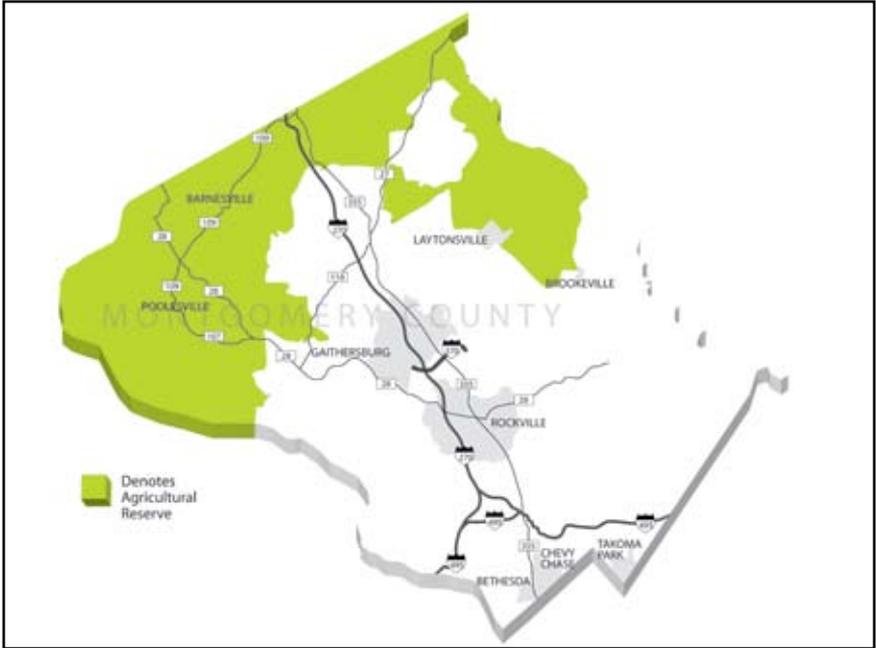
Howard County has protected over 20,500 acres in agricultural land preservation easements. This represents 21% of the 96,000 acres in the Rural West, the portion of the County that is outside the Planned Service Area for water and sewer.

The County was one of the earliest participants in the MALPF program, beginning easement acquisition in 1980. The County initiated its own purchase of development rights program in 1984 and began accepting dedicated easements in 1994, using its transfer of development rights program. In addition, over 7,700 acres are protected in other easements and more than 10,800 acres are preserved in parks and open space, bringing the land preservation total in the Rural West to almost 39,000 acres or 41%.

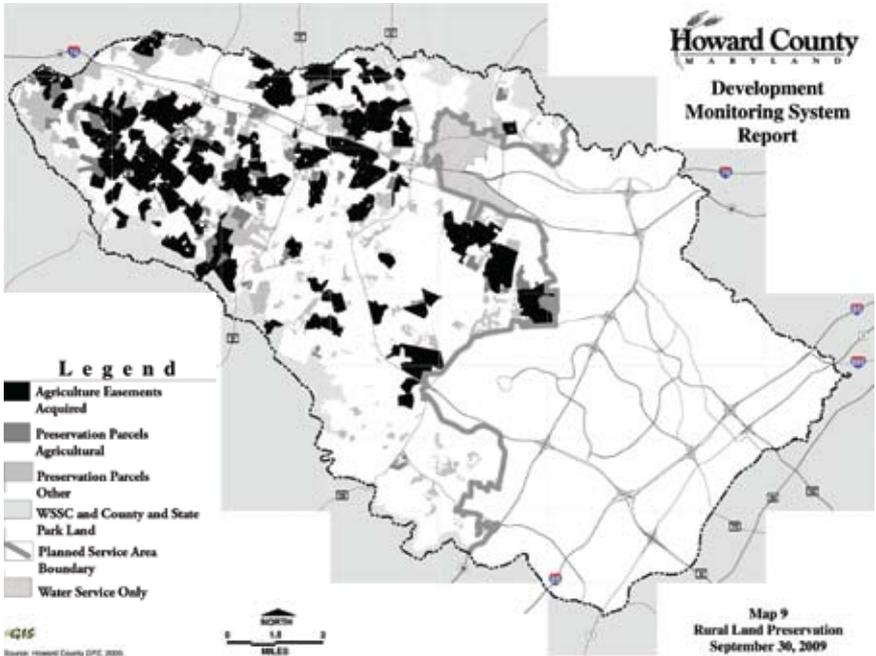
(See Map of Howard County's Rural Land Preservation on page 34.)



Larriland Farm located in Woodbine, Maryland is a pick-your-own farm operation located on agriculturally preserved land in Howard County's Rural West.



Map of Montgomery County's Agricultural Reserve



Map of Howard County's Rural Land Preservation

Directory

Howard County

- Howard County Economic Development Authority
www.hceda.org - 410-313-6500
- Howard Soil Conservation District
www.howardscd.org - 410-489-7987
- Howard County Department of Planning & Zoning
www.howardcountymd.gov/dpz/ - 410-313-2350
- Howard County Department of Public Works
www.howardcountymd.gov/DPW/ - 410-313-3440
- Columbia Association Watershed Management
www.columbiawatershed.org/ - 410-715-3000
- University of Maryland Extension – Howard County
www.howard.umd.edu - 410-313-2707
- Howard County Health Department Well and Septic
www.howardcountymd.gov - 410-313-1771
- Howard County Farm Bureau
www.howardfarmbureau.org/ - 410- 489-4465

Montgomery County

- Montgomery County Department of Economic Development
www.montgomerycountymd.gov - 301-590-2823
- Montgomery Soil Conservation District
www.montgomeryscd.org - 301-590-2855
- Montgomery County Department of Environmental Protection
www.montgomerycountymd.gov/dep - 240-777-7700
- University of Maryland Extension-Montgomery County
www.montgomery.umd.edu - 301-590-9638
- Montgomery County Department of Permitting Services – Well and Septic
www.permittingervices.montgomerycountymd.gov - 240-777-6320
- Montgomery County Farm Bureau
www.mdfarmbureau.com/Montgomery.asp - 301-253-8867

Maryland

- Maryland Department of Natural Resources
www.dnr.state.md.us - 410-260-8367
- Maryland Tributary Strategies
www.dnr.state.md.us/bay/tribstrat/ - 410-260-8988
- Maryland Department of the Environment
www.mde.state.md.us - 1-800-633-6101
- Maryland Department of Agriculture
www.mda.state.md.us - 410- 841-5700
- Maryland Energy Administration
www.energy.maryland.gov - 410-260-7655
- Maryland Farm Bureau
www.mdfarmbureau.com - 410-922-3426
- University of Maryland Extension
www.extension.umd.edu - 301-405-2436

Federal

- USDA-Natural Resources Conservation Service
www.nrcs.usda.gov - 410-666-1188
- U.S. Environmental Protection Agency
www.epa.gov - 202-272-0167
- Washington Suburban Sanitary Commission
www.wssc.dst.md.us - 301-206-9772

The following partners aided in funding and developing this booklet.



- Montgomery County
- Howard County



Howard Soil Conservation District

CONTACT INFORMATION

Howard County Economic Development Authority

410-313-6500 - <http://www.hceda.org/agriculture/>

Montgomery County Department of Economic Development – Agricultural Services Division

301-590-2823 - <http://www.montgomerycountymd.gov/agservices>

Howard Soil Conservation District

410-489-7987 - <http://www.howardscd.org>

Montgomery Soil Conservation District

301-590-2855 - <http://www.montgomeryscd.org>

Maryland Farm Bureau

410-922-3426 - <http://www.mdfarmbureau.com>