

TOWN OF SHARON

WATER QUALITY REPORT FOR 2015

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

To Our Customers

I am pleased to present you with this year's Annual Water Quality Report, providing you with information on where your water comes from, what we are doing to modernize our system, what is found in the water, what we do to ensure high-quality water for now and in the future, and tips on efficient use of water. In recognition of what we do, EPA gave national recognition to the Sharon Water Department for the Department's efforts to educate and inform citizens about practical ways to conserve water and thus save money.

Providing high-quality drinking water for public health is the single most important aspect of our work. The Sharon Water Department (Public Water Supply No. 4266000) recognizes that our operations are integrally connected to broader water resource management interests. As a result, a significant component of this effort is protection of the natural resources that contribute to your water supply. Most Town residents remain unaware that the Water Department is the sixth largest individual landowner in the Town behind only, in order of total land ownership, the Conservation Commission and the Massachusetts Audubon Society, the Commonwealth of Massachusetts, Town of Sharon (which includes School Department property) and Trustees of Reservations. The Conservation Commission and the Massachusetts Audubon Society, combined, own about a quarter of the land in Sharon.

We have received questions concerning dirty water primarily because lead has been very much in the news recently. Please rest assured that we have been taking steps on multiple fronts to ensure that Sharon water is lead free to the extent possible; there are no lead water mains, we have replaced nearly all lead service lines on the Town side of the gate valve and continue to replace any we encounter during our water main upgrade program. We maintain a very strict corrosion control program.

A very brief history lesson: Sharon was used for bog iron mining during the revolutionary war period, hence, street names like Iron Hollow and Cannon Ball. As a result of the prevalence of iron, Sharon's groundwater is rich in this mineral. A very brief chemistry lesson: Water in New England is generally acidic (corrosive), often with a pH between 6 and 7. Because of this corrosiveness, in Sharon we add potassium hydroxide (KOH) to raise the pH to 8 to prevent lead and copper from leaching out of home copper piping and plumbing fixtures. Unfortunately, this causes the naturally occurring iron in solution to precipitate out as particulate iron. Particulate iron makes the water appear to be yellow or orange. Sharon water also tends to have elevated manganese levels. The same process of raising the pH, causes manganese to precipitate out as particulate manganese which can make the water to appear gray or black. These precipitates tend to settle out in our water mains during the winter. This is the reason we flush the water mains using the hydrants during the spring time. The next time you take a walk near one of the many streams in Town it is very easy to find iron or manganese stained rocks. Both iron and manganese may create aesthetic concerns with your drinking water. However, the levels of iron and manganese in Sharon's drinking water are not a health concern.

We have continued to assist the Neponset River Watershed Association to educate local citizens on the benefits of water efficiency. The program has shown results: using concentrated education and outreach tactics, water efficiency is fully rooted in Sharon.

Sharon's water system was originally established in the 1890's. The system includes six production wells capable of providing a permitted peak of 3.12 million gallons per day and approximately 120 miles of water main. The system currently serves about 17,500 customers or approximately 98% of the Town.

As many of you know, the Water Department has continued our aggressive program of replacing century-old cast-iron and break-prone asbestos-cement water mains. While our effort may seem aggressive, to put this effort into perspective, water main replacement costs roughly \$1 million per mile. Given that we invest a little more than \$1 million per year in main replacement and we have 120 miles of mains, the Town is on roughly a 100-year replacement schedule, considerably better than most communities in Massachusetts.

The present mandatory summertime outdoor water use restrictions in place to comply with State residential water use restrictions, aggressive leak detection and repair and the appliance rebate program have together reduced yearly consumption over 20% from a peak of 617 million gallons to 484 million gallons last year. For those of you making wise water choices a priority, we thank you for your efforts, and for those of you not yet practicing water conservation, now is a great time to start.

The Town of Sharon Water Department has long been an advocate of wise water use. We continue to provide outreach and incentives, and we assist the Neponset River Watershed Association in order to further education outreach with Sharon schools and other public groups. Our leadership has long been recognized by State regulatory agencies.

I hope you take the opportunity to read through the information on the following pages. As always, we appreciate your feedback and input, so please contact us if you have any questions or comments regarding this Report of our water system.

Respectfully,

Eric R. Hooper, P.E.
Superintendent of Public Works

2015 PROJECT HIGHLIGHTS

The 120+ year-old cast-iron water main under Brook Road and East Foxboro Street was replaced. New pavement and sidewalks will complete this project this summer.

Several significant leaks were repaired during the course of 2015, including a leak under Route 1 and house service leaks measured to be on the order of 50 gallons per minute.

PROPOSED 2016 PROJECTS

The Water Department is currently proposing to replace a section of 100+ year-old cast-iron water mains under roads in the Wilber School neighborhood (a two-year project) and a section of asbestos-cement water main under Belcher Street and Atlas Road.

We understand the frustration resulting from traffic delays and rough pavement that are likely to occur and thank you in advance for your continued patience.

SHARON'S WATER SYSTEM Our water system includes six groundwater supply wells and pumping stations, four water storage tanks, and approximately 120 miles of water main. Our groundwater sources are of good quality and require minimal treatment. Our water is disinfected and treated for corrosion control to reduce the amounts of lead and copper in our water. Fluoride is added to our water to promote strong teeth and prevent tooth decay/cavities.

POTENTIAL SOURCES OF CONTAMINATION Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

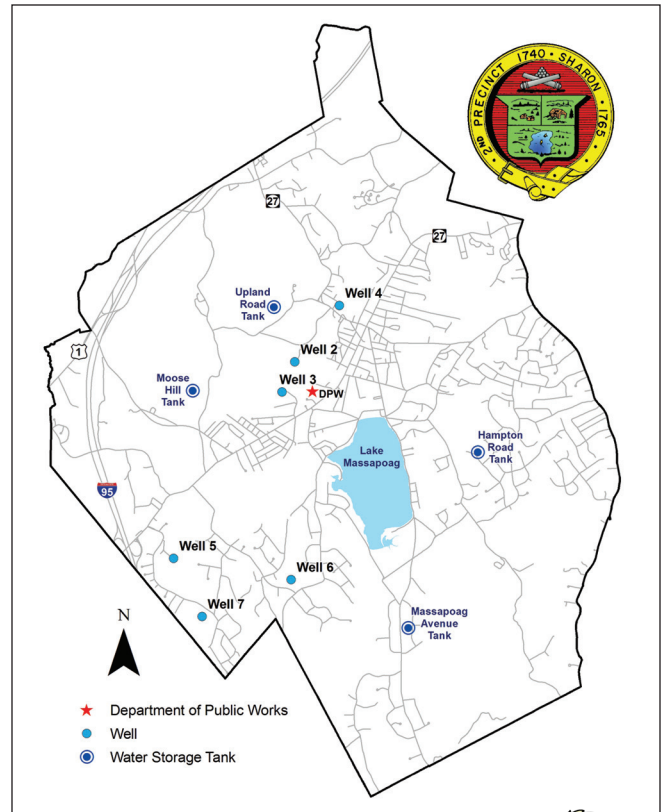
Inorganic contaminants, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants can be naturally occurring or be the result of oil and gas production, and mining activities.

QUALITY CONTROL To ensure that tap water is safe to drink, the Department and Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk. Food and Drug Administration (FDA) and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791.)



HELP TO PROTECT OUR WATER SUPPLY!

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) Report for our water supply sources.

The SWAP report assesses the susceptibility of public water supplies. A copy of the SWAP report is available at the Department of Public Works office. Our SWAP report has indicated that our groundwater is highly susceptible to contamination from residential activities adjacent to the wells; residential land uses; accidental spills from local roadways, Route 95 and the railroad; hazardous materials storage; existing contamination sites; and agricultural activities.

As a consumer, you have an impact on the quality of our water supply sources, and therefore, the quality of the water you drink. The land around our groundwater wells is mainly forested and residential with lesser amounts zoned as commercial. When rain falls or snow melts, the seemingly small amounts of chemicals and other pollutants around your property may be transferred by groundwater or overland flows to the wells.



DRINKING WATER AND PEOPLE WITH WEAKENED IMMUNE SYSTEMS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Center for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

CROSS CONNECTIONS

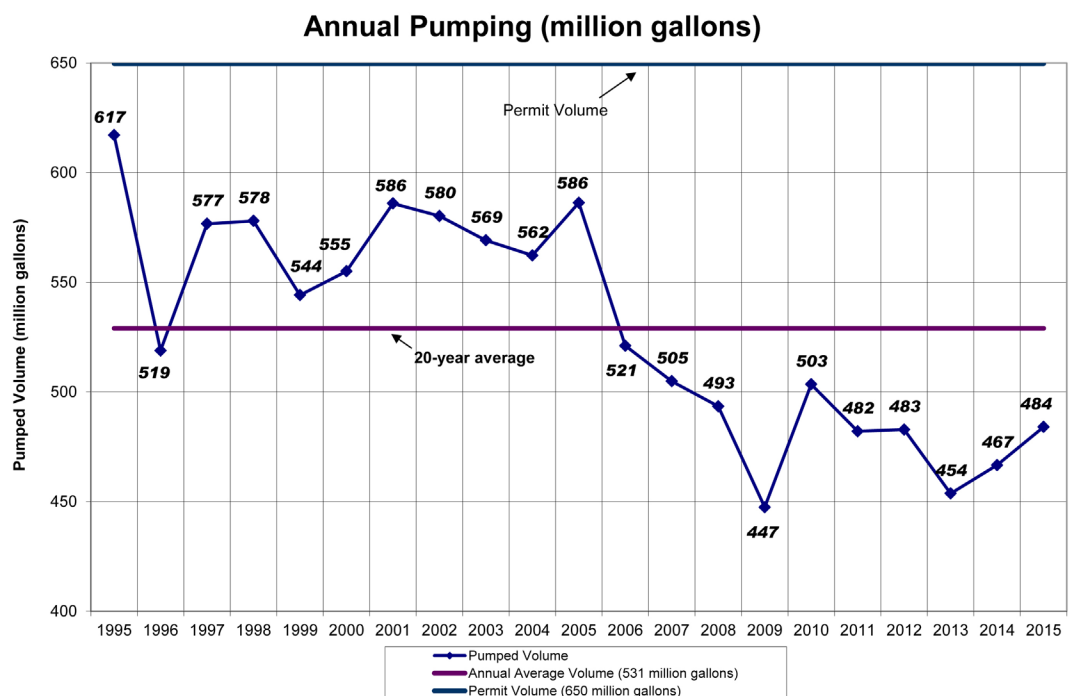
A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops (say because of fire hydrant use in the town) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow prevention device can prevent this problem. The Sharon Water Department

recommends the installation of backflow prevention devices, such as a low-cost hose-bib vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town. For additional information on cross connections and on the status of your water system's cross connection program, please contact Eric Hooper at the Sharon Department of Public Works at 781-784-1525.

WATER USAGE

The annual pumping graph shows the total volume of water pumped from the Town's six groundwater supply wells for each year from 1995 through 2015. The six wells are used to supply drinking water to meet the demands of the Town's water customers. The Town is permitted by the State to pump no more than 650 million gallons of water each year. During the 20-year period, the annual average volume of water pumped was 529 million gallons, approximately 120 million gallons below the permitted volume. From 1995 through 2005, the pumped volume was mostly above the 20-year average. However, since 2006, due in part to incrementally more restrictive outdoor water use regulations and diligent efforts by the Water Department to prevent or locate and repair leaks, the pumped volume has been below the 20-year average.

Efficient water use helps to conserve our water supplies. Find out about your own water usage. Divide the number of gallons you consumed on your water bill by the number of days since your prior bill. Then divide by the number of people living in your home. Your gallons per capita daily (gpcd) water use should not exceed 65 gpcd. Lower use means lower water bills.



WATER QUALITY SUMMARY Listed below are 16 contaminants detected in Sharon's drinking water in 2015. Not listed are over 100 other contaminants for which we tested but did not detect. The complete list of contaminants that we test for is available at the Department of Public Works office and at the Sharon Public Library.

SAMPLES COLLECTED FROM OUR WATER SUPPLY

Substance (Contaminant)	Units	Highest Level Detected	Range of Detection	Highest Level Allowed (EPA's MCLs)	Ideal Goals (EPA's MCLGs)	Sources of Contaminant
PRIMARY CHEMICALS						
Alpha Emitters ¹	pCi/L	1.0	ND - 1	15	0	Erosion of natural deposits
Combined Radium ¹	pCi/L	1.86	0.13 - 1.86	5	0	Erosion of natural deposits
Bromodichloromethane	ppb	0.6	ND - 0.6	NR	NR	By-product of drinking water chlorination
Chlorodibromomethane	ppb	0.9	ND - 0.9	NR	NR	By-product of drinking water chlorination
Fluoride ²	ppm	1.10	0.60 - 1.10	4	4	Water additive which promotes strong teeth; Erosion of natural deposits
Nitrate	ppm	4.03	1.00 - 4.03	10	10	Runoff from fertilizer use; Leaching from septic tanks
Perchlorate ^{1,3}	ppb	0.31	0.06 - 0.31	2.0	N/A	Oxygen additive in solid fuel propellant for rockets, missiles, and fireworks
SECONDARY CHEMICALS						
Manganese ⁴	ppb	57(Avg)	12 - 121	NR	NR	Erosion of natural deposits
Sulfate ^{1,5}	ppm	15.4	8.12 - 15.4	NR	NR	Naturally present in the environment
UNREGULATED CHEMICALS						
Sodium ^{6,7}	ppm	85.0	30.0 - 85.0	NR	NR	Naturally present in the environment
Turbidity ^{1,6,8}	NTU	5.7	ND - 5.7	NR	NR	Soil runoff; suspended material in water

SAMPLES COLLECTED FROM YOUR FAUCETS

Substance (Contaminant)	Units	Highest Running Annual Average	Range of Detection	Highest Level Allowed (EPA's MCLs)	Ideal Goals (EPA's MCLGs)	Sources of Contaminant
PRIMARY CHEMICALS						
Total Trihalomethanes	ppb	15.9 (SITE 4)	4.9 - 29.3	80	N/A	By-product of drinking water chlorination
Haloacetic Acids	ppb	1.9 (SITE 2)	ND - 3.4	60	N/A	By-product of drinking water chlorination
Chlorine	ppm	0.65	0.01 - 1.28	4 (MRDL)	4 (MRDLG)	Water additive used to control microbes
	Units	90th Percentile	Range of Detection	Action Level (EPA's MCLs)	Ideal Goals (EPA's MCLGs)	
Copper ⁹ (0 samples exceeded the action level)	ppm	0.17	0 - 0.22	1.3	1.3	Corrosion of household plumbing systems
Lead ⁹ (0 samples exceeded the action level)	ppb	4.0	0 - 11	15	0	Corrosion of household plumbing systems

DEFINITIONS

Maximum contaminant level goal (MCLG) – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum contaminant level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Residual Disinfection Level (MRDL) – The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectants is necessary for control of microbial contaminants (ex. chlorine, chloramines, chlorine dioxide).

Maximum Residual Disinfection Level Goal (MRDLG) – The level of drinking water disinfectant below which there is no known expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Action Level – The concentration of a contaminant, which, if exceeded, triggers a treatment or other requirements that a water system must follow. The action level for lead and copper is the 90th percentile of all samples taken at one time.

ND – Substance not detected in the sample.

NR – Not regulated.

NTU – Nephelometric turbidity units.

pCi/L – Picocuries per liter; unit is a measure of the radioactivity in water.

ppm – One part per million; one part per million is equivalent to \$1 in \$1,000,000.

ppb – One part per billion; one part per billion is equivalent to \$1 in \$1,000,000,000.

ppt – One part per trillion; one part per trillion is equivalent to \$1 in \$1,000,000,000.

Notes:

¹ The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. Samples for alpha emitters and combined radium were taken in 2012. Samples for sulfate and turbidity were taken in 2013. Samples for perchlorate were taken in 2014.

² Fluoride occurs naturally in all water supplies in trace amounts. Fluoride is added to the Sharon water supply to adjust the fluoride level to about one ppm so that it is optimal for better oral health. At this level, it is safe, odorless, colorless, and tasteless.

³ Massachusetts has set a maximum contaminant level of 2.0 ppb for perchlorate.

⁴ Massachusetts has set a secondary maximum contaminant level of 50 ppb for manganese, and a health advisory level of 300 ppb for manganese to protect against concerns of potential neurological effects.

⁵ Massachusetts has set a secondary maximum contaminant level of 250 ppm for sulfate. This level was established to protect the aesthetic quality of drinking water and is not health based.

⁶ Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulations are warranted.

⁷ The Massachusetts Office of Research and Standards has set a guideline concentration of 20 ppm for sodium.

⁸ Turbidity is a measure of cloudiness of the water. We monitor it because it is a good indicator of water quality.

⁹ Lead and copper compliance is based on the 90th percentile value, which is the highest level found in 9 out of every 10 homes sampled. This number is compared to the action level for each contaminant. The 90th percentile for lead and copper did not exceed the action level.

LEAD If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Sharon Department of Public Works is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

SHARON WATER CONSERVATION PROGRAM

The Sharon Water Conservation Program is a collaboration between the Sharon Water Department and the **Neponset River Watershed Association (NepRWA)**.

Rebates and community outreach continue to inspire residential water efficiency, which saves money and energy, helps to improve the town's ecosystem, and maintain water independence.

REBATE PROGRAMS

Toilets: Residents are eligible for a rebate for half the cost of a toilet, **up to \$200**. The toilet being installed must be a **WaterSense labeled model of 1.28 gpf or less**. Toilets must be installed by a licensed plumber and inspected by the Sharon plumbing inspector. Rebates for existing homes only, not new construction.



Clothes Washers: Get **\$200** for installation of a clothes washer with an Energy Star water factor of **4.0 or less**. Look for efficient clothes washers at: www.energystar.gov

Rebate terms & conditions apply. Please call the Water Dept. at **781-784-1525 x2315**, prior to purchase, to confirm eligibility. More info. can be found at: www.sharonwater.com

FREE WATER EFFICIENT SHOWERHEADS & FAUCET AERATORS

Visit the Water Department during regular business hours to pick up WaterSense labeled Earth Massage **1.5gpm (gallon per minute) showerheads**, and **1.0gpm or 1.5gpm faucet aerators**.

(Hours: M-W 8am-5pm, Th. 8am-8pm, Fri. 8am-12:30pm)



GRASS SEED PROGRAM

The Water Department offers **drought tolerant fescue grass seed** to Sharon residents at \$25 per 20lb bag. Two bag limit per household.

Fescue grasses are insect resistant and will survive in sunny or shady areas. They **require less water and fertilizer** than other grass types, and are slow growing, which means less mowing.

WATERSMART SOFTWARE PROGRAM UNVEILED

The Sharon Water Department partnered with the WaterSmart Software Company to introduce a free service to help with residential water conservation.

Residents received a "welcome letter" from WaterSmart, which contained a survey and registration information. Personalized, easy-to-read Home Water Reports offering customized, water-saving recommendations were sent to residents after registration.



Using the free customer portal, residents can:

- see exactly where home water use occurs, in gallons per day,
- use an interactive, customized water-saving recommendation library,
- check on water use at any time.

The WaterSmart Program **does not** replace quarterly water bills, and is not a mandatory requirement.

COMMUNITY OUTREACH

School Programs



Fifth graders at Cottage, East, and Heights Elementary Schools were visited by NepRWA staff, and were taught about the town's water resources and infrastructure, **conservation, and stormwater pollution**.

At Sharon High School, students in Ms. Gardner's Graphic Design Class produced posters promoting **Sharon tap water**. Students learned about Sharon's water system, and the environmental impacts of bottled water. They researched water conservation issues, and designed posters and original artwork using Adobe Illustrator & Photoshop.

Events

In May, the Sharon Water Conservation Program presented information about **stormwater runoff and rain gardens** at the Sustainable Sharon Coalition's annual "Green Day" festival.

In September, hundreds of **reusable water bottles** promoting Sharon tap water were distributed during the Town's Light Up the Lake Celebration.

Publications

Water conservation newsletters are produced quarterly for residential water bills, and a town specific water conservation website, www.sharonwater.com, is updated as needed.



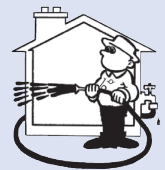
WATER RESTRICTIONS: May 1—Oct. 1

Water use, much like electricity, has peak hours that stress the system. Sharon's water use restrictions allow our water tanks to refill after peak demand, **ensuring fire fighting capability, and lessening the environmental impact of well-pumping**.

Lawn sprinklers, either underground or hose fed, must adhere to the following odd/even schedule:

- Odd Numbered Homes—Mon. & Thurs.—**6pm to 8pm only**
- Even Numbered Homes—Tues. & Fri.—**6pm to 8pm only**
- Residents may use one hand held hose, **fitted with a spray nozzle**, without restriction.

For the most efficient use of water, residents should avoid irrigating mid-day or when it's windy.



PREVENTING STORMWATER POLLUTION

CONTAMINANTS IN STORMWATER RUNOFF ARE A MAJOR CAUSE OF WATER POLLUTION IN SHARON.

Stormwater runoff is generated when precipitation from rain and snowmelt flows over land or impervious surfaces (paved streets, parking lots, and rooftops), and does not percolate into the ground.

Runoff causes **bacteria, chemicals, metals, nutrients, pet waste, and other contaminants** to flow into a storm drain system, which then get discharged, **untreated**, into our local waterways.

Polluted runoff not only makes our streams and ponds unsightly, but creates an unhealthy situation for kids, pets, fishing, boating and wildlife—and *can impact our drinking water quality!*

WHAT CAN YOU DO TO HELP?

- Keep storm drains clear of **debris and yard waste**.
- Use **organic fertilizers and pesticides**, and never use more than what is recommended on the package. Sweep up any spills.
- **Redirect downspouts** away from pavement and onto grassy areas, where runoff from your roof can soak into the ground.
- Use **pervious materials** such as bricks, pavers and stones in landscape designs, which allows water to flow into the ground.
- Plant **rain gardens** to help filter and soak up water.
- Make sure that **sprinklers and irrigation heads** are watering lawns and gardens—not sidewalks, driveways, or the street.
- **Wash your car near the lawn**. Let soap run off into the grass, rather than down the street and into a storm drain.
- Store hazardous materials properly and dispose of through the local **Household Hazardous Waste Program**.
- **Never dump anything down the storm drain**. Avoid spilling chemicals or paint onto paved areas.

PICK UP AFTER YOUR DOG.

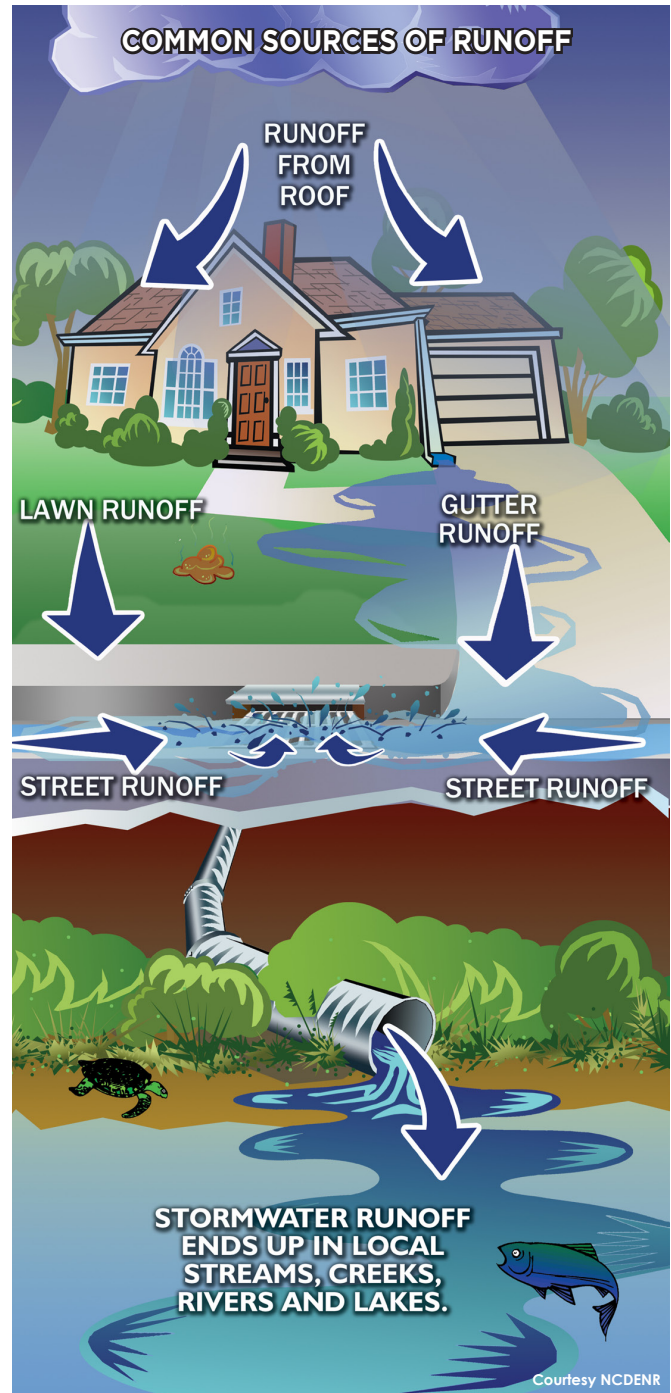
It's not just gross looking, it really makes us sick!

Unlike other water contaminants, such as fertilizer and motor oil, dog waste carries parasites and bacteria— **heartworm, hookworm, roundworm, tapeworm, parvovirus, giardia, salmonella, and E. coli**—which can be transmitted to humans and make them sick.

When dog waste decomposes, it releases nutrients which cause excessive growth of algae and weeds—and is a **major contributor to local water pollution**.



Your actions have an impact in our community. **Please be a responsible pet owner and neighbor.** *Always carry a plastic bag when you walk your dog and dispose of pet waste in a trash can.*



THE SHARON BOARD OF HEALTH PROHIBITS DOGS, HORSES AND OTHER PETS AT VETERAN'S MEMORIAL BEACH AND THE COMMUNITY CENTER BEACH FROM APRIL 15 THROUGH OCTOBER 15.

TOWN OF SHARON WATER QUALITY REPORT FOR 2015

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