

FACTS & STATS

One inch of rain falling on 1 acre of ground is equal to about 27,154 gallons and weighs about 113 tons.

U.S. Geological Survey. *Rain and Precipitation*. Retrieved July 2019 from www.usgs.gov/special-topic/water-science-school/science/rain-and-precipitation?qt-science_center_objects=0#qt-science_center_objects.

Urban stormwater runoff is identified as a major source in 37% of all waterbodies assessed as impaired in New York State. In another 40% of impaired waterbodies, urban stormwater runoff is a contributing source.

New York State Department of Environmental Conservation. *Top Ten Water Quality Issues in New York State: Urban Stormwater Runoff*. Retrieved July 2019 from www.dec.ny.gov/docs/water_pdf/top10urbswrunoff.pdf.

Rain gardens are effective in removing up to 90% of nutrients and chemicals and up to 80% of sediments from rainwater runoff. Compared to a conventional lawn, rain gardens allow for 30% more water to soak into the ground.

The Groundwater Foundation. *All About Rain Gardens: What is a Rain Garden?* Retrieved July 2019 from www.groundwater.org/action/home/raingardens.html.

According to the Environmental Protection Agency, yard wastes account for approximately 20% of all garbage generated in the U.S. every year.

Accuweather, Inc. *5 Ways to Turn Fallen Leaves Into Free Fertilizer For Your Garden*. Retrieved July 2019 from www.accuweather.com/en/weather-news/5-ways-to-turn-fallen-leaves-into-free-fertilizer-for-your-garden/70002821.

The Associated Press found an array of pharmaceuticals, from pain killers to antibiotics to mood stabilizers, in the drinking water of 24 major metropolitan water suppliers. Further, 34 of the 62 water suppliers contacted by the AP couldn't provide results as they had never tested for pharmaceutical compounds.

American Rivers. *Pharmaceuticals in the Water Supply*. Retrieved July 2019 from www.americanrivers.org/threats-solutions/clean-water/pharmaceuticals-personal-care/.

While the application of pesticides is meant to target insects or other organisms, experts estimate that only 2% of the pesticide actually reaches its target and the reminder (98%) is absorbed into our air, soil, water and food supply.

NDhealthFacts. *Herbicides and Pesticides*. Retrieved July 2019 from www.ndhealthfacts.org/wiki/Herbicides_and_Pesticides.

Studies of major rivers and streams find that 100% of all surface water samples tested positive for at least one and often a mixture of pesticides. Ninety-six percent of all fish samples and 33% of major aquifers also contain pesticides at detectable levels.

WaterWorld, March 2006. *Pesticides in all U.S. waters, shows need for National Clean Water Trust Fund*. Retrieved July 2019 from www.waterworld.com/municipal/environmental/article/16219021/pesticides-in-all-us-waters-shows-need-for-national-clean-water-trust-fund.

According to the Wisconsin Department of Natural Resources, properties that have a manicured lawn planted all the way down to the lakeshore have runoff volumes 5 times more than that of a vegetative shoreline. Phosphorous volumes increase 6 times and there is 18 times more sediment entering the waterbody from a manicured lawn compared to a vegetated shoreline.

Grand Lake Area Association. (2009, June) *The Scoop at Grand Lake*, 7, p.2. Retrieved July 2019 from www.grandlakeassociation.org/uploads/7/1/5/4/71545155/2009june.pdf.

Residential Guidelines to Protect Water Quality in Cayuga County



Introduction

The quality of the water in our lakes and streams is highly dependent on the manner in which stormwater runoff is managed. Stormwater runoff is rain or melting snow that instead of seeping into the ground flows over the surface and into a watercourse or waterbody. Along the way, runoff can pick up and transport a variety of substances that pollute receiving waters. These substances include:

- Sediment from construction sites and other areas stripped of natural vegetation;
- Oil, grease, metals, and coolants from cars, trucks, and other vehicles;
- Fertilizers, pesticides, and other lawn and garden care chemicals;
- Detergents used in the washing of vehicles and other items;
- Bacteria from pet wastes and poorly maintained septic systems; and
- Salt used to de-ice paved areas.

Pollutants deposited by stormwater runoff can damage habitat of aquatic plants and animals, negatively affect recreational uses of waterbodies, and degrade the quality of drinking water.

There is a potential for stormwater runoff to reach undesirable levels whenever land is developed, native vegetation is removed, surfaces are paved, and natural drainage patterns are disrupted.

This document presents a set of guidelines that homeowners can follow to minimize the negative impacts of stormwater runoff from their properties. They were drafted by the Nutrient-Sediment Working Group of the Cayuga County Water Quality Management Agency (WQMA) following many hours of research and discussion.

For updates on efforts to promote the use of these guidelines and produce additional material addressing other potential causes of pollution, visit the WQMA's website at www.cayugacountywater.org.

Key Strategies

Seventeen guidelines that homeowners can follow to reduce water pollution are described in the following pages. But to remember four simple key strategies, think **L-A-K-E**:

Limit the area of lawns and impervious surfaces such as paved driveways and patios.

Avoid using fertilizer, car wash, and boat wash containing phosphorus. Avoid using pesticides except as a focused, last alternative.

Kee surface water runoff away from septic system leach fields and maintain septic systems according to Health Department recommendations.

Enhance infiltration of surface water runoff by maintaining vegetated buffers between lakeshores or watercourses and developed areas including lawns.



Owasco Lake in Cayuga County drains an area of 205 square miles and serves as the drinking water source for approximately 44,000 people.

Recommendations for Property Owners to Improve Water Quality

Minimize Runoff

1. Lawns absorb less rainfall than natural areas and do not provide sufficient water quality protection on shorefront lots. To protect water quality, the size of a lawn should be kept to a minimum. A property owner should replace part or all of their lawn, especially areas near the lake shore and streams, with trees, shrubs and groundcover.

2. Mowing height of lawns should be maintained at 3 ½ inches or higher to help slowdown and reduce runoff. In addition, lawns maintained at this height require less fertilizer and water to remain healthy.

3. Impervious surfaces, such as driveways, paved patios, and roofs, should not exceed 15% of the area of the property. No impervious surface should be located closer than 35 ft. from a lake or stream. Driveways and walkways should be porous or permeable.

Capture and Infiltrate Runoff

4. A vegetated buffer of at least 35 ft., consisting of trees, shrubs, and groundcover, should be maintained between the lake shore or watercourse and the developed areas of the property, including lawns. A winding path should be used to obtain access to the shoreline.

5. In the first 75 ft. from a stream or lake, the area should have a well-distributed stand of trees and other vegetation. Strive to have at least 1 tree per 100 sq. ft. of property. Contact Cornell Cooperative Extension (315-255-1183) or your local nursery for questions regarding the type of tree that would work well in your situation.

6. Property owners should try to encourage infiltration of stormwater by installing rain gardens and permeable walkways and driveways.

7. Basement sump pump outlets and roof drains should be directed to rain gardens or to rain barrels.

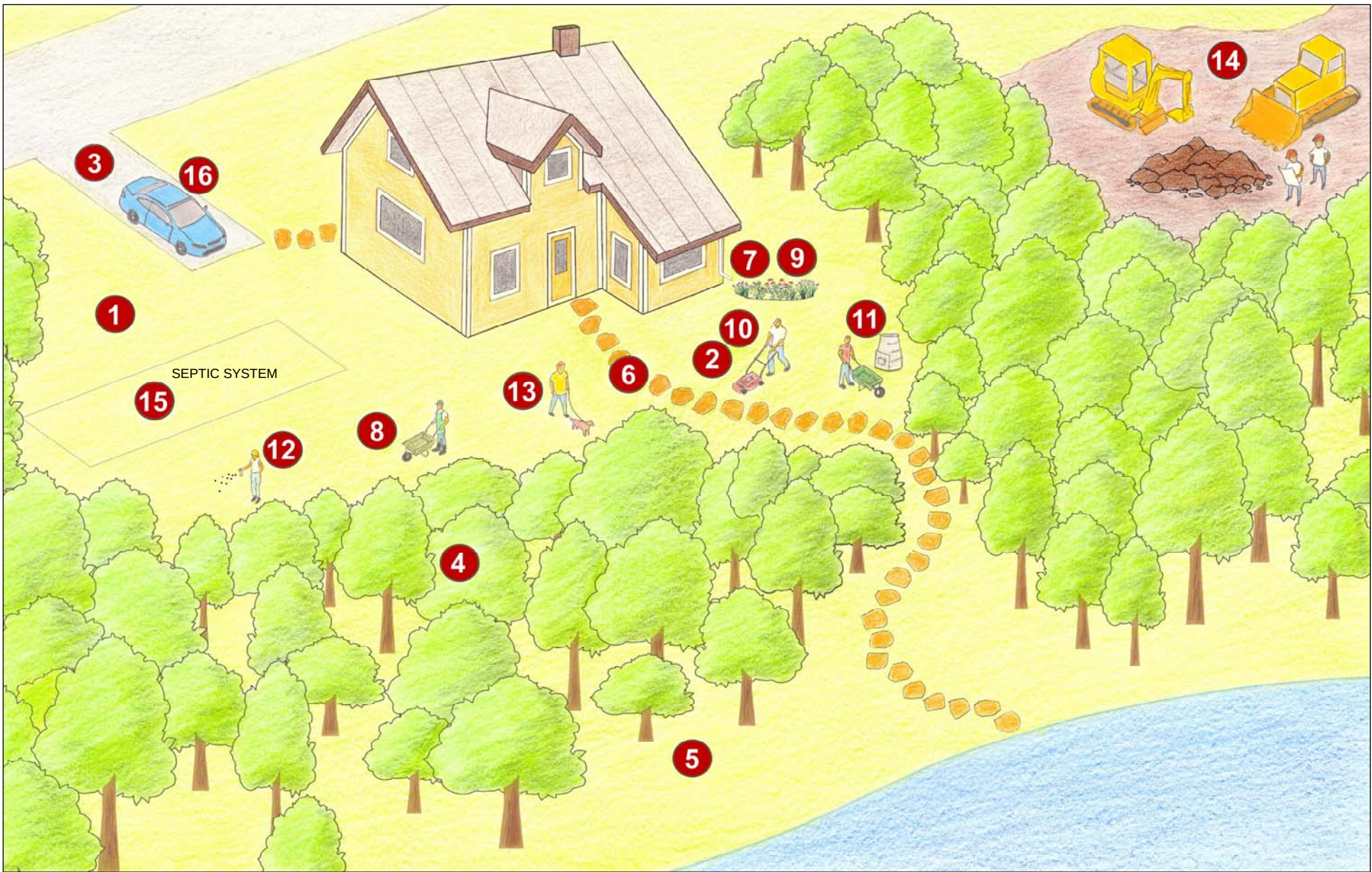


Illustration by Cayuga County NY Dept. of Planning and Economic Development

Eliminate Pollutants

8. If you must fertilize your lawn, only use a lawn fertilizer that contains zero phosphorus.

9. Gardens should not be fertilized unless a soil test is completed prior to application to make sure it is needed.

10. When mowing your lawn, direct the clippings away from the lake, watercourses, and ditches.

11. Leaves and lawn clippings should be left in place. Leaves and lawn clippings not left in place following mowing should be composted. Aquatic weeds that may wash up on the shoreline should also be composted. Compost piles should be located at least 35 ft. from the lake or watercourses. Contact Cornell Cooperative Extension (315-255-1183) for information regarding creating and managing your compost pile.

12. Pesticides should be used only as a last alternative and their application should be

focused, not broadcast. Contact Cornell Cooperative Extension (315-255-1183) for questions regarding pest management. If you must use pesticides, be sure to read and follow the label directions, especially in regards to maintaining the required distance from a stream or shoreline.

13. Pet waste should be picked up and disposed of in your trash.

14. Before you begin a construction project where soil will be disturbed, contact the

Cayuga County Soil and Water District (315-252-4171) for information on planning and implementing appropriate erosion prevention practices.

15. Septic systems recommendations –

- A) Do not use a garbage disposal. Consider disposing of raw vegetable scraps in a compost pile.
- B) Pump your septic tank every three years.
- C) Divert surface water away from the leach field.
- D) Minimize water discharged to the septic system.
- E) Grease, oils, or fats should not be poured down your sink or toilet. Instead these substances should be thrown away in your household trash.
- F) Septic tank additives are not helpful and may be harmful to your septic system.
- G) Contact the Cayuga County Health Department (315-253-1405) for further information regarding septic systems.

16. When washing cars and boats, only phosphate-free car wash or boat wash detergent should be used. Cars or boats should only be washed while on a permeable grassed surface, not on a driveway or in the water.

17. Prescription drugs or over-the-counter medications including supplements should not be disposed of in the toilet or sink. Medications can be dropped off at the Auburn Police Department and the Cayuga County Sheriff's Office. In addition, residents are encouraged to check with your local pharmacy as many now accept unused medications.