

Bad



How we change our landscape impacts water quality. When we remove natural vegetation to create open areas along rivers, lakes and streams, we change the way rainwater enters the overall system. In addition to carrying pollutants with it, the rainwater now travels overland too fast—charging into creeks and rivers, cutting away the banks and eroding the shoreline. Water levels in creeks and rivers become unstable, rising rapidly after a rainstorm, and then dropping back to a trickle within hours.

Better



Best!



Plant buffers capture the rainwater, filter out pollutants, and slowly release the water into the creek, lake or river, thus protecting the waterways from the high-powered flows that undercut and erode shorelines. Along lakefronts, plant roots stabilize the shoreline and offer protection against waves and ice build-up.



create a natural shore

This homeowner is using plants to stabilize slopes and reduce runoff. Once mature, this plant buffer will offer a permanent, aesthetically pleasing solution to shoreline maintenance.

Consider these materials costs when deciding if a plant buffer is the right solution for your property:

- preserving an existing plant buffer \$0
- installing a plant buffer \$10 per linear foot
- installing “riprap” (see below) \$30 – \$45 per linear foot
- installing a sea wall \$65 – \$100 per linear foot

In all cases: permits, grading, labor and maintenance extra.



Heavily engineered solutions—such as sea walls and “riprap” (concrete blocks or large rocks placed along the water’s edge)—are desperately employed in an attempt to protect shorelines. In areas where the site conditions can accommodate plant buffers, they are a better solution because they cost less and are more sustainable.

Heat and dirt are water pollutants. That’s a surprising concept, until you understand how heat and dirt impact streams, lakes and rivers. In the summer, HEAT is drawn off pavement during heavy rains.

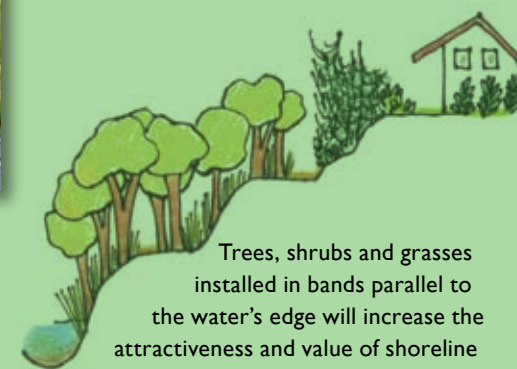
When you see the pavement steaming, it means the rainwater just carried the bulk of the heat into the closest waterway, rapidly raising water temperatures—often to the point where bugs and fish can no longer survive. During heavy rains, DIRT from eroded banks and construction zones washes into the creeks, lakes and rivers. The dirt settles to the bottom, clogging aquatic habitats and contributing to lake in-fill. A plant buffer filters the water, cooling the temperatures and trapping dirt.

reduce heat & dirt



filter toxic runoff

Parking lots near waterways should incorporate dense plant buffers to protect creeks, lakes and rivers from the toxic pollutants from automobiles that have accumulated on paved surfaces.



Trees, shrubs and grasses installed in bands parallel to the water’s edge will increase the attractiveness and value of shoreline property. Small areas of lawn upland of the buffer provide places for recreation with minimal maintenance.

beautify



prevent goose poop

Tired of tip-toeing through the goose poop? Consider this: our cultural preference for large, open lawns

suits geese very well. Geese like to eat grasses, but these heavy birds are awkward and vulnerable on land. Instinctively, geese prefer feeding in open areas because they can see predators approaching. If geese are forced to travel through thick vegetation to get to a lawn, they will seek an alternative site with easier access.





Protecting the river since 1965

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What are my government officials doing about buffers?

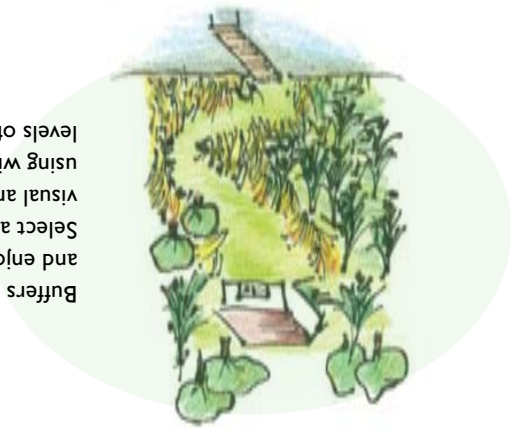
Your township officials recognize the importance of plant buffers and are considering the adoption of a buffer ordinance that would protect existing buffers, with consideration of ways to replace and restore buffers in some areas.

Based on a model ordinance created by the Huron River Watershed Council, your township ordinance would protect existing plant buffers along the shoreline to achieve the following goals:

- protect your water supply
- reduce soil erosion along banks of shoreline property
- keep pollutants—such as fertilizers, pesticides, automotive fluids, and pet waste—out of the water
- prevent sediment (dirt) from entering the waterways
- moderate flow rates in creeks and rivers, as well as providing flood control and protecting property from flood damage
- direct rain water into water aquifers and preserve well water supplies
- preserve the recreational uses and scenic value of streams, rivers and lakes
- preserve wildlife habitat
- moderate water temperatures
- reduce nuisance algal blooms

What can I do about buffers?

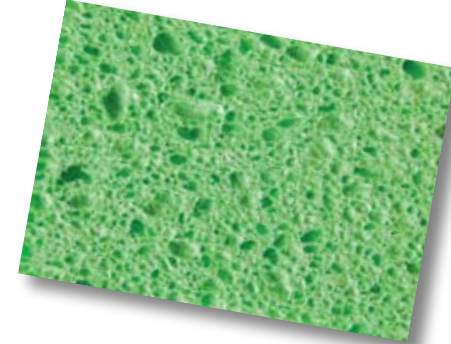
Buffers need not prevent use and enjoyment of the shoreline. Select areas can be cleared for visual and pedestrian access, using winding paths and stepped levels of plantings.



What is a plant buffer?
A plant buffer is a wide band of trees, shrubs and other plants, along creek, lake and river corridors used to trap runoff before it gets into the waterways. As the water seeps through the buffer area, the plants filter out pollutants and sediment, reduce and regulate the water flow, and moderate water temperatures.

How do plant buffers work to protect water?

To visualize how plant buffers work, think of a large sponge on a tilted board. If you pour water over the board toward the sponge, most of the water is stopped and absorbed when it hits the sponge. Over time, some of the water drains slowly out of the sponge, and some of the water evaporates. In addition to filtering out pollutants and regulating water flow rates, buffer areas will be identified for their recreational and aesthetic value, enhancing the overall quality of life within the community. Keeping plant buffers along parks and other public lands protects clean water. Buffers also protect flood plains, allowing streams and rivers to swell over their banks during heavy rains without damaging property.



Recent EPA studies confirm that over 70% of the water pollution in our rivers, lakes and streams is the result of nonpoint source pollution. This type of pollution occurs when heavy rains or snowmelt—called runoff—wash over the land and carry contaminants into the nearest storm drain, ditch or waterway. Fertilizers, motor oil, dirt, pet waste, pesticides, transmission fluid, even heat from the pavement are all examples of nonpoint source pollutants. In the past, most water pollution was caused by direct dumping into rivers, lakes and streams from a traceable source, such as a factory or sewage treatment plant. This type of pollution is called point source pollution. Legislation, including the Clean Water Act, and increased public awareness combined to decrease point source pollution substantially.

How else can I stop nonpoint source pollution?

Reducing what you leave on the ground when maintaining your home, car and yard (fertilizer spilled on sidewalks, fluid leaks from cars, pesticides, etc.) will help significantly. Call the Huron River Watershed Council for a free tip packet at 734-769-5123 x 17 or learn more on the web at www.hrwc.org.

Get buff!



- buff** (büf) •er
1. *adj.* **having a physique enhanced by bodybuilding exercises**
 2. (buf'er) *noun* **any of various devices or pieces of material for reducing shock or damage due to contact**
 3. (buf'er) *noun* **something that serves as a protective barrier**

Shorelines need muscle to keep our water clean.

Look inside to learn about plant buffers!

Brought to you by:
Charter Township of Green Oak: 810-231-1333
Charter Township of Ypsilanti: 734-485-3943
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Developed by the Huron River Watershed Council.
Supported in part with funding from the Michigan Department of Environmental Quality and United States Environmental Protection Agency.