Lake Communities Rain Water Run Off Recommendations

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"Warmer oceans increase the amount of water that evaporates into the air. When more moisture-laden air moves over land or converges into a storm system, it can produce more intense precipitation—for example, heavier rain and snow storms.[1] The potential impacts of heavy precipitation include crop damage, soil erosion, and an increase in flood risk due to heavy rains (see the River Flooding indicator)—which in turn can lead to injuries, drownings, and other flooding-related effects on health.[2] In addition, runoff from precipitation can impair water quality as pollutants deposited on land wash into water bodies"

.https://www.epa.gov/climate-indicators/climate-change-indicators-us-and-global-precipitation

As the heat and rain increase there is rising concern for all of our Lake Communities and all bodies of water in Vernon. How you and your neighbors manage your properties has a major impact on all the water quality in Vernon.

Runoff from waterfront property carries pollutants such as sediment and phosphorus to lakes and bodies of water. Where there is erosion, pollutant concentrations are even higher. So, even if you don't own waterfront property, runoff water from your lot may carry pollutants to local lakes and rivers. In essence, your property impacts the lake just as much as waterfront property.

We all contribute as the sources of pollution are many: pesticides and fertilizers we spread on our lawns, petroleum and antifreeze that spill from our cars, leaks from failing septic systems and broken sewer pipes, waste from our pets, soap from washing our cars, road salt we spread on our driveways and sidewalks, to name a few.

The problem is being exacerbated by the steady march of black top, concrete, roof tops and other hard surfaces that are impervious to water. With fewer unpaved areas to filter the polluted runoff and allow it to soak into the ground, there is more polluted runoff rushing into our streams and Lakes. (And also more flooding)

Erosion from rain water runoff is a serious problem both for the property owner, community, lake and ecosystem. Unsightly Gullies or large eroded channels may result in the **loss of depth of water**, when soil is carried to

the lake. It is usually cheaper and easier to prevent rather than repair erosion problems. Soil deposited in the water carries nutrients including phosphorus, the nutrient that **triggers algae blooms**. Also **sediments bury fish and wildlife habitats,** accumulation of sediments may also lead to dense aquatic plant growth.

What can you do as a property owner to help keep our bodies of water healthy?

Minimize Hard Surfaces: Hard surfaces and buildings prevent water from soaking into the ground increasing runoff and erosion.

- **Minimize these nonporous (impervious) surfaces** - Impervious surfaces like roofs and driveways can make the problem worse. Since they don't allow water to soak into the ground, they create more runoff. The increased amount of runoff water has additional force to erode soil, which may create gullies – deep, eroded trenches.

- **Use Gravel -** instead of pavement for driveways and sidewalks. Avoid gravel with fine particles and clay, such as Wisconsin Class 5 gravel. These compact and form an impervious surface. Instead use clean 3/4-inch rock or pea gravel.
- **Install stepping stones** for a pathway instead of using concrete.

- **Avoid compacting soil** with heavy equipment. It may take many years for natural processes to restore infiltration rates. Keep heavy equipment on a designated pathway if possible.

- **Think small**. A structure that covers less surface area will have less of an impact on your lake environment.

- **Use porous paving materials -** Porous paving materials are concrete or asphalt blocks with openings or plastic mesh that can be filled with gravel, sand, or soil and sometimes planted with vegetation. Porous, poured concrete is also available from some contractor

- **Roof Rain Gutters and Down Spouts** - Runoff from roofs frequently creates erosion. In fact, many of the eroded channels that lead to the lake begin where water falls from rooftops. To control water flow and alleviate this

problem, install roof gutters and downspouts and spread or infiltrate the roof water.

- **Preserve an Ice Ridges** - An ice ridge is a ridge of soil and rocks that forms naturally from the force of ice pushing toward the shoreline. An ice ridge is beneficial because runoff water will soak into the soil behind it

  Instead of destroying this ridge, plant with native plants suited to the moisture conditions the ice ridge creates .Consider ways, such as a short stairway or sloped boardwalk to the lake, to improve access without removing the ice ridge.

Vegetation Benefits- Planting to cover bare soil has many benefits.

Each layer of vegetation provides particular benefits.

Trees and Shrubs
- Cushions the force of raindrops
- Hold rainwater on leaves and branches
- Roots keep soil in place

Grasses and Groundcovers
- Slows runoff flow
- Filter pollutants
- Allows water to soak in along root

Duff Layer (leaves, small branches, and pine needles on surface)
- Covers soil
- Slows runoff flow
- Allows water to soak in

Gardening Tips

- Plant a rain garden of native plants, shrubs and trees that reduce the amount of fertilizer needed and provide a way for water to soak into the ground.

- Install a rain barrel to collect rainwater; the rainwater can later be used to wash your car or water your plants and lawn.

- Adopt techniques that utilize natural processes to manage storm water runoff and reduce the impact of impervious surfaces on water quality.

- Use pervious pavers for walkways and low traffic areas to allow water to soak into the ground.

- Install a green roof on your home or businesses.

- Incorporate best management practices, such as grassed swales, filter strips, or buffer strips on your property to control and temporarily store storm water runoff.

- Use yard waste, which includes grass clippings and leaves, in mulch or compost for your garden. If this is not an option, prepare all clippings and leaves for community composting, or in barrels or secured papers bags for disposal, which keeps them from washing into streams

Lawn care:

- Apply fertilizers only when necessary and at the recommended amount.

- Don't apply fertilizer before windy or rainy days.

- Apply fertilizer as close as possible to the period of maximum uptake and growth for grass and other plants, which is usually spring and fall in cool climate, and early and late summer in warm climates.

- Avoid applying fertilizer close to waterways.

- Do not overwater lawns and garden; use a soaker hose, a porous hose that releases water directly to the ground, which can reduce overwatering that carries away fertilizers that would otherwise enrich lawns and gardens.

- Fill fertilizer spreaders on a hard surface so that any spills can be easily cleaned up.

- Properly store unused fertilizers and properly dispose of empty containers

- Maintain your lawn mowers, snow blowers, chain saws, leaf vacuums and similar outdoor power equipment to reduce nitrogen oxide emissions.