

# Village of Northport - Stormwater Action Plan

## Runoff Basics

One of the major pathways by which many types of pollutants get to lakes and streams is through stormwater runoff. Stormwater runoff results when drops of rain fall to the ground, or snow melts, and the resulting water that does not infiltrate into the ground flows over the surface of the land. This runoff often dislodges and carries soil or sediment particles (causing streambank erosion in some places) to which many pollutants are attached. The runoff may also directly move the pollutant itself (i.e., garbage, oils, grease, gas, pesticides, etc.). The amount of stormwater runoff that occurs is dependent upon a variety of conditions including storm intensity and duration, topography, time of year, soil moisture levels, soil permeability, vegetative cover types, the extent of vegetated cover, and the amount of impervious surfaces.



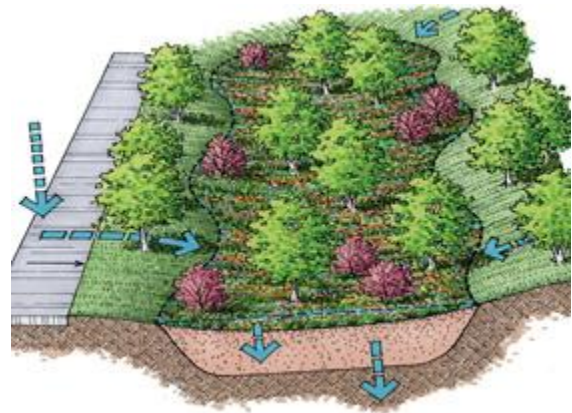
*Road and roof runoff are two sources of stormwater.*

Urban locations, like Traverse City, Elk Rapids, Suttons Bay, and Northport often produce greater amounts of runoff due to the

increased amount of impervious surfaces in these urban areas relative to more rural settings within the watershed. Impervious surfaces are those areas on land that cannot effectively absorb or infiltrate rainfall. Areas such as these may include: roads, streets, sidewalks, parking lots, and rooftops. Runoff entering the Bay and its tributaries from storm drain outlets contributes a significant amount of pollution (there are almost 20 storm drain outlets to Grand Traverse Bay in Traverse City alone). However runoff may also enter waterways through ditches and other overland sources, as well as at road stream crossings. When added up, inputs from all these small inputs of runoff can result in a massive amount of pollution entering Grand Traverse Bay. Most often the pollution is at its worst during heavy rain and snowmelt events.

## Dealing With Runoff

Low Impact Development is a set of small-scale runoff management practices implemented on a site that mimic and work with nature to reduce water runoff and pollutants. LID methods manage water and pollutants at the source, minimizing the impact to ground water, streams, rivers, lakes and coastal waters. The U.S. EPA has found that implementing LID practices saves substantial money for developers, property owners and entire communities, all while improving water quality.



Addressing pollutants with LID runoff practices is of utmost importance in the Grand Traverse region because nutrients and sediments in runoff are the biggest threats to water quality in Grand Traverse Bay and its watershed.

## Project Summary

In 2009 and 2010 staff from The Watershed Center Grand Traverse Bay conducted initial stormwater runoff assessments for three communities in Leelanau County - Greilickville, Suttons Bay, and Northport. The purpose was to help local governments in Leelanau County begin to address pollution stemming from stormwater runoff in their communities to protect water quality and our Up North quality of life.

The following 'Action Plan' and accompanying pictures identify major points of runoff entry to the watershed as well priority sites for improvement. In this way we can best utilize limited funds to make improvements where they would have the most effect.

By using this Action Plan, The Watershed Center has already worked with the Village of Northport to apply for funding from the MI Department of Environmental Quality to improve the Smith Avenue storm drain outlet. We will be using the plan to continue exploring funding partnerships to address the concerns noted below.

## Findings/Recommendations

- General management -
  - Use Phosphorus-free fertilizers on village property (on areas currently fertilized)
  - Install porous pavement where possible: paver stones, porous concrete
  - Consider, for large parking areas (i.e. marina and school lots), installing infiltration islands to direct runoff into
- Smith Avenue storm drain outlet -
  - Excessive erosion into coastal wetland
  - Replace drain outlet and dissipate energy - capture sediment in forebay - discharge to wetland for treatment



- Village office -
  - Parking lot runoff goes to catch basin then discharges directly to creek
  - Install rain garden in grassy area
  - est. cost ~ \$12-\$25/ft<sup>2</sup>



- Mill Pond Road -

Dirt road, erosion and runoff to creek

- Re-grade, add berm along creek side
- Possible paving - divert runoff to bioretention basin



- 4th Street Drain Extension

Open ditch draining water to Bay

- Maintain existing buffers, or plant buffer along sides (but not in) ditch - this will help stabilize bank, especially during high flows

- Parking lot and road runoff -

Variety of parking lots throughout town

- Runoff could be directed to bioswales
- Example at marina parking lot: runoff could be directed to strip of land between road and lot, excavate to make depression, plant with native plants
- Runoff coming down Nagonaba St could also be diverted to bioswale or bioretention basin



- Northport Creek -

- Streambank erosion along Creek from Third Street to Nagonaba Street - needs to be stabilized
- Maintain or establish streamside buffer
- Where Creek crosses roads - grade road so the crossing is not at the low point, or install curb along road to direct runoff to bioretention basin
- Minimize inputs from road sanding and salting in winter
- May need to clean out excessive vegetation around crossing at Mill Street

- M-22 intersection -

Ponding, plugged drain - recently fixed?