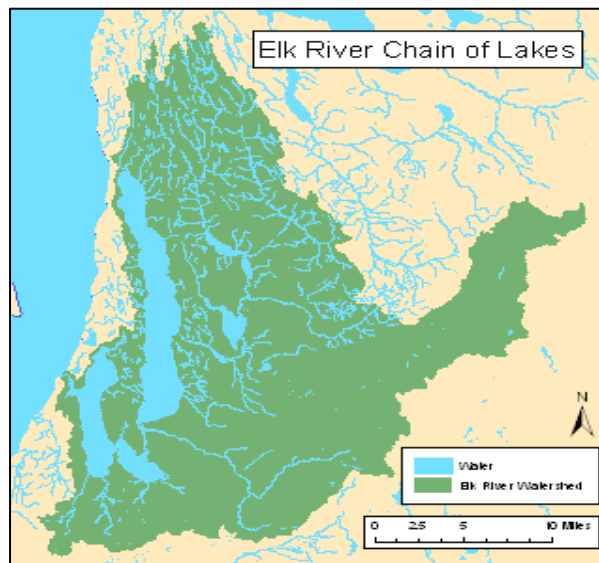


# **CLEARWATER TOWNSHIP** **WATER QUALITY ACTION PLAN**

## **Elk-River-Chain-of-Lakes Gaps Analysis Project**

The Watershed Center Grand Traverse Bay  
Michigan Department of Environmental Quality

July 2011



### **Purpose**

The Grand Traverse Bay watershed spans almost 1000 square miles, including major parts of Antrim, Grand Traverse, Kalkaska, and Leelanau counties. Clearwater Township is at the south end of Torch Lake and the east end of Skegemog Lake in Kalkaska County. All the surface waters within Clearwater Township flow into the Elk-River-Chain-of-Lakes (ERCOL) subwatershed. Protecting these water resources is important to the quality of life of the residents and the economic vitality of the region.

While the soils in this area are diverse, most are sandy and subject to erosion. Emmet-Montcalm soils are found in 35 percent of the county. Their upper most layers are sandy loams whose uses, according to the soil survey, are limited by erosion, droughtiness and steepness. Kalkaska-Montcalm soils are found in 30 percent of the county. Their upper most layers are sands and loamy sands. Kalkaska-East Lake – Karlin soils are found in 20 percent of the county, and their top layers consist of sand and loamy sand.

Sandy soils drain well and can filter water effectively. However, they are also highly erodible and low in nutrients; once disturbed, they easily erode into our surface water. In addition, excessive levels of nutrients and other pollutants are easily passed through to the near-surface groundwater that feeds our lakes and streams. In some cases, this excessive pollution passes into our groundwater aquifers, contaminating our drinking water.

The ERCOL is a unique series of 14 interconnected lakes and rivers in Antrim and Kalkaska counties, emptying into East Grand Traverse Bay through the Elk River in Elk Rapids. At 500 square miles, the ERCOL subwatershed is the largest tributary to Grand Traverse Bay and provides about 60 percent of the surface flow to Grand Traverse Bay. The ERCOL watershed area has more than 200 streams, with 138 miles as designated

trout streams. More than 10 percent is covered by water. From the uppermost lake in the chain, the waters flow 55 miles and drop 40 feet in elevation on their way to the bay. The Northwest Michigan Council of Governments (NWMCOG) developed a management plan for the ERCOL watershed in 1989, which the Conservation Resource Alliance updated in July 2001. This plan was then incorporated and expanded in the Grand Traverse Bay Watershed Protection Plan written by the Watershed Center Grand Traverse Bay and approved by the Michigan Department of Natural Resources and Environment and the US Environmental Protection Agency in 2005.

Sediments – including sand – are the number one surface water pollutant in the Grand Traverse Bay watershed, as set out in the Watershed Protection Plan. Nutrients, primarily nitrogen and phosphorus, are ranked as the second pollutant of concern throughout the watershed. Sediments and sand smother the habitat that aquatic organisms need to survive and reproduce. The sediments and sand enter our surface waters through stormwater that washes from roads, parking lots, and driveways carrying sediments and sand, as well as nutrients and other forms of pollution along with it.

As a result, one of the best ways for local governments in the Elk-River-Chain-of-Lakes watershed to address water quality protection is to consider how they are managing stormwater in their communities. In this context, protecting water quality is directly related to reducing impervious surfaces and protecting natural areas and natural vegetation.

Through a grant from the Michigan Department of Environmental Quality, the Watershed Center Grand Traverse Bay reviewed the regulatory framework in place throughout the ERCOL subwatershed, with the assistance in part of the watershed of Tip of the Mitt Watershed Council. For Clearwater Township, the Watershed Center Grand Traverse Bay reviewed the updated master plan and the zoning ordinance.

## **Process**

For the purposes of this project and the emphasis on stormwater management, the Watershed Center staff has focused on three topics:

Roads and Parking Lots,  
Lot Design and Development, and  
Protection of Natural Features.

The Roads and Parking Lots discussion addresses management of most of the impervious surfaces found in a community. The Lot Design and Development discussion considers open space ordinances, cluster ordinances, site plan review, on-site stormwater management, and septic system maintenance. The Protection of Natural Features discussion focuses on retention of native vegetation generally and around water resources specifically, tree conservation, and management of land clearing.

## **Water Resources in Clearwater Township**

The township includes the south shore of Skegemog Lake, the eastern shore of the Torch River, a significant stretch of the Rapid River, and part of the southern shore of Torch Lake.

Lake Skegemog was one of the best fisheries in the lower Chain of Lakes, with fishers targeting muskie, northern pike, smallmouth bass, and rock bass. Skegemog Swamp, with its reptile population (including the Massasauga rattlesnake) and wetland birds and wildflowers, is popular with hikers and nature observers. A conservanton easement protects about half of the Lake Skegemog shoreline from future development, and another protects more than three hundred acres at the Seven Bridges area on Rapid River, long a favorite nature trail area with local residents and visitors. Master Plan Update 2005-2006 Clearwater Township at 4.

The increase in recreational boaters presents a possible threat to water quality and fisheries. Since much of the township drains into Lake Skegemog by one route or another, the possibility of contamination by land runoff and infiltration into groundwater adds to the risk. Master Plan Update at 4.

Preserved lands in Clearwater Township include the Pere Marquette State Forest land (which covers about 1/6 of the township), the Skegemog Lake Wildlife Area, Seven Bridges, and Freedom Park all of which help protect water resources and water quality. Master Plan Update at 7.

## **Suggested Actions for Consideration in Clearwater Township**

Clearwater Township's Master Plan recognizes the importance of the township's water resources and the potential sources of impacts to water quality. Because of groundwater levels being close to the surface in many places in the township and other concerns related to soils, the plan notes that careful planning will be required with respect to high density developments, automotive waste runoff, lawn chemicals runoff, septic wastes, parking lots, underground tanks, industrial chemicals, and food waste.

Clearwater Township's Zoning Ordinance and policies include some good protections for water resources, including vegetated buffers on stream and river banks, open space requirements in the planned unit development provisions, and attention to stormwater management in several parts of the ordinance.

The discussion below provides more detail regarding the three topic areas, as well as suggested actions. In general, the more a local government can do to reduce impervious surfaces and increase the retention or restoration of native vegetation in riparian areas and in open spaces, the better for water quality. The suggested actions relate directly to the *General Water Quality Protection Principles and Targets* that accompany the plan. The principles and targets were based on the Better Site Design

resources of the Center for Watershed Protection. The list of *Additional Resources* that accompanies this plan provides links to sample ordinances and information to support implementation of the suggested actions. Finally, we are including a copy of *A Natural Solution*, a guide to low-impact development methods to manage stormwater.

### Roads and Parking Lots

The large majority of paved areas within a community are roads or parking lots. Most road design is significantly influenced by the county road commissions and local fire departments. Townships can address the design of private roads. Limiting parking space numbers and space size can reduce paved areas. These savings may seem insignificant on a particular site, but across the township the reductions in paved area could be substantial. The reduction of parking spaces from 10 feet by 20 feet to 9 feet by 18 feet results in a 20 percent savings in impervious surface.

The township ordinance sets the parking space size of 10 feet wide and 200 square feet as the minimum stall size. It also includes specific standards for parking space ratios. The ordinance also requires a 66-foot right of way for all private access easements, though it does not set a required pavement width.

**ACTION:** Consider setting the maximum width of paved private roads between 18-22 feet.

**ACTION:** Consider reducing the parking space size to 9 feet by 18 feet and setting the parking space dimensions as a maximum.

**ACTION:** Consider allowing or requiring spillover parking areas to be pervious surface or planted in grass.

**ACTION:** Consider requiring parking lot landscaping be designed to help address pollutant removal from stormwater runoff.

### Lot Design and Development

Lot design and general development provisions in zoning ordinances provide great opportunities to encourage alternatives to and reductions of impervious surfaces, such as shared driveways. Ordinances also can be crafted to address the overall development design to benefit water quality, such as providing incentives to protect natural vegetation throughout the development site.

Clearwater Township's zoning ordinance includes a planned unit development provision to create useful open space, and encourages that the landscape be preserved in the natural state as much as possible. It also recommends drainage through swales and recognition of natural drainage patterns. The township requires management of excess

stormwater runoff on site and Kalkaska County administers the soil erosion control permitting process. The ordinance also includes the Recreational Use District and the Forest Residential District, both of which include protection of water resources as part of their purposes. The ordinance also addresses groundwater protection for non-residential sites. The ordinance requires at least a 75-foot setback of septic systems from the water's edge except in the village district. The master plan notes that, in order to minimize the water quality risks from aging septic fields, it may be useful to require inspection of septic systems when land is transferred, which is now required through District Health Department Number 10.

**ACTION:** Consider ways to encourage retention of native or natural vegetation in dedicated open spaces of PUDs.

**ACTION:** Consider protection of trees on development sites in the forest residential district.

**ACTION:** Review whether the recreational district is achieving the goal of conserving forest, water, topographic, geologic, historic and other resources.

**ACTION:** Consider expanding application of site plan review to shoreline and steep slope sites.

**ACTION:** Consider adding review of stormwater best management practices and other water quality protections in the site plan review ordinance.

**ACTION:** Consider ways to encourage shorter driveways.

### Protection of Natural Features

The Clearwater Township ordinance includes a 50-foot vegetated buffer along watercourses to protect those water bodies from pollutants and erosion. The township ordinance also requires a state permit for construction in a wetland before there will be any local consideration of the project. The Forest Residential District is designed to reduce the risk of contamination of the ground water which communicates with the nearby lake and rivers. The Recreational District is intended to promote conservation of forests, water, and other resources.

Protecting natural features throughout the watershed helps to trap sediments and treat stormwater by using nutrients in the stormwater to grow. Native vegetation in riparian areas also helps prevent erosion and protect wildlife habitat. In addition, the soils on sites that have not been cleared or graded remain capable of infiltrating larger amounts of stormwater.

**ACTION:** Consider requiring a vegetated buffer around wetlands and around lakeshores if they are not currently included as watercourses under the ordinance.

**ACTION:** Consider adoption of a tree conservation ordinance and other approaches to preservation of natural vegetation on all new development sites, particularly in the forest residential and recreational districts.

## **Next Steps**

Clearwater Township has beautiful water resources. The zoning ordinance and master plan have implemented important steps to protecting those resources. Specific work on the recommendations set out above is at the discretion of the township and what the local officials and local residents view as priorities for the community. The list of additional resources accompanying the action plan is designed to support the township's consideration of implementation.

- *General Water Quality Protection Principles and Targets*
- *A Natural Solution*
- *Additional Resources* (Internet resources, including best management practices; Center for Watershed Protection resources; *Filling the Gaps*, a Michigan Department Natural Resources and Environment document with sample ordinances; and sample ordinances from within the Grand Traverse Bay watershed and other communities in Michigan.