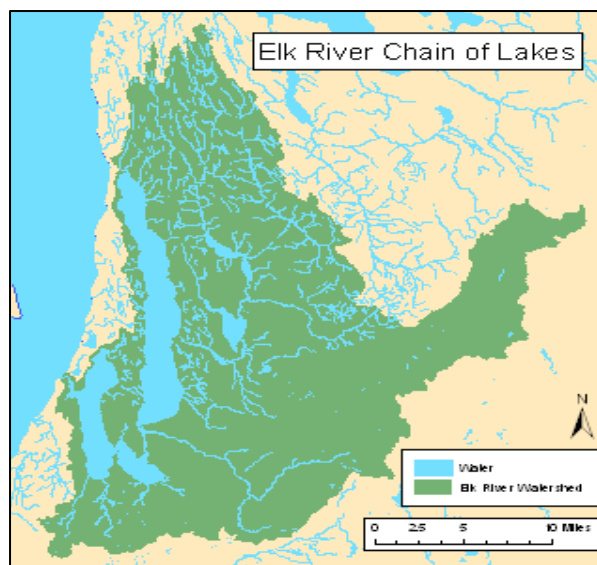


# **FOREST HOME TOWNSHIP** **WATER QUALITY ACTION PLAN**

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

The Watershed Center Grand Traverse Bay  
Tip of the Mitt Watershed Council  
Michigan Department of Natural Resources and Environment

August 2010



### **Purpose**

The Grand Traverse Bay watershed spans almost 1000 square miles, including major parts of Antrim, Grand Traverse, Kalkaska, and Leelanau counties. Forest Home Township lies between Torch Lake to the west and Intermediate Lake to the east and north of Clam Lake in Antrim County. All of the surface waters within Forest Home 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 Antrim County 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 Natural Resources and Environment, the Watershed Center Grand Traverse Bay has partnered with Tip of the Mitt Watershed Council to review the regulatory framework in place throughout the ERCOL subwatershed, an analysis that Tip of the Mitt Watershed Council is doing as part of a larger and more detailed regional review.

## **Process**

Last winter, Dr. Grenetta Thomassey, Program Director at Tip of the Mitt Watershed Council, conducted an analysis of the township's regulatory structure addressing nine different topics. She reviewed master plan language and ordinance language, and consulted with township staff, as needed. She developed and used a series of questions regarding various topics that impact water quality to guide the review.

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 lot discussion addresses management of most of the impervious surfaces found in a community. The lot development and design discussion considers open space ordinances, cluster ordinances, site plan review, on-site stormwater management, and septic system maintenance. The discussion of protection of natural features focuses on retention of native vegetation generally and around water resources specifically, tree conservation, and management of land clearing.

## **Water Resources in Forest Home Township**

Forest Home Township is surrounded by Torch Lake, Lake Bellaire, Clam Lake, and Intermediate Lake, as well as Intermediate River and Grass River. According to the master plan, most of the shoreline of all of the water bodies within the township has been developed for residential purposes except for those areas with low, poorly drained soils. (Forest Home Master Plan at 1-7).

Torch Lake forms the western boundary. It is a deep, coldwater lake of very high water quality such that some lakefront property owners use the lake as a source of drinking water. Intermediate River, Intermediate Lake and Lake Bellaire form the eastern boundary. Lake Bellaire is a deep, coldwater lake with average water quality. According to the master plan, shallow areas, such as the northeast part of Lake Bellaire suffer lower water quality from higher nutrient levels and reduced water clarity. Intermediate Lake supports a coldwater fishery and has been subject to great variation in water clarity over time. Dams at its south end in Bellaire and another dam where the Cedar River enters Intermediate Lake maintain a court-ordered water level. (Id.).

Clam Lake and the Grass River form the southern boundary. Clam Lake is the narrowest and shallowest of the four lakes in the township. The master plan states that wind and boat action stir up sediments, reducing water clarity; high speed boat traffic in this lake has caused shoreline erosion. (Id.).

## **Suggested Actions for Consideration in Forest Home Township**

Forest Home Township's zoning ordinance and policies include some excellent protections for water resources. The master plan references the importance of maintaining high water quality, properly maintaining septic systems, and preserving open spaces. The zoning ordinance includes provisions to address environmentally sensitive areas, a wetland district, vegetated buffers around water bodies, site plan review standards for natural features, and impermeable surface limits. Shoreline protection is of particular importance in areas of the township considered high erosion risk areas.

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 have the discretion to 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.

Forest Home Township has limited private road width to 18 feet in environmentally sensitive areas. All private roads must have drainage plans. Each district has a limit on the amount of impermeable surface. With respect to parking, the zoning ordinance requires 200 square feet for each parking space with a width of at least 10 feet. The ordinance includes parking lot landscaping requirements.

**ACTION:** Consider reducing the parking space dimensions and setting them as a maximum.

**ACTION:** Consider reducing the number of required parking spaces and setting the number as a maximum number as opposed to a minimum.

**ACTION:** Consider allowing for the reduction of parking requirements for shared parking.

**ACTION:** Consider requiring parking lot landscaping to be designed to help address pollutant removal from stormwater runoff (i.e. providing curb cuts to allow flow of stormwater into landscaped areas).

**ACTION:** Consider allowing all private roads throughout the township to be 18-22 feet wide.

### 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.

Forest Home Township's Planned Residential District provides for flexibility in site design to allow for clustering and preservation of open space. It also includes a 100-foot setback from natural water bodies on the borders of the project area. The general provisions state that a site cannot be graded so as to increase volume or velocity of stormwater onto neighboring parcels. The site plan review provisions include stormwater volume and groundwater protection standards, as well as encouraging retention of existing trees. The township requires management of stormwater runoff on site and follows the Antrim County Stormwater Ordinance administered by the Antrim Conservation District.

**ACTION:** Consider ways to encourage open spaces in developments and retention of native or natural vegetation in those open spaces in districts outside the planned residential district.

**ACTION:** Consider adding review of stormwater best management practices that address water quality in the site plan review ordinance.

**ACTION:** Consider adding stormwater management as a purpose for required greenbelts and landscaping so that plantings in these areas are designed for water quality treatment.

**ACTION:** Educate residents about proper septic system management and encourage residents to maintain septic systems on a regular basis.

**ACTION:** Consider adopting a septic maintenance ordinance or supporting a county septic maintenance ordinance.

### Protection of Natural Features

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.

Forest Home Township's zoning ordinance includes a 30-foot vegetated buffer on all water bodies, with an emphasis on retaining existing native vegetation. The environmentally sensitive district, the wetland district, and the planned residential district also include provisions that encourage the protection of existing native vegetation. In addition, the site plan review provisions require at least 10 percent of the site to be landscaped.

**ACTION:** Consider ways to encourage the use of native vegetation in landscaping and greenbelt provisions.

**ACTION:** Consider ways to encourage retention of native vegetation and open spaces on sites not required to receive site plan approval.

**ACTION:** Consider adoption of a tree conservation ordinance and other approaches to preservation of natural vegetation on all new development sites.

## **Next Steps**

Forest Home Township sits in the heart of the Elk-River-Chain-of-Lakes subwatershed. The township's master plan and zoning ordinance have implemented important steps to protecting those resources. Specific work on the recommendations set out above is at the discretion of the township and will be governed by 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.

The partners to this project -- the Watershed Center, Tip of the Mitt Watershed Council, and the Michigan Department of Natural Resources and Environment -- will assist as much as possible with work on these recommendations. The DNRE grant that is supporting this work includes time for Watershed Center staff to work with the township on any of these recommendations through June of 2011. We look forward to supporting your work to protect water quality.