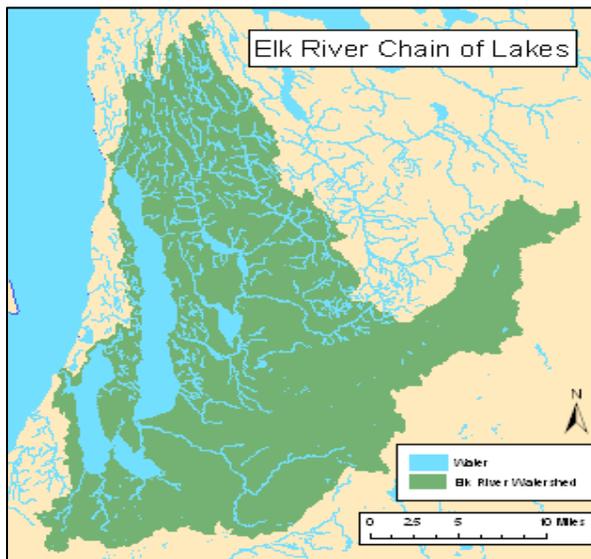


ELK RAPIDS TOWNSHIP **WATER QUALITY ACTION PLAN**

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. Elk Rapids Township is between Elk Lake and Grand Traverse Bay in Antrim County. Some surface waters within Elk Rapids Township flow directly into the bay while others 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 Elk Rapids Township

Elk Rapids Township is truly defined by water. The eastern border of the township is the shoreline of Elk Lake, while the western border is the east arm of the Grand Traverse Bay. Bass Lake and Birch Lake are both in the northern part of township. In total, the township has more than 20 miles of shoreline and several areas of important forests and wetlands. The area is well-known for its water resources and water-based recreational opportunities such as boating and fishing.

Suggested Actions for Consideration in Elk Rapids Township

Elk Rapids Township's zoning ordinance and policies include some good protections for water resources. The master plan references the importance of effectively managing stormwater, properly maintaining septic systems, and preserving open spaces. The zoning ordinance addresses protecting native vegetation around water bodies, site plan review standards for natural features, and includes an environmental zone to protect natural areas. 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.

Elk Rapids Township has a private road ordinance that requires management of stormwater runoff, though it does not address the width of paved area. The parking provisions require each parking space to be at least 10 feet wide and 200 square feet in area. The Planning Commission has discretion to waive parking requirements as long as an area is provided on the site plan for expansion of parking if needed in the future. The residential district includes an impervious cover limit of 30 percent of the lot.

ACTION: Consider limiting the paved width of private roads to 18-22 feet.

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

ACTION: Consider reducing parking requirements for shared parking.

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

ACTION: Consider regularly exercising the waiver provision and requiring spillover parking areas to be pervious surface or planted in grass.

ACTION: Consider requiring parking lot landscaping, such as the greenbelt for neighboring residential uses, be designed to help address pollutant removal from stormwater runoff.

ACTION: Consider impervious cover limits for other zoning districts.

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.

The Elk Rapids Township Master Plan highlights protection of water resources in the township. It addresses septic system maintenance, stormwater management, and impervious surfaces.

Elk Rapids Township's zoning ordinance includes several provisions that help protect water quality. The environmental zone is designed to protect water resources, high erosion risk areas and other environmentally sensitive sites. Buildings and structures on lake shorelines must be setback at least 50 feet from the water. The 25-foot buffer of native vegetation along water bodies throughout the township helps

prevent the flow of sediments and nutrients into our lakes and rivers. The ordinance also includes site plan review provisions designed to conserve natural resources, among other goals. The township requires management of stormwater runoff on site and follows the Antrim County Stormwater Ordinance administered by the Antrim Conservation District. The grading provision manages the amount and velocity of stormwater moving from one parcel to an adjacent parcel.

ACTION: Consider ways to encourage open spaces in developments and retention of native or natural vegetation in those open spaces, perhaps through the planned development zone provisions.

ACTION: Consider adding review of stormwater best management practices in the site plan review ordinance.

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.

The environmental zone includes additional protections for wetlands and a 25-foot buffer of native vegetation. The grading provisions help retain natural drainage patterns.

ACTION: Consider ways to encourage the restoration and preservation of a combination of herbaceous and woody plants in the buffer areas along shorelines.

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

Next Steps

Elk Rapids Township enjoys 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.

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.