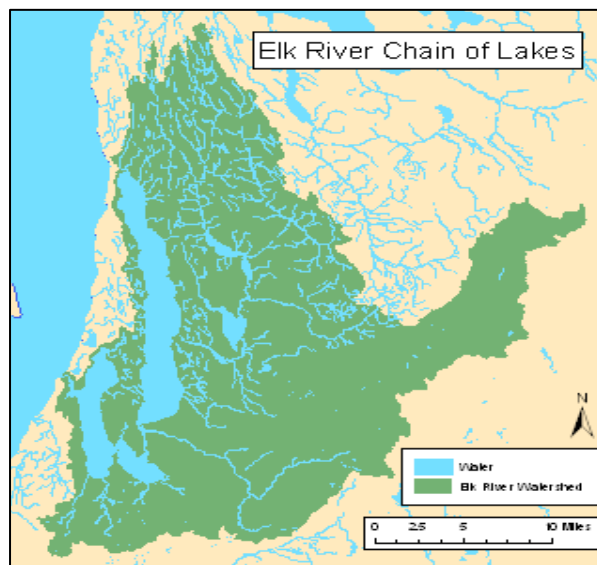


# **VILLAGE OF ELK RAPIDS** **WATER QUALITY ACTION PLAN**

## **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. The Village of Elk Rapids straddles the point at which Elk Lake meets Lake Michigan in Antrim County. Some surface waters within the village flow into the Elk-River-Chain-of-Lakes (ERCOL) subwatershed and some flow directly into Lake Michigan. 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 the Village of Elk Rapids**

The village sits where Elk Lake flows through Elk River and the River Pond into Lake Michigan. The northeastern part of the village borders Bass Lake. The village includes more than 7 miles of shoreline.

## **Suggested Actions for Consideration in Elk Rapids Village**

Elk Rapid Village's zoning ordinance includes some strong protections for water resources. The site plan review, planned unit development, open space development and environmental sensitive overlay ordinances provide review opportunities for many land uses and direct applicants to consider impacts on natural features.

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. Local governments 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 village 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 village zoning ordinance limits the size of parking stalls and allows for small parking lots near natural features to use an alternative surface. The landscaping requirements mention drainage and larger lots require interior landscaping.

**ACTION:** Review parking space quantities and consider setting parking space dimensions and quantities as maximums.

**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) especially since larger parking lots must provide for snow storage.

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

**ACTION:** Consider reducing parking requirements for shared parking.

### 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 site plan review ordinance allows for the consideration of natural features, stormwater drainage, and natural vegetation. Special use permits and planned unit developments require an impact statement to address the impact of the proposed development on natural features, the provision of drinking water and wastewater management, stormwater management, and erosion. The open space development provisions seek to preserve natural resources and call for 30 percent of the site to remain in open space. All buildings and parking lots must be setback 50 feet from water bodies. The village requires management of excess stormwater runoff on site and follows the Antrim County Stormwater Ordinance administered by the Antrim Conservation. It also provides drinking water and wastewater management systems.

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

**ACTION:** Consider requiring retention of native or natural vegetation in dedicated open spaces of PUDs and open space developments.

**ACTION:** Consider impervious cover limits for all zoning districts.

**ACTION:** Consider ways to encourage alternative driveway designs (i.e. shared driveways, use of porous materials for driveways, etc.).

### 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.

Elk Rapids Village's zoning ordinance addresses impacts to and protection of natural features and natural vegetation in the site plan review provisions and the shoreland, floodplain, stream and wetland provisions. In addition, open space and planned unit development provisions are designed to encourage retention of natural features. The village ordinance recognizes the potential erosive impacts of hardened shorelines. Removal of trees within 35 feet of the shoreline is limited. Retention of vegetation is required to screen upland buildings and help prevent erosion.

**ACTION:** Consider reviewing the shoreland vegetation protection provisions and whether they have been successful in achieving the ordinance's purposes.

**ACTION:** Consider adopting specific standards for buffer protection, native vegetation and tree conservation in the site plan review process.

**ACTION:** Consider a village-wide tree conservation ordinance.

## **Next Steps**

The Village of Elk Rapids sits at the end of the Elk-River-Chain-of-Lakes subwatershed. The village's zoning ordinance has implemented some important measures to protect those resources. Specific work on the recommendations set out above is at the discretion of the village 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 village'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.