



# Emmet County Local Ordinance Gaps Analysis

An essential guide for water protection

Tip of the Mitt Watershed Council  
Written and compiled by Grenetta Thomassey, Ph.D.



# Emmet County

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*Little Traverse Bay*

## **SECTION I: Introduction**

# Protecting Lakes, Streams, Wetlands and Groundwater

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### **Prevent or Save?**

It is much easier to prevent degradation of a lake than to save it from the brink of ruin.

Some Michigan lakes are in trouble. People love these lakes, but failure to prevent degradation has resulted in real and difficult challenges for communities. Drinking water sources are threatened, recreational use is limited, and habitat is disappearing. These factors impact quality of water - and quality of life - and place property values at risk.

Fortunately, in Northern Michigan, most of our treasured lakes, streams, and groundwater sources are clean and plentiful. We still have wetlands to nurture those waters, drinking water is delicious and healthy, and recreational use abounds. Wildlife thrives among us, and property values are relatively solid. Because these conditions exist, more and more people want to be here. In addition to new opportunities, this also brings a new set of challenges to our area, especially for local governments. This Local Ordinance Gaps Analysis is designed to help local governments deal with the water resource-related challenges that come with this growth.

Contrary to widely-held beliefs, state and federal regulations do not adequately protect water resources and wetlands from impacts that can be prevented at the local level. For example, federal regulations mainly address discharge of fill material into wetlands, but do not protect against other significant impacts. The state of Michigan does have a statutory Wetland Protection Program in place, but it is constantly threatened with budget cuts and attempts to weaken it. Additionally, it can fail to protect local wetlands that fall outside of its scope.

Growth pressures bring a new awareness of the limitations of state and federal protections, and local governments have come to realize the need to fill in the gaps. Sensible local regulations create a certainty that protects investments, not only for homeowners but also for small business and developers of larger projects. They also allow economic growth while protecting vital water resources.

### **Purpose**

The purpose of this project is to give you, the local government official, a comprehensive picture of:

- the water resource protections now in place at the county and township levels, including your jurisdiction;
- our recommended local approaches to protect waters; and
- what we suggest could be improved, to better protect your water resources.

Obviously, the “comprehensive picture” being presented here is a snapshot in time. However, every attempt has been made to give you a “living document” that should serve you for planning purposes, years into the future. Several items noted here as needing improvements may already be improved, by the time this document is published. Also, you might find an error, as this work was quite detail-oriented and it’s possible that we missed something. Nevertheless, most of this information should be timely, useful, and provide helpful guidance.

The project was done across the entire service area of Tip of the Mitt Watershed Council: Antrim, Charlevoix, Emmet, and Cheboygan Counties. Every jurisdiction in each county was included. The project is divided into four reports, and this report is for Emmet County.

## Critical Elements of this Project

This project was done with the underlying assumption that specific **Critical Elements** are considered vital to address, if a local government wants to create strong protections for local water resources. These **Critical Elements** are:

- Master Plan Components
- Basic Zoning Components
- Shorelines
- Impervious Surfaces and Stormwater Management
- Soil Erosion and Sediment Control
- Sewer/Septic
- Wetlands
- Groundwater and Wellhead Protection
- Other: Floodplains, Steep Slopes, and Critical Dunes

The reasons for creating this particular list are detailed in the **Literature Review** that is found in Section II. The **Literature Review** is a formal academic review, documenting the current relevant research literature for each of these items. It explains why the Critical Elements are considered important enough to include in this work.

## Project Evaluation and Analysis

An Evaluation Checklist was created to focus on the Critical Elements listed above, in accordance with the Literature Review. You will find a copy in the **Appendix**. It is important to note that the scoring system used with the Evaluation Checklist **does not** penalize a jurisdiction for missing ordinances that are not appropriate for their area, because of geographic or other circumstances. We understand that there cannot be a cookie cutter approach to water protections for any region. The cover page of the Evaluation Checklist gives you a detailed explanation of the system used to accommodate those situations.

Upon completion of a checklist section, the points were totaled and the section was ranked. The completed checklist for your jurisdiction is available upon request; the scores and rankings are included in each chapter that follows. The checklist was compared to each jurisdiction's Master Plan and any ordinances in place. The checklist question was asked; the answer was found and noted.



If the answer was “yes”, the question earned 3 points. If the answer was “yes, partially” the question earned 2 points. If the answer was “yes, minimally” the question earned 1 point. If the answer was no, the question earned 0 points and that item is considered to be missing. The score for each question was assigned and then the next question was asked, until the entire checklist was complete. Here are the Score Breakdowns for each Critical Element, and the related Ranking System:

## SCORE BREAKDOWNS

- **Master Plan:** 30-21=strong; 20-11=adequate; 10-1=weak
- **Basic Zoning Elements:** 54-37=strong; 36-19=adequate; 18-1=weak
- **Shorelines:** 60-41=strong; 40-21=adequate; 20-1=weak
- **Impervious Surface Reduction:** 33-23=strong; 22-12=adequate; 11-1=weak
- **Stormwater Management:** 27-19=strong; 18-10=adequate; 9-1=weak
- **Soil Erosion and Sediment Control:** 18-13=strong; 12-7=adequate; 6-1=weak
- **Sewer/Septic:** 24-17=strong; 16-9=adequate; 8-1=weak
- **Wetlands:** 21-15=strong; 14-8=adequate; 7-1=weak
- **Groundwater and Wellhead Protection:** 18-13=strong; 12-7=adequate; 6-1=weak
- **Other Relevant Elements:** 48-33=strong; 32-17=adequate; 16-1=weak

## RANKING SYSTEM

**STRONG** – The section of the ordinance being reviewed can be identified as more protective or better than most ordinances in the state, for reasons that can be clearly articulated. For example, the section replicates a model ordinance on the same topic, or minimum standards are exceeded.

**ADEQUATE** – The section of the ordinance being reviewed is on par with other ordinances in the state; it is at least as protective as ordinances for areas with similar water resource features.

**WEAK** – The section of the ordinance being reviewed is deemed weaker than similar ordinances in the state, for a specific reason that can be clearly articulated. For example, a model ordinance is changed by a local government to delete some protection that should have remained intact, and they use the ordinance in that less protective form.

**MISSING** – The topic is not included in the jurisdiction's ordinance.

## Conclusion

Pressure from growth is quickly felt on surface and ground water sources and the wetlands that guard them. If adequate protections are not put in place, our lakes and streams will degrade. Eventually, the natural resources that brought new growth and opportunity will suffer from neglect and abuse. The chain of threats to drinking water, habitat, recreation, and property values is strong and can become evident all too quickly.

At the point of degradation, we can decide to change things and try to reverse the trend. However, it is obviously much easier to think about these challenges ahead of time, and plan for prevention. Managing these threats improves our ability to protect this high quality of life, far into the future, for our grandchildren and beyond.

Prevention efforts can take some time to accomplish, which is all the more reason to evaluate where we are now, and what we should consider now to protect our water's future – which is our future, plain and simple. If we destroy our water, we destroy our health and property values.

It is our sincere hope that this project and report are helpful to you, when considering local planning and zoning decisions that can be used to protect your important water resources. Please do not hesitate to contact Tip of the Mitt Watershed Council with any questions you may have, or for additional help or information: 231.347.1181.



*Bear River*

## SECTION II: Literature Review

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### Introduction

Michigan has abundant water resources, including more than 11,000 inland lakes (Michigan DNR, 2009) and nearly 4,000 miles of Great Lakes shoreline (Michigan DEQ, 2008a). These lakes are intricately connected to the region's rivers, wetlands, and underground aquifers. If cared for properly, Michigan's water resources can offer clean drinking water, healthy ecosystems and vital wildlife habitat, as well as provide ample opportunities for recreation and scenic views.

Because Michigan is a home rule state<sup>1</sup>, local Master Plans and ordinances play a crucial role in protecting environmental resources, such as water. We reviewed the water-related sections of local plans and ordinances within the Watershed Council's four-county service area. The review was based on several Critical Elements that account for the quality and reliability of local water resources:

- Master Plan Components
- Basic Zoning Components
- Shorelines
- Impervious Surfaces and Stormwater Management
- Soil Erosion and Sediment Control
- Sewer/Septic
- Wetlands
- Groundwater and Wellhead Protection
- Other: Floodplains, Steep Slopes, and Critical Dunes

### Literature Review

This literature review was conducted to provide a more in-depth explanation of why these specific factors are important to maintain water quality and aquatic ecosystem integrity. It also provides resources for local government entities. You will find a complete annotated list of these resources at the end of this literature review, which is organized by each Critical Element.



<sup>1</sup> In Michigan, counties, townships, and villages meeting certain statutory requirements may become home-rule units of government. If those statutory requirements are not met, a local unit of government cannot engage in activities unless the state expressly grants authority for it to do so. By law in Michigan, all cities are home rule units (Public Sector Consultants, 2002).

## **Master Plan Components**

"A master plan is a comprehensive long range plan intended to guide growth and development of a community or region" (Antrim County Master Plan, 2008).

The Michigan Planning Enabling Act (PA33 2008) describes a master plan as: "A land use plan that consists in part of a classification and allocation of land for agriculture, residences, commerce, industry, recreation, ways and grounds, public buildings, schools, soil conservation, forests, woodlots, open space, wildlife refuges, and other uses and purposes." This Act provides for the formation of planning commissions and uniform procedures for preparing, adopting, amending, and implementing these plans. Master Plans are intended to provide a basis for a zoning ordinance within a jurisdiction, if justified, including natural resource protection or rehabilitation (Michigan Legislature 2008).

A master plan that is regularly updated provides your community with important tools. These include facts on existing conditions and trends to help understand the impact of decisions; and a description of where and what type of development is desired. It allows individuals and businesses to reliably plan for the purchase and use of property, consistent with community goals. It also promotes the wise use of resources by helping prioritize which projects to undertake while still preserving community character (Antrim County Master Plan, 2008).

## **Basic Zoning Components**

The Michigan Zoning Enabling Act (PA 110 of 2006) stipulates that a local unit of government may provide for the regulation of land development by using a zoning ordinance. It also allows the establishment of districts within its jurisdiction that regulate the use of land and structures to meet the needs of citizens for "food, fiber, energy, and other natural resources, places of residence, recreation, industry, trade, service, and other uses of land, to ensure that use of the land is situated in appropriate locations and relationships, to limit the inappropriate overcrowding of land and congestion of population, transportation systems, and other public facilities, to facilitate adequate and efficient provision for transportation systems, sewage disposal, water, energy, education, recreation, and other public service and facility requirements, and to promote public health, safety, and welfare" (Michigan Legislature, 2006). Corrective amendments to the Act (PA 12 of 2008) included clarification in Article III for transfer of powers to the planning commission and Article IV, providing for Zoning Adoption and Enforcement (Ball and Sweet, 2008).

Zoning ordinances are a very effective tool for protecting water resources. Zoning tools encourage sustainable development by using approaches that are flexible but protective. If done properly, this allows economic development of land to be done in environmentally sensitive ways. Zoning can help owners consider the unique features that present opportunities on a parcel of property, as well as avoid actions that present a challenge to water quality (Kauffman et al., revised 2005).

## **Shorelines**

### **Great Lakes:**

Development along coastal areas of the Great Lakes shoreline can have serious impacts on dunes, beaches, coastal wetlands, and the adjacent aquatic ecosystem. Coastal shorelines serve as an important interface between inland systems and the lake or ocean, both physically and biologically. For example, a review by Defeo et al. (2009) discussed the importance of coastal sandy beaches:

Physical: sand transport and storage, which protects the shoreline from permanent erosion; storm buffering; breakdown of pollutants; water filtration and purification; nutrient mineralization and recycling; aquifer recharge.

Biological: biodiversity; juvenile fish nurseries; nesting sites; prey resources for birds and terrestrial animals.

Whether Great Lakes coastal shorelines are sandy or rocky, the services and benefits of any natural shoreline can be impeded if they are overly developed or modified. Establishing a minimum setback distance can lessen

these impacts by concentrating development away from the water body and other important features (e.g. dunes, beaches). Beach grooming, a major impact that uses heavy equipment to rake and sieve the sand, creates large unvegetated areas, which can result in erosion and kill eggs, juvenile fish, turtles and shorebirds that nest in these areas (Defeo et al., 2009). Recreation is another major concern, as it can impact the behavior of species in the area. Motorized recreation, such as the use of Off Road Vehicles (ORVs), is particularly destructive due to trampling and loss of necessary dune vegetation (Defeo et al., 2009).

### **Inland Lakes and Streams:**

Shoreline development impacts lakes and streams as well as the surrounding terrestrial ecosystems. However, appropriate planning and management techniques can lessen these impacts. Techniques that benefit and protect inland lake and stream ecosystems include the use of vegetated buffer strips using native plant species, shoreline setbacks, and limits on development density and other human disturbances.

Shorelines are vital transition zones between land and water, where many important interactions occur that benefit the aquatic ecosystem, including food and nutrient exchange. These benefits are diminished when shoreline properties are developed and vegetation removed, but can be recovered by planting vegetated buffer strips using a variety of native species. Establishing a diverse vegetated buffer strip encourages a shoreline to revert to natural conditions, which improves the effectiveness of the transition zone in protecting lakes and streams from the negative impacts of adjacent land-use activity.

In the literature discussed below, authors advocate buffer strips be anywhere from 50 to 600 feet in width, depending on their intended purpose. Brooks et al. (2003) write that buffer strips have the following benefits: 1) reducing runoff velocity, which allows sediments, nutrients, and chemicals in the water to filter out before reaching the water; and 2) reducing the amount of solar radiation entering the water, creating cooler temperatures in the shoreline waters, which increases dissolved oxygen and protects sensitive aquatic life. The District of Muskoka, Ontario, Canada (2003) presented the following additional benefits of buffers: erosion protection, flood control, wildlife food and habitat, increased property value, and aesthetic value.

In terms of water quality, Woodward and Rock (1995) found that vegetated buffer strips reduce both phosphorus and total suspended solids (TSS) inputs, provided the buffer strips were constructed and maintained properly. They noted that large areas of exposed soil increased sediment loads entering the water. This point is critical. Improvements garnered by maintaining a vegetated buffer strip were the greatest at construction sites, where erosion is a major issue. A literature review by Norris (1993) concluded that three major factors affect how effective buffer strips are at improving water quality: 1) physical attributes of the buffer zone (width, vegetation type, soil type, etc.), 2) types of pollutants entering the buffer strip, and 3) proximity of buffer zone to pollution source.

Merrell, Howe and Warren (2009) studied 40 inland lakes in Vermont. They concluded that minimizing shoreline conversion to lawns and maximizing the extent of vegetated buffered shores will benefit lake ecosystems. Specifically, they found that compared to undeveloped or buffered sites, developed/unbuffered sites had less shoreline tree cover, less shading, less large and small woody structure in the shallow water zone, and less leaf litter; these sites also had less food sources, including biofilms on lakebed rocks, invertebrate exoskeletons, and aquatic plants. In a study focused on impacts of logging near small inland lakes, authors found that vegetated buffer strips prevented temperature increases in shallow waters along the shoreline (Steedman, Kushneriuk and France, 2001).

Shoreline setbacks are another tool used to lessen impacts of development on inland lakes and streams. Development directly along shorelines has been shown to have many negative effects on lakes. In a study of lakes in the Northeast United States, researchers observed that lakes with visible human activity in half or more of the shoreline area had highly disturbed shoreline habitat (Whittier et al., 2002). This point also relates to the issue of development density and keyhole funneling. Keyhole funneling allows direct access to lakes by people who do not own property on the lakeshore, thus increasing human impacts on that part of the shoreline.

In addition to protecting the lake ecosystem, lakefront property owners may benefit economically from utilizing shoreline protection techniques. A study in Minnesota found that property values increase as lake water clarity increases (Krysel, Boyer and Parson, 2003). According to Cappiella and Schueler (2001), natural shorelines are a major factor contributing to the high value of lakefront property and thus, shoreline buffers can be justified as much economically as ecologically. It therefore stands to reason that shoreline protection techniques that preserve and restore water quality and wildlife habitat are crucial for maintaining and increasing the value of shoreline properties.

### **Impervious Surface Reduction and Stormwater Management**

Stormwater is water that accumulates on land as a result of storms, and includes runoff from urbanized areas that have impervious surfaces. Impervious surfaces, such as roads, parking lots, roofs and walkways prevent infiltration, the process of water entering the soil, of stormwater. This significantly alters the quantity, quality and rate of stormwater entering surface waters. Conversely, pervious surfaces, such as unpaved ground, slow the movement of stormwater, allowing sediments, nutrients and other contaminants to infiltrate rather than flowing directly into the receiving water body. Best Management Practices (BMPs) are used to manage stormwater on site with simple, cost-effective practices by mimicking natural processes.



As water quality concerns grow, the demand for alternative surfacing materials is increasing. Today, materials such as porous asphalt are available as an alternative to traditional impervious materials. Porous asphalt has been shown to effectively remove contaminants from stormwater runoff. In a study examining runoff over porous versus non-porous (i.e., impervious) roads in Texas, scientists found that the porous asphalt removed approximately five times the amount of suspended solids (Barrett, Kearfort and Malina, 2006). Additionally, porous asphalt and comparable pavements reduce the volume of runoff from roads by allowing for infiltration (Roy and Braga, 2009).

Another option for protecting water bodies from contaminated stormwater runoff is to divert the water into treatment ponds or constructed wetlands. Under the correct conditions, appropriately constructed wetlands or detention ponds can be used for stormwater treatment. The long residence time of stormwater in treatment ponds and wetlands allows contaminants to settle out or be removed biologically through uptake by plants, thereby improving water

quality and recharging groundwater supplies. Harper et al. (1986) found that constructed wetlands removed a significant amount of heavy metals; they recommend using constructed wetlands to treat road runoff, which often contains heavy metals. A study in Massachusetts found that bioretention cells (i.e., landscaped depressions adjacent to paved surfaces) were successful at capturing runoff from parking lots, and contributed to increased water quality in a nearby lake (Roy and Braga, 2009).

Because Michigan experiences severe freezing in the winter months, it is important to note that many Low Impact Design (LID) systems have been tested for performance under winter conditions (Roseen et al., 2009). All three of the above-mentioned techniques were shown to function as well during winter months as summer months.

The traditional approach to stormwater is to design structural BMPs focused on drainage and flood control. Although effective at managing the stormwater volume, these approaches are less effective at protecting water quality. Traditional BMP design focuses on rainfall events that range from 2 to 10 inches of daily rainfall and occur at much longer return periods, ranging from 2- to 100-year storms. These standards, however, are not sufficient for the more frequent, smaller runoff event because there is too little retention time for effective pollutant treatment. The need to strike a balance between accommodating large volumes of stormwater and promoting water quality

is becoming more broadly recognized. As a result, municipalities are shifting their BMP design approach to encompass both the peak discharge hydrology and the more water quality-based small storm hydrology. One approach is to specify a treatment volume that is designed to capture the initial component of the stormwater runoff. In practice, this may be achieved by specifying a rainfall amount (e.g., the first ½-inch or 1-inch) or the capture of a stormwater runoff volume that correlates to a design storm (e.g., 6-month, 1-year, or 2-year frequency storm).

### **Soil Erosion and Sediment Control**

Sediment is a major pollutant in Michigan's surface waters. Soil erosion often results in increased sediment loads to lakes and rivers, which can adversely impact aquatic ecosystems in a number of ways. Increased turbidity from sedimentation decreases photosynthetic production (Berry, Rubinstein and Melzian, 2003). Suspended sediments interfere with ingestion and respiration of aquatic insects (Berry et al., 2003), which can decrease populations and consequently, affect the dynamics of entire food chains. Erosion and sedimentation can also introduce into the water harmful contaminants contained in soils from human activities, such as pesticides, household cleaning products, automotive fluids, or nutrients from pet waste. Although erosion is a natural process, development alters and accelerates that process by removing vegetation necessary for soil stabilization. Construction activity creates increased opportunities for erosion due to exposed soil. However, these impacts can be minimized by utilizing proper soil stabilization techniques. For example, Faucette et al. (2009) found that erosion control blankets (ECBs) successfully prevented soil erosion at construction sites; thicker blankets were more effective than thinner blankets.

Steep slopes or bluffs are especially vulnerable to erosion, particularly in areas with sandy soils, or areas subject to wave action, surface or subsurface drainage, or heavy precipitation. Reducing the volume and rate of water that reaches the bluff can help slow the erosion process; often this can be accomplished simply by preserving natural vegetation and features (e.g., rocks, driftwood, etc.) on the slope or bluff (UMN, 2008). In some cases where natural features are inadequate to slow erosion, French drains or other water diversion systems may be used (UMN, 2008) until water-absorbing vegetation can be reestablished.

### **Sewer and Septic Systems**

There are advantages and disadvantages to both public sewer systems (centralized) and septic or onsite systems (decentralized). Public sewers are necessary in heavily populated urban areas, mostly due to the amount of space septic tanks require and their low water-handling capacity (ANJEC, 2008). However, rural and sparsely populated areas have other options.

A big advantage of public sewer systems is that home and business owners are not responsible for maintenance and repair. Beyond reducing the user's burden of maintaining the system, public sewers also help protect surface waters that would otherwise potentially be polluted by individual septic systems that are not properly maintained. However, there are major drawbacks, such as the capacity of these systems to handle increasing loads of stormwater that often occur as a result of development (Minneapolis, 2009). Additionally, according to Kahn, et al. (2007), regional sewer systems in rural areas encourage loss of open space.

Public sewer systems can be either "combined" or "separate". Combined systems send both stormwater runoff and wastewater to treatment plants. Separate systems send only wastewater to treatment plants; stormwater may or may not be handled separately. In combined systems, large volumes of water from major storm events can exceed the capacity of treatment plants, resulting in untreated sewage and wastewater being discharged directly into nearby water bodies, as well as sewage backing up into homes. Obviously, this can have detrimental impacts on both humans and the environment. One activity in particular that places added stress on combined systems is the use of downspouts that direct rainwater from households or commercial areas straight into sewer systems (Minneapolis, 2009).

According to the USEPA (2009), septic tanks serve almost 25% of U.S. households. Cappiella and Schueler (2001) point out that septic systems commonly serve households along inland lakeshores due to the difficulty and distance involved with hooking up to public sewer systems. It can be costly to extend sewer lines from existing systems, or to build new public sewers where none currently exist. One advantage of septic systems is their ability to provide wastewater treatment where public sewer systems cannot. Additional advantages include 1) they are less expensive to homeowners over the long-term; 2) installation and maintenance is less disruptive to the environment; 3) they help replenish ground water resources; and 4) they provide simple, yet effective treatment of wastewater (NESC, 2004). They also mimic the natural water cycle, according to ANJEC (2008).

If septic systems are not properly maintained or are overloaded with more water than they are designed to accommodate, they can fail and release untreated sewage into the environment (USEPA, 2003). Because of this risk, and the liability that falls on the home or business owner, it is important that septic systems be thoroughly inspected before a transfer of property transaction is completed. This will ensure that the new owner has an adequately functioning septic system at the time of transfer, thereby minimizing the risk of liability for environmental contamination and public health threats resulting from a malfunctioning system. A legal phrase used for this process is “point of transfer inspection”. Provisions can be added to local ordinances to accommodate property sales in winter months, when inspections are not feasible. In addition to protecting property owners, “point of transfer inspection” ordinances also reduce pollution to lakes and other water sources by finding those systems that need repair or replacement. This practice, along with others discussed below, can help ensure septic systems do not contaminate precious water resources.

Standley et al. (2008) found that surface waters were more contaminated in residential areas containing many septic systems, particularly with pharmaceuticals and hormones. In a study on septic tanks in Florida, Arnade (1999) found a strong relationship between the distance of septic tanks from wells and the amount of fecal coliform bacteria, phosphorus, and nitrates found in the wells. She found the relationship to be even stronger during rainy months, when the water table rises and soils become saturated. For this reason, many local governments require minimum setback distances for septic tanks. These setbacks can be described as either “horizontal” or “vertical”. Horizontal separation distance refers to the distance a tank must be from drinking wells, lakes, rivers, and houses, in order to protect environmental and human health. Vertical separation distance refers to the distance a tank must be from the water table, in order to provide enough space for contaminants to be removed and allow for aerobic digestion of nutrients (NESC, 2008). With proper setbacks, design, maintenance and sludge removal, septic systems will only discharge treated water (e.g., clean and not harmful) into the surrounding environment.

## **Wetlands**

Wetlands are unique, diverse, and sensitive ecosystems. They provide important habitat for wildlife (particularly migratory birds), naturally filter surface water, and recharge ground water supplies. Wetlands also store large quantities of water, which dampens the effects of major flood events. One acre of wetlands can store up to 1.5 million gallons of flood-derived water (Ardizzone and Wyckoff, 2003). Additional valuable functions provided by wetlands include: erosion reduction, shoreline stabilization, and scenic opportunities (Gordon, 1992). As they are difficult to re-create once destroyed, preserving and protecting wetlands today is the best option to ensure their benefits continue well into the future.

Wetlands in Michigan are found both inland and in coastal areas of the Great Lakes. Unfortunately, most coastal wetlands that once existed in the Great Lakes region have been drained or filled for development. As the ecological and water quality benefits of coastal wetlands become more readily acknowledged, more coastal wetland restoration projects are being implemented in the Great Lakes Basin (Mitsch and Wang, 2000). In fact, studies show that coastal wetland restoration can be a powerful tool for reducing nonpoint source pollution. Mitsch and Wang (2000) assessed the effectiveness of coastal wetland restoration in improving both water quality and wildlife habitat. They concluded that restoration is most effective when strategically located in areas receiving heavy nonpoint source pollution inputs with potential for productive habitat.

As with lakes, buffers and setbacks can be useful tools for wetland protection. However, Ludwa (1994) found that buffers and other mitigation measures only protected wetlands when land-use impacts were minimized

throughout the watershed. Wetlands in watersheds that had less impervious surface cover and more forest cover had better resistance to impacts than those in more vulnerable areas with more impervious surfaces.

However, even with buffers and setbacks, activities adjacent to sensitive wetlands can still degrade the quality of wetlands (Gordon, 1992). To reduce these impacts, a basin-wide approach to wetland protection can be adopted. Local regulations are extremely important when it comes to wetlands. Federal and state legislation offer some protection, but those laws only provide minimum standards for a larger geographical area, and local ordinances can improve them to match local conditions. To complement local wetland regulations, strategies such as preservation programs, restoration programs and public education can also be implemented (Gordon, 1992). Ensuring that existing wetlands are functioning and healthy will improve and protect the water quality of all related surface waters.

## **Groundwater**

Groundwater is a major source of freshwater, contributing about half of the total water consumed by humans for drinking, agriculture, and other purposes (New Jersey Geological Survey, 2009). In addition, depending on water table depth, groundwater may serve as a significant source of water to lakes, rivers and wetlands (Brooks et al., 2003). Groundwater protection, which includes consideration of both quantity and quality, is therefore crucial.

When groundwater resources are consumed using pumping and extraction, natural processes replenish them; this is known as “groundwater recharge” and typically occurs through precipitation, infiltration and percolation (South Brunswick ERI, 2007). The capacity for groundwater recharge in any given area depends on climate, soils, vegetation and land-use patterns (Charles et al., 1993). The relationship among soils, vegetation and land-use must be considered. In order to ensure ample groundwater recharge, areas that offer the highest potential for recharge (referred to as “groundwater recharge areas”) should be protected. Protection involves 1) identifying groundwater recharge areas, then 2) limiting development and other activities that impede infiltration or negatively impact water quality in those areas.

Some areas in Northern Michigan have municipal well fields. Recharge areas for those well fields are known as “wellheads” and they should be identified and protected. Wellhead Protection Plans identify contaminant sources and provide recommendations to prevent contamination. In other areas, groundwater recharge areas must be identified; various techniques, including mapping, can accomplish this. By combining local land-use/land-cover maps with local soil maps, approximate groundwater recharge areas for counties or municipalities can be determined (Charles et al., 1993). Today, GIS technology and digital maps are readily available to expedite this process.

Once groundwater recharge areas are identified, protection measures can be implemented to ensure their proper function. These include regulating development that increases impervious surface area, which can alter or obstruct groundwater recharge. If recharge rates are reduced, groundwater extraction can become unsustainable (Fayette County, 2000). The quality of groundwater can be compromised by various activities, such as storage and the subsequent leaking or spilling of hazardous materials, and the use of floor drains at commercial sites (Michigan DEQ, 2008b). According to the DEQ (2008b), even small traces of contaminants discharging into the ground can have enormous effects on groundwater quality. This is because contaminants will both accumulate in the soil and spread quickly once reaching the water source. Proper storage of hazardous materials to mitigate these effects includes appropriate site selection and leak-proof containers. Furthermore, underground storage tanks for fuel and other substances pose a risk to groundwater and should be identified, evaluated, monitored and repaired or removed as necessary.

Abandoned wells can also threaten groundwater quality (Michigan DEQ, 2007). Because wells connect the Earth’s surface with underground aquifers, the potential for harmful contaminants to enter groundwater resources exists. Plugging, or closing off, wells that are no longer in use can thereby reduce threats to groundwater quality.

## Works Cited - Annotated

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This chapter summarizes the focus, elements and considerations in developing the Antrim County Master Plan.

*Association of New Jersey Environmental Commissions. 2008. Clean Water, Sewers, Septics and Sprawl.* Retrieved from: [http://www.anjec.org/pdfs/Sewers\\_Web\\_Reader.pdf](http://www.anjec.org/pdfs/Sewers_Web_Reader.pdf)

This article stresses the importance of local wastewater management plans, and discusses the benefits and drawbacks of converting from septic systems to centralized sewer systems.

*Ardizzone K.A. and Wyckoff M.A., FAICP. Filling the Gaps: Environmental Protection Options for Local Governments, Michigan DEQ, Coastal Management Program with financial assistance from NOAA, authorized by the Coastal Zone Management Act of 1972. June, 2003.*

Addressing environmental protection at the county and city levels, this book pays special attention to water resources such as lakes, rivers, and wetlands. It discusses qualities, threats, and protection options.

*Arnade J.A. 1999. Seasonal correlation of well contamination and septic tank distance. Ground Water: 37(6): 920-923.*

This study examined the influence of seasonal precipitation on the relationship between well contamination from septic tanks, and the distance of the tanks. During the rainy months, the wells had higher concentrations of phosphorus, nitrates and fecal coliform.

*Ball, J. and Sweet, L. 2008. Summary of Changes to the Michigan Zoning Enabling Act (PA 110 of 2006) Made by PA 12 of 2008. Planning and Zoning News 26 (5): 6-7.*

This article summarizes changes to PA 110 of 2006 by the Michigan Legislature for each section amended including a brief explanation.

*Barrett M.E., Kearfott P., and Malina J.F. 2006. Stormwater quality benefits of a porous friction course and its effect on pollutant removal by roadside shoulders. Water Environment Research 78(11): 2177-2185.*

Stormwater study that examined the impact of porous friction courses (PFCs) on the quality of stormwater runoff from highways in Austin Texas, and additionally assessed the impact vegetative shoulder strips have on pollutant removal when used in conjunction with PFCs. The PFCs left very little (on average around 20 mg/L) total suspended solids (TSS) in the stormwater runoff, while the traditional asphalt left significantly more (on average over 100 mg/L).

*Berry W., Rubinstein N. and Melzian B. 2003. The biological effects of suspended and bedded sediment (SABS) in aquatic systems: a review. United States Environmental Protection Agency Internal Report. Retrieved from: <http://www.epa.gov/waterscience/criteria/sediment/pdf/appendix1.pdf>*

Published by the EPA, this report summarizes relevant literature pertaining to the impacts increased sediment loads have on lakes and rivers. Separate discussions are included for plants, invertebrates, fish, coral, etc.

*Brooks K.N., Ffolliott P.F., Gregersen H.M., and DeBano L.F. Hydrology and the Management of Watersheds. Iowa 2003: Iowa State Press, pp. 334-337.*

A textbook in which the authors draw upon various scientific studies to discuss watershed processes and recommend management practices for lakes, rivers, and other hydrologic systems.

*Cappiella K. and Schueler T. 2001. Crafting a lake protection ordinance. Urban Lake Management 3(4): 751-768.*

This article outlines the major necessary elements for ordinances to protect lakes in developed areas. It includes descriptions of protection measures from the lakeshore to the entire watershed.

Charles E.G., Behroozi C., Schooley J., and Hoffman J.L. 1993. *A method for evaluating ground-water recharge areas in New Jersey. New Jersey Geological Survey Report (GSR) 32.*

Published to assist municipalities with identifying groundwater recharge areas and ranking them by importance, this report provides detailed methods of such, along with example maps and tables.

Defeo O., McLachlin A., Schoemann D.S., Schlacher T.A., Dugan J., Jones A., Lastra M., and Scapini F. 2009. *Threats to sandy beach ecosystems: a review. Estuarine, Coastal and Shelf Science 81: 1-12.*

This is a literature review, discussing the importance of coastal beaches, and activities that have great impacts on them. Surface and sub-surface physical and biological processes are addressed.

Faucette L.B., Scholl B., Beighley R.E., and Governo J. 2009. *Large-scale performance and design for construction activity erosion control best management practices. Journal of Environmental Quality 38(3): 1248-1254.*

This study examined the effectiveness of various impact-mitigation techniques at construction sites. Thick erosion control blankets (ECBs) over large areas significantly delayed rilling and disturbance.

Fayette County, Georgia. *Groundwater Recharge Area Protection Ordinance (June 22, 2000 Ord. 2000-13).* Retrieved from: <http://www.fayettecountyga.gov/engineering/pdf/Art11GroundwaterRechargeAreaProtectionOrdinance.pdf>

This is an example of an ordinance to protect groundwater recharge areas from various pollution sources.

Gordon D.G. Ed. *Designing Wetland Preservation Programs for Local Governments: A Guide to Non-Regulatory Protection. Washington State Department of Ecology, March 1992.*

This is a manual discussing the importance of creating — as well as guidelines for designing — wetland preservation programs in order to meet federal, state and local goals of “no net loss”.

Harper H.H., Wanielista M.P., Baker D.M., Fries B.M., and Livingston E.H. 1986. *Treatment efficiencies for residential stormwater runoff in a hardwood wetland. Lake and Reservoir Management 2(1): 351-356.*

How effective wetlands are at removing heavy metals and nutrients? The results of this study suggest that wetlands are very effective at removing heavy metals, but not as effective at removing nutrients. The authors recommend wetlands be used to filter stormwater off of systems such as highways, where heavy metals are of a greater concern than nutrient pollution.

Kahn L., Hulls J., and Aschwanden P. *The Septic System Owner's Manual. Bolinas, California 2007: Shelter Publications, Inc., p. 127*

More than 28 million households have septic systems, but few homeowners know how they operate or how to maintain them. This illustrated guide addresses that need. It emphasizes conventional septic systems powered by gravity flow, filtering through soil, and the natural soil organisms that purify sewage. It also discusses maintenance, what to do if things go wrong, and alternative systems such as mounds and sand filters.

Kauffman Gerald J., Wozniak Sara L., Vonck Kevin J. March 2004, revised May 2005. *Source Water Protection Guidance Manual for the Local Governments of Delaware.* Retrieved from: [http://www.wr.udel.edu/swaphome\\_old/phase2/SWPguidancemanual.html](http://www.wr.udel.edu/swaphome_old/phase2/SWPguidancemanual.html)

The State of Delaware Source Water Protection Law of 2001 requires local governments with year-round populations of 2,000 or more to implement protections for the quality and quantity of public water supplies by 2007. The purpose of this manual was to provide local governments with measures meant to comply with the legislation, and encourage smaller jurisdictions protect their sources of public drinking water.

Krysel, C, Boyer E.M., Parson, C, and Welle, P. 2003. *Lakeshore Property Values and Water Quality. Evidence from Property Sales in Mississippi Headwater Region. Submitted to the Legislative Commission on Minnesota Resources.* Retrieved from: [http://www.friendscvsf.org/bsu\\_study.pdf](http://www.friendscvsf.org/bsu_study.pdf)

From the Forward to this report: “For the first time, this study defines the dollar value of water quality to the northern Minnesota economy. The State of Minnesota consists of a well-educated population,

aware of the value of the State's most valuable resource, clean water. In today's political/budgetary climate, support of the environment that maintains water quality has been viewed as frivolous, anti-business, or an unnecessary expense. Through objective scientific method and hedonic modeling, this study attaches tremendous economic value to investing in a clean environment."

Ludwa K.A. 1994. *Wetland water quality impacts in developing watersheds: empirical models and biological indicators*. *Lake and Reservoir Management* 9(1): 75-79.

This study examined how deforestation and urban development can impact wetland systems, and how to best mitigate those impacts. Watershed-wide measures were found to be most effective.

Merrell K., Howe E.A., and Warren S. 2009. *Examining shorelines, littorally*. *Lake Line* 29(1): 8-13.

40 natural lakes in Vermont were examined in this study, observing differences between undeveloped or buffered sites, and developed/unbuffered sites. Many physical and biological differences were found.

Michigan Department of Environmental Quality. 2007. *Plugging abandoned wells*. *Groundwater Protection Fact Sheet 1*.

This fact sheet discusses how to identify abandoned wells and how to close them off. It also outlines the hazards associated with abandoned wells.

Michigan Department of Environmental Quality. 2008(a). *Michigan Great Lakes plan: our path to protect and restore Michigan's natural treasures*. Retrieved from: [http://www.michigan.gov/documents/deq/Draft\\_MI\\_Great\\_Lakes\\_Plan\\_251564\\_7.pdf](http://www.michigan.gov/documents/deq/Draft_MI_Great_Lakes_Plan_251564_7.pdf)

This is a manual of strategies for restoration and increased protection in the state of Michigan, aligned with the 2005 Great Lakes Regional Collaborative "Strategy to Restore and Protect the Great Lakes." It also contains background information on Michigan's natural areas.

Michigan Department of Environmental Quality. 2008(b). *Pollution prevention at small commercial and industrial facilities*. *Groundwater Protection Fact Sheet 2*.

This fact sheet contains a list of commercial and industrial activities potentially hazardous to ground water. It also contains a section on floor drains.

Michigan Department of Natural Resources. 2009. *Michigan's Waters*. Retrieved from: [http://www.michigan.gov/dnr/0,1607,7-153-30301\\_31431---,00.html](http://www.michigan.gov/dnr/0,1607,7-153-30301_31431---,00.html).

Description and maps for Michigan's waters.

Michigan Legislature. 2006 PA 110. *Michigan Zoning Enabling Act, Article II. Zoning Authorization and Initiation, Section 125.3201 (1)*. Retrieved from: [http://www.legislature.mi.gov/\(S\(taxk4345o1gumu550g1u2zfc\)\)/mileg.aspx?page=getObject&objectName=mcl-125-3201](http://www.legislature.mi.gov/(S(taxk4345o1gumu550g1u2zfc))/mileg.aspx?page=getObject&objectName=mcl-125-3201)

"AN ACT to codify the laws regarding local units of government regulating the development and use of land; to provide for the adoption of zoning ordinances; to provide for the establishment in counties, townships, cities, and villages of zoning districts; to prescribe the powers and duties of certain officials; to provide for the assessment and collection of fees; to authorize the issuance of bonds and notes; to prescribe penalties and provide remedies; and to repeal acts and parts of acts."

Michigan Legislature. 2008 PA 33. *Michigan Planning Enabling Act, Article II. Planning Commission Creation and Administration, Section 125.3811 and Article III. Preparation and adoption of Master Plan, 125.3833 Parts (2)(a),(c),(d)*. Retrieved from: [http://www.legislature.mi.gov/\(S\(xupi1mesibiknsmteqka5g55\)\)/mileg.aspx?page=GetObject&objectname=mcl-act-33-of-2008](http://www.legislature.mi.gov/(S(xupi1mesibiknsmteqka5g55))/mileg.aspx?page=GetObject&objectname=mcl-act-33-of-2008)

"AN ACT to codify the laws regarding and to provide for county, township, city, and village planning; to provide for the creation, organization, powers, and duties of local planning commissions; to provide for the powers and duties of certain state and local governmental officers and agencies; to provide for the regulation and subdivision of land; and to repeal acts and parts of acts."

Minneapolis, City of. 2009. *History of Stormwater and Wastewater Drainage Systems in Minneapolis*. Retrieved from: <http://www.ci.minneapolis.mn.us/stormwater/overview/construction-history.asp>

This site discussed both combined and separate sewer systems, mainly stressing the advantages of converting to separate systems.

*Mitsch, W.J. and N. Wang. 2000. Large-scale coastal wetland restoration on the Laurentian Great Lakes: Determining the potential for water quality improvement. Ecological Engineering 15: 267-282*

FROM THE ABSTRACT: Coastal wetlands around the Great Lakes are rarely restored for water quality enhancement of the Great Lakes, despite the need for minimizing phosphorus and other pollutant inputs to the lakes. A simulation model, developed and validated for a series of created experimental marshes in northeastern Illinois, was aggregated and simplified to estimate the nutrient retention capacity of hypothetical large-scale coastal wetland restoration in Michigan and Ohio. A wetland distribution model developed for a Saginaw Bay site illustrated a technique for identifying sites that have high potential for being transition zones between open water and upland and thus logical locations for wetland restoration.

*Mortsch, L., M. Alden and J. Scheraga. August 2003. Climate change and water quality in the Great Lakes Region – Risks, Opportunities and Responses. Retrieved from:*

*[http://www.ijc.org/rell/pdf/climate\\_change\\_2003\\_part3.pdf](http://www.ijc.org/rell/pdf/climate_change_2003_part3.pdf)*

This report was prepared for the International Joint Commission (IJC). Recognizing that Climate Change was an emerging issue that required a survey of potential impacts and the ability to adapt, the IJC Great Lakes Water Quality Board commissioned this white paper to explore implications of a changing climate on the Great Lakes watershed. It addresses four broad questions: 1) What are the Great Lakes water quality issues associated with climate change? 2) What are the potential impacts of climate change on the “beneficial uses” in the Great Lakes Water Quality Agreement? 3) How might these impacts vary across the Great Lakes? and 4) What are the implications for decision-making?

*Muskoka, District of, Planning and Economic Development Department. 2003. Shoreline vegetative buffers. Retrieved: <http://muskoka.fileprosite.com/Documents/DocumentList.aspx?ID=4844>*

This publication defines vegetated buffer strips and discusses the various benefits of using them to protect water quality. Authors recommend different widths for buffers based on intended use and benefit (e.g. water quality versus mammal habitat).

*National Environmental Service Center. 2004. Septic systems—a practical alternative for small communities. Pipeline 15(3): 1-8.*

This article discusses septic systems, providing an insightful list of “pros” and “cons” for using septic systems versus sewer systems.

*National Environmental Service Center. 2008. Ground water Protection and Your Septic System. Retrieved from: [http://www.nesc.wvu.edu/pdf/ww/septic/septic\\_tank3.pdf](http://www.nesc.wvu.edu/pdf/ww/septic/septic_tank3.pdf)*

This document discusses the connection between groundwater and septic tanks. Included is a description of both “horizontal” and “vertical” separation distances.

*New Jersey Geological Survey. 2009. Aquifer Recharge Mapping. Retrieved from: <http://www.state.nj.us/dep/njgs/enviroed/aqfrchrg.htm>*

This website describes the process of aquifer recharge, and presents an example of creating a map highlighting recharge areas.

*Norris V. 1993. The use of buffer zones to protect water quality: a review. Water Resources Management 7: 257-272.*

This literature review assesses how effective buffer strips are at filtering out harmful inputs due to land-use practices. The author concluded that their effectiveness can be attributed to three major factors: 1) physical attributes of the buffer zone (width, vegetation type, soil type, etc.), 2) types of pollutants entering buffer strip, and 3) proximity of buffer zone to pollution source.

*Porter D.R. and Salvesen D.A. Eds. 1995. Collaborative Planning for Wetlands and Wildlife. Washington D.C.: Island Press.*

This book offers a number of case studies centered on local planning for wetland protection.

*Public Sector Consultants. 2002. Michigan in Brief: 2002–03. Retrieved from: <http://www.michiganinbrief.org/edition07/Chapter5/LocalGov.htm>*

Michigan in Brief: 2002–03, prepared and published by Public Sector Consultants, Inc., provides information about Michigan and more than 40 public policy topics of concern to residents and elected representatives. Each policy topic is presented in four parts: a glossary; background information; discussion of policy options, including a balanced, nonpartisan presentation of various viewpoints; and sources of additional information, including telephone and FAX numbers as well as Web sites where available.

*Roseen R.M., Ballestero T.P., Houle J.J., Avalleneda P., Briggs J., Fowler G., and Wildey R. 2009. Seasonal performance variations for storm-water management systems in cold climate conditions. Journal of Environmental Engineering 135(3): 128-137.*

Research shows that winter freezing does not inhibit the performance of certain low-impact design (LID) systems for storm-water management. Contaminant removal was not impeded by the freezing. Design systems that were tested included: bioretention systems, surface sand filter, subsurface gravel wetland, street tree, and porous asphalt.

*Roy S.P. and Braga A.M. 2009. Saving Silver Lake. Civil Engineering 79(2): 72-29.*

This article presented the findings of a study in Massachusetts, involving improving lake water quality. Techniques used included LIDs, such as porous pavement, bioretention cells, rain gardens, and vegetated swales.

*Severson J.P., Nawrot J.R. and Eichholz M.W. 2009. Shoreline stabilization using riprap breakwaters on a Midwestern reservoir. Lake and Reservoir Management 25(2): 208-216.*

This study explored an off-shore erosion mitigation technique that reduced wave height. The study areas that used breakwaters showed higher densities of shoreline vegetation than the control areas.

*Standley L.J., Rudel R.A., Swartz C.H., Attfield K.R., Christian J., Erikson M., and Brody J.G. 2008. Wastewater-contaminated ground water as a source of endogenous hormones and pharmaceuticals to surface water ecosystems. Environmental Toxicology and Chemistry 27(12): 2457-2468.*

This study examined the potential impacts of increased residential development—and resulting increase in septic systems—on the amount and concentrations of prescription pills and hormones in surface ponds. Authors found the level of development to be an indicator of pollution levels.

*Steedman R.J., Kushneriuk R.S., and France R.L. 2001. Littoral water temperature to experimental shoreline logging around small boreal forest lakes. Canadian Journal of Fisheries and Aquatic Sciences 58: 1638-1647.*

The effects of various logging practices on lake temperatures were examined in this study. The authors found that control and buffered areas did not experience the temperature increases (15%) that clear cut areas experienced.

*Township of South Brunswick Environmental Resource Inventory of 2007. "Ground water Recharge Areas." Retrieved from: <http://www.sbtnj.net/vertical/Sites/%7B9E5944A6-A9C2-418C-9E3F-EB23EB627DB9%7D/uploads/%7B10BD2265-5249-4D2D-8CD8-2F3B574EA6EB%7D.PDF>*

South Brunswick, NJ compiled this Environmental Resource Inventory (ERI) to describe the state of various environmental resources in the community. It is a compilation of text and maps the community can use to evaluate, and possibly revise, planning documents, policy initiatives, and local ordinances.

*University of Minnesota. 2008. Stabilizing your shoreline to prevent erosion: shoreland best management practices. Retrieved from: <http://www.extension.umn.edu/distribution/naturalresources/components/DD6946g.html>*

This is part 7 of an 18-document series on protecting water resources in Minnesota. The focus is on best management practices to reduce harmful consequences of increased shoreline erosion.

U.S. Environmental Protection Agency. 2003. *A Homeowners Guide to Septic Systems*. Retrieved from: [http://www.epa.gov/owm/septic/pubs/homeowner\\_guide\\_long.pdf](http://www.epa.gov/owm/septic/pubs/homeowner_guide_long.pdf)

Intended as a guide for homeowners, this document provides information on installation, operation and maintenance of onsite septic systems, as well as substances and activities that can result in septic failure.

USEPA. 2009. *Septic (Onsite) Systems*. Retrieved from: <http://cfpub.epa.gov/owm/septic/index.cfm>

This site provides information on individual and community septic systems, including links to case studies and data on U.S. septic system use, management, and preventative measures against pollution.

Whittier T.R., Paulsen S.G., Larsen D.P., Peterson S.A., Herlihy A.T., and Kauffman P.R. 2002. *Indicators of ecological stress and their extent in the population of Northeastern lakes: a regional scale assessment*. *Bioscience* 52(3): 235-247.

Authors assessed the results of a study conducted by the EPA and USFWS in the early 1990's, which examined 345 lakes in the northeast U.S. to determine how much of an impact various stressors have on lake ecosystems. Lakes with visible human activity in half of the shoreline area or more had highly disturbed shoreline habitat.

Woodward S.E. and Rock C.A. 1995. *Control of residential stormwater by natural buffer strips*. *Lake and Reservoir Management* 11(1): 37-45.

This study examined the effectiveness of natural buffer strips at removing pollutants such as Phosphorus (P) and TSS from residential runoff. All sites from the study showed 50 ft buffer strips to bring P levels within average control values; the authors recommend that this minimum width be implemented for single family homes. This width may need to be doubled for more impacting activities and greater slope locations. Exposed soil in buffer strips may actually increase sediment loads, though.



Tannery Creek



*Crooked Lake*

## **SECTION III: Analysis**

### Introduction

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## No matter where you are, you are in a watershed.

In a watershed, melting snow and rainfall create flowing water over the landscape. This flowing water eventually drains into surface water bodies, groundwater recharge areas, and wetlands. This flow is also absorbed into the ground along the way, as it moves to the drainage destination. How this water flows and where it drains creates the boundaries of our watershed. In Emmet County, drainage destinations include lakes, streams, wetlands, and groundwater – all familiar and important characteristics in our landscape. They provide us with numerous recreational uses, making significant and meaningful contributions to our local economies. And, the aesthetic character of these waters is also a source of immense value to local residential and business property owners.

Treated and untreated wastewater and stormwater flow directly into these valuable waters. If ignored, the waters will degrade, which is unfortunate because these same waters also provide habitat for numerous plants, animals, and birds. This illustrates an historic clash that can create a source of tension among various users of water and wetlands.

When land use in a watershed is changed, the flow it contributes to water bodies and wetlands is impacted by those changes. For example, when farmland is converted for housing, business, and entertainment uses, there is an increase in impervious surfaces – places where rain drops and snow melt cannot permeate the ground. The flow is then affected by these hard surfaces, such as rooftops and parking lots, creating what is known as nonpoint source water pollution. The flow collects oil, pollutants, salt, grit, etc., as it moves and eventually dumps into drainage areas – our beloved lakes, rivers, wetlands, and groundwater recharge regions. Hard ground can also impact the amount and velocity of runoff water. Not surprisingly, this can lead to other undesirable conditions, such as increased flooding, erosion, and loss of habitats, in addition to decreased water quality.

This project is intended to help you protect the watershed that encompasses your jurisdiction, and work with watershed partners who do so. The following Chapters summarize results of this project for Emmet County. It begins with a chapter devoted to the county itself, and is followed by separate chapters devoted to each city, township, or village in the county.



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## SECTION III: Analysis

### Chapter 1 Emmet County

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#### Introduction

Located in the upper northwest corner of Michigan's Lower Peninsula, Emmet County is blessed with exquisite fresh water resources. Its entire western border is the Lake Michigan coastline, including Little Traverse Bay. However, numerous lakes and streams give the County additional inland recreational and tourist destinations. These unique water resources include: Walloon, Crooked, Pickerel, Paradise, Round, Spring, Lark's, Wycamp, and French Farm Lakes; the Bear and Maple Rivers; Five Mile, Tannery, and Minnehaha Creeks; and sparkling springs bubbling to the surface from Harbor Springs to Alanson, and beyond.

The Emmet County Zoning Ordinance is based upon comprehensive planning. In fact, the current Master Plan was approved in 2009, and impressively, it was honored with the 2011 Northwest Michigan Planning Award in the Outstanding Plan, Program or Tool category! As noted on its website, County planning "Provides a regional scope to the planning work, promoting coordination among the townships and municipalities..." (Emmet County, Michigan website; <http://www.emmetcounty.org/planning-and-zoning-resources-103/>, accessed 24 Feb 2013)

The County Zoning Ordinance covers 12 of the 21 townships and municipalities in the County. Among many benefits to this arrangement, one of the most important is that it provides planning and staff resources for smaller communities that may not have them. The County serves as an information center for development and conservation projects, and this can play a vital role in protecting water resources, which do not obey jurisdictional boundaries.

The website goes on to explain: "The Townships of Little Traverse, Pleasantview, Resort and West Traverse administer separate Zoning Ordinances, as well as all incorporated areas within Emmet County, which include the Villages of Alanson, Mackinaw City and Pellston, and the Cities of Harbor Springs and Petoskey." Id. Each of these jurisdictions has chapters devoted to them, later in this book. To apply for a Zoning Permit in any of these jurisdictions, one contacts the appropriate Township, Village, or City, directly.

To apply for a permit in a Township under Emmet County Zoning jurisdiction, one contacts staff at the Emmet County Office of Planning and Zoning. This applies to all of the following townships: Bear Creek, Bliss, Carp Lake, Center, Cross Village, Friendship, Littlefield, Maple River, McKinley, Readmond, Springvale, and Wawatam.

This chapter begins by summarizing the results of the Local Ordinance Gaps Analysis for Emmet County. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. The County is also a partner in the Watershed Protection Plan for Little Traverse Bay, which has a very active and engaged Advisory Committee to oversee implementation, including local government representatives. Therefore, at appropriate points in the Analysis below, any relation to Watershed Plan implementation is also highlighted.

## Evaluation Scores and Summary: Emmet County

### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 21, STRONG

Emmet County updated its Master Plan in 2009. The Master Plan has a complete inventory of lakes, rivers, and wetlands, with maps of their locations, and it identifies and maps groundwater recharge areas [Emmet County, Mich., Master Plan, Ch. 2 § 2.2.2, Resource Value of Natural Resources, at 23 (2009); <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]. It does not specifically identify the watersheds in which the County is located.

The County Master Plan does have a specific goal to protect water resources. Chapter two states that the County's goal is to "Protect, conserve, and preserve fallow fields, wetlands, woodlands, floodplains, critical sand dunes, groundwater and groundwater recharge areas, surface water, lake and stream shores, view-sheds, topography, wildlife, wildlife corridors, environmentally sensitive lands..." [Emmet County, Mich., Master Plan, Ch. 2 § 2.4, Natural Resources, Goals, (1), at 34 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]

Open Space is valued in the County. Chapter two of the Master Plan states: "New development must occur in a fashion that protects and enhances existing land resources. Open space, in its many forms, contributes to the ambience of the area and is one of the reasons Emmet County receives seasonal visitors." [Emmet County, Mich., Master Plan, Ch. 2 § 2.4, Natural Resources, at 21 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>] Later in the same chapter, one goal is listed as: "Preserve and maintain accessible County public lands and support acquisition of land for increased public access." [Emmet County, Mich., Master Plan, Ch. 2 § 2.4, Natural Resources, Goals, (3), at 34 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]

Importantly, the plan also identifies stormwater management as a key community policy. "Encourage local jurisdictions to adopt their own storm water ordinances by working with non-profit agencies and the County." [Emmet County, Mich., Master Plan, Ch. 2 § 2.4, Natural Resources, Strategies, (5), at 35 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>] It also calls for minimizing impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration. Chapter five notes that one of the County's goals is to "Limit growth, development, and use of impervious surfaces in water recharge areas, to preserve and maintain an adequate supply of clean ground water." [Emmet County, Mich., Master Plan, Ch. 5 § 5.5, Utilities, Goals, (6), at 67 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]

Emmet County is also aware of the need to identify Wildlife Corridors. One of the County's goals is to "Protect, conserve, and preserve... wildlife [and] wildlife corridors..." [Emmet County, Mich., Master Plan, Ch. 2 § 2.4, Natural Resources, Goals, (1), at 35 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]

Finally, Michigan law allows Master Plans to incorporate sub-area plans during their 5-year lifespan. Tip of the Mitt Watershed Council urges the County to explore adopting the Little Traverse Bay Watershed Protection Plan as a sub-area plan of the County Master Plan. This watershed plan, approved by both the US Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality (DEQ), was written in partnership with numerous County stakeholders and includes an active and engaged advisory committee working on implementing it.

## Master Plan Components: RECOMMENDATIONS

**SUGGESTED ACTION:** The Master Plan should specifically identify the watershed(s) in which the county is located.

**SUGGESTED ACTION:** The Master Plan should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.

**SUGGESTED ACTION:** Consider incorporating the EPA and DEQ approved Little Traverse Bay Watershed Management Plan as a sub-area plan for the County Master Plan.

### Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 41, STRONG

Article XXII, Section 2210, outlines the Minimum Waterfront Setback rules for Emmet County and includes a statement of intent to protect water resources: “To provide minimum setback standards in the Zoning Ordinance to protect surface water resources and flood plains from adverse construction or alteration. This is deemed to be the minimum required to:

- Avoid excessive structural encroachment of the natural waters and waterways, except uses traditionally depending upon direct water access.
- Promote high water quality through encouragement of an undisturbed natural area to trap nutrients and sediment from entering natural waters, and prevent erosion. It is suggested that a minimum shoreline greenbelt of 35 feet be maintained.
- Protect the natural environment of streams and lakes for wildlife habitat purposes and to preserve, to the extent practical, the natural image of landscapes.”

(Emmet County, Mich., Zoning, art. XXII, § 2210, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

The County Zoning Ordinance includes a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews. Article XXIV states that “Fees for inspection and issuance of Permits or copies thereof required or issued under the provisions of the Ordinance shall be collected by the Zoning Administrator in advance of issuance. The amount of such fees shall be established by resolution of the County Board of Commissioners.” (Emmet County, Mich., Zoning, art. XXIV, § 2403, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

The Ordinance also has methods in place for enforcement. Article XXIV states, “The Zoning Administrator shall have the power to grant Zoning Compliance Permits and to make inspections of buildings or premises necessary to carry out the duties of enforcement of this Ordinance... Except where herein otherwise stated, the provisions of this Ordinance shall be administered by the County Zoning Administrator or by such deputies of the Zoning Administrator’s department as the Zoning Administrator may delegate to enforce the provisions of this Ordinance... Any person, partnership, corporation or association who creates or maintains a nuisance per se... or who violates or fails to comply with this Ordinance or any permit issued pursuant to this Ordinance shall be responsible for a municipal civil infraction...” (Emmet County, Mich., Zoning, art. XXIV, §§ 2400, 2409, 2410, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

During the proposal review process, the County makes a strong attempt to ensure permits are coordinated with the receipt of other applicable County, State, and/or Federal permits. For starters, it strongly encourages a pre-application or pre-construction meeting for new development or redevelopment proposals. Article XVIII states that “[a]ll applications for Planned Unit Development (PUD) projects shall be in accordance with the procedures outlined herein for: ... 1. Pre-application conference[.] The applicant is urged to schedule a Pre-Application Conference with the Zoning Administrator to review the basic requirements of the Zoning Ordinance as well as

to review the procedures and design standards for a PUD.” Emmet County, Mich., Zoning, art. XVIII, § 1802, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>.

Additionally, it strives for permit coordination during Site Plan Review:

- Section 2405 Site Plan Review, Paragraph 2, sub-paragraph i) “All site plans shall comply with the terms of the Soil Erosion and Sedimentation Control Act.”
- Section 2405 Site Plan Review, Paragraph 10. ENVIRONMENTALLY SENSITIVE AREAS, “The protection of areas of environmental concern, such as wetlands, high risk erosion, dunelands, floodplains, or steep slope areas, must be considered in conjunction with development and such areas must be developed in conformance with the following regulations of state and county agencies as applicable: ...” Subsections a-f then specifically list the other laws that may require permits, including: Dune Formations and High Risk Erosion Areas, Wetlands, Floodplains, Sensitive Riverine Areas, and Inland Lakes and Streams. (Emmet County, Mich., Zoning, art. XXIV, § 2405, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

The Zoning Ordinance also includes a requirement for environmental assessment, at the expense of the applicant. Article XXI states that in special use areas, to build a utility grid wind energy system “[t]he application also [must] include... a copy of an Environment Analysis by a third party qualified professional to identify and assess any potential impacts on the natural environment...” [Emmet County, Mich., Zoning, art. XXI, § 2102(16)(D)(21), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

As mentioned earlier, the Zoning Ordinance requires Site Plan Review, and the site plan is required to indicate all existing natural features. Article XXIV states that “[a]n inventory of special site features that may be present including, but not necessarily limited to regulated wetlands as defined in law, critical dunes, bluff lines, wooded areas, water courses, and natural or manmade drains, as are known to the applicant or as may be suspected based on reviews of soil maps, aerial photographs, USGS Quadrangle maps, on-site inspections, and/or other competent sources.” [Emmet County, Mich., Zoning, art. XXIV, § 2405(2)(h), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>] It does not require applicants to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

The Site Plan Review process does require a Soil Erosion and Sedimentation Control Plan, or coordination with County regulations. Article XXIV requires the “[m]apping of soil data as recognized in the United States Department of Agriculture, Soil Survey of Emmet County, Michigan (December 1973), or a more detailed analysis of soils, shall be included. Soil data and analysis should include engineering interpretations as to the suitability for the construction and maintenance of roads, building foundations, facilities for storing water, structures for controlling erosion, drainage systems, and systems for disposing of sewage... More detailed information may be required where the Planning Commission determines that the site and use warrant a more critical review of the soils ... [Further] [a]ll site plans shall comply with the terms of the Soil Erosion and Sedimentation Control Act.” Emmet County, Mich., Zoning, art. XXIV, § 2405(2)(g),(i), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>.

The Site Plan Review process also includes Open Space provisions. Article XXIV requires as part of the Site Plan Review process that the County consider “[t]he arrangement of uses on the property, including the orientation of buildings, parking areas, open spaces, the visual exposure of waste storage facilities, snow storage, loading docks and service doors.” [Emmet County, Mich., Zoning, art. XXIV, § 2405(4)(b), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

PUDs are not required to include a minimum Open Space threshold, but they are required to go through Site Plan Review, where Open Space will be taken into consideration.

Flexible site design incentives are also available to encourage developers to include Open Space. Under Section 1901, Subdivision and Site Unit Condominium Open Space Plans, lot sizes can be reduced in exchange for open space. No density bonus is awarded; however, lot size reduction in lieu of Open Space can mean reduction in

development costs (roads, utilities, etc.). Also, art. XVIII § 1805 (4) (b) offers "Any lands dedicated to the community for public use or public service (parks...) may be counted in the project for density calculation purposes at two times (double) the allowable density..."

Designated Open Space is not required to be managed in a natural condition, and allowable uses in the Open Space are not restricted to low impact uses. Finally, Open Space is partially required to be protected through a conservation easement or other similar mechanisms. Article XXI states that "[o]pen spaces and common areas, when offered by an applicant as an integral element of a Planned Unit Development or Special Use Permit Project, may be required to be formally assured by one or more of the following instruments: a) Scenic Easement b) Conservation Easement c) Deed Restriction d) A similar dedication mechanism[.] The open space dedication instrument shall name the State, the County, a Local Unit of Government, or a land conservation/conservancy organization, as a party to the instrument, as determined to be most acceptable for the particular property and agency involved." [Emmet County, Mich., Zoning, art. XXI, § 2100(8), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The Zoning Ordinance does include sensitive area protections. See: Emmet County, Mich., Zoning, art. VII; art. XXII, § 2208; and art. XXIV, § 2405(10)(a)-(e), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>;

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** Approved Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses.

**SUGGESTED ACTION:** The County should also consider a requirement that applicants consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

## Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 37, ADEQUATE

Emmet County has a Lake Michigan shoreline, including Critical Dunes. Until very recently, the County had an Overlay District in place to protect that shoreline. Unfortunately, due to actions by the Michigan State Legislature in 2012, the Critical Dunes sections of the County Ordinance are necessarily in the process of being repealed. We took all of this into account during this project and did not penalize the County for the new lack of protections. However, our concern is that key provisions of the Dune Overlay District are no longer in place on the Lake Michigan shoreline, and we hope that the County and communities involved will quickly consider their alternatives, given new state policies on Critical Dunes. Local actions to protect this type of shoreline must be reviewed to replace lost protections that result as byproducts of losing dune protections.

For inland lakes and streams, the Emmet County Zoning Ordinance requires minimum shoreline setbacks of 60' and 25' to minimize harmful runoff and erosion. Article XXII states that "[a]ny property which borders on or contains a natural river, stream, pond, or lake, which is identifiable on the U.S. Geological Survey Maps of Emmet County, shall be subject to waterfront setbacks for buildings and uses, as follows: ...Permanent structures, parking lots, and other impervious surfaces, except boat docks, boat slips, ramps, or marinas, or other water dependent uses, shall observe a minimum setback of sixty (60) feet from the documented 1986 High Water Mark in all Residential and Farm-Forest Districts, and twenty-five (25) feet in Commercial and Industrial Districts." [Emmet County, Mich., Zoning, art. XXII, § 2210(1)(b), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>. See also Emmet County, Mich., Zoning, art. XIX, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The Zoning Ordinance also requires riparian buffers, 40' deep, on inland lakes and streams in the Scenic Resource Districts. Article VII states that “Because there exists in Emmet County numerous and varied resources that should be protected for their scenic values, environmental stability and character, the SR Scenic Resource Districts are established to protect scenic resources along rivers, highways and streets, lake shores and impounding waters.” [Emmet County, Mich., Zoning, art. VII, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Further, article XXII states that “[e]very use in the SR Districts shall establish and maintain a forty (40) foot yard or strip on the water side (or roadside if a scenic highway) ... For the purposes of the SR-2 District, the front setback (roadside) and required greenbelt shall be measured from the road right-of-way line, or measured from a line that is thirty-three (33) feet from the road centerline, whichever is greater.” (Id. § 702) “It is suggested that a minimum shoreline greenbelt of 35 feet be maintained.” (Emmet County, Mich., Zoning, art. XXII, § 2210, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

Finally, article XXIV states that “[t]he Planning Commission shall consider whether the following standards have been addressed to promote public health and safety, protect land values and carry out the spirit and intent of the Ordinance: ... Buffer techniques, screening, fences, walls, greenbelts, and landscaping may be required by the Planning Commission in pursuance of the objectives of this Section and/or as a condition of the establishment of the proposed use.” [Emmet County, Mich., Zoning, art. XXIV, § 2405(4)(d), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The Zoning Ordinance specifies the degree of vegetation which may be removed in the riparian buffer zone, in order to be more effective in curbing runoff pollution, providing for wildlife habitat, and preserving natural scenic beauty. Invasive and exotic plants are not prohibited from being used in the riparian buffer zone, but it does specify that native plants are required. Article VII states that “[e]very use in the SR Districts shall establish and maintain a forty (40) foot yard or strip on the water side (or roadside if a scenic highway). Said yard or strip [is] to be maintained in its natural tree and shrub condition. Trees and shrubs may be trimmed and/or pruned through the native strip for a view of the fronting waters and for access to a boat dock and/or a driveway entrance.” (Emmet County, Mich., Zoning, art. VII, § 702, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)



The community also provides for treatment to control and manage *Phragmites* on the Lake Michigan shoreline, but not where it appears on other riparian shorelines and community lands. The County passed Ordinance 10-2, an “[o]rdinance to [c]ontrol and eradicate *Phragmites* along the Lake Michigan shoreline in accordance with Sec 10 of 1941 PA 359, as amended, by providing for the appointment of a *Phragmites* administrator, inspection and reports; by providing for the designation of *Phragmites* eradication zones for *Phragmites* treatment, using procedures intended to comply with Federal and State due process requirements before including private property in such zones; by providing for the required permit application for such treatment; and by providing for payment of permit fees and other costs.” [Emmet County, Mich., Zoning Ordinance, no. 10-2 (2010), <http://www.emmetcounty.org/uploads/Phragmites.pdf>]

The number of motor crafts and rafts per dock are also regulated in Emmet County. Article VI states that “[f]or recreational uses defined in this Section which have inland lake frontage, limitations on the extent, number, and location of use facilities shall be established as follows: Boat slips/Mooring: Not more than three motor powered craft per 150 ft. of horizontal property width, but not more than fifteen (15) power craft. No facilities for launching power craft from the site shall be permitted... Swim Raft: One (1) raft up to 150 sq. ft. in floor area per recreation or park site... Boat Docks: 1-Per 150 ft. of horizontal lot width (not shore line distance)... These provisions shall not apply to accessory shoreline recreational uses on single lots serving individual occupant families.” [Emmet County, Mich., Zoning, art. VI, § 601(4)(b), (c), (e), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The Zoning Ordinance does not include keyhole prevention provisions by placing restrictions on the size and type of multi-boat launch and docking sites. Emmet County does partially regulate the size of docks allowed on inland lakes or streams, so as not to interfere with the rights of other waterfront owners or negatively affect the character of the natural shoreline: “Location (of dock) to respect swimming beaches and docks on the same property or on adjoining properties.” [Emmet County, Mich., Zoning, art. VI, § 601(4)(c), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The County does regulate marinas, using special land use provisions or other tools. It does not, however, specify restrictions on boat repair and maintenance activities. Article IX states that “[t]he following uses shall be permitted upon approval of the Planning Commission subject to the conditions herein imposed for each use, the Conditional Review Standards in Section 2100, and the approval of the Site Plan: Marinas and boating facilities, including docks, boat storage facilities, and/or space for selling water craft with accessory repair services.” [Emmet County, Mich., Zoning, art. IX, § 901(8), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

### **Shorelines: RECOMMENDATIONS**

**SUGGESTED ACTION:** The County should consider prohibiting invasive and exotic plants from being used in riparian buffer zones.

**SUGGESTED ACTION:** Keyhole, or “funnel,” developments allow direct access to water bodies by people who do not own riparian property, thus increasing human impacts to the lake or stream. Emmet County should consider adopting a provision that specifically addresses funnel or keyhole developments.

**SUGGESTED ACTION:** Restrict boat repair and maintenance activities in marinas to clearly marked areas, to prevent contaminants and debris from falling into the water and limit the spread of invasive species. Also, require marina fueling stations to have spill containment equipment that is stored in a clearly marked location. Require a spill contingency plan and post emergency phone numbers in a prominent location. Finally, signs of leakage or spillage should be investigated immediately, and undertake cleanup in accordance with applicable Best Management Practices (BMPs)

## Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 17, ADEQUATE

The Little Traverse Bay Watershed Protection Plan includes a priority objective to reduce the pollutant load from stormwater in urban areas. Reducing impervious surfaces supports this objective. Among other low cost approaches to reduce impervious surfaces, a community can increase the retention or restoration of native vegetation in riparian areas and in Open Spaces. Minimizing impervious surfaces can be also addressed in other creative and cost-effective ways, ranging from using Low Impact Design (LID) techniques in development plans, to incentives for limiting impervious surface lot coverage in zoning ordinances (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations).

Ordinances can be crafted to encourage the use of techniques that benefit water quality, such as incentives to protect natural vegetation throughout a development site. Lot design and general development provisions in zoning ordinances provide great opportunities to encourage alternatives to, and reductions of, impervious surfaces. The maximum percent of lot coverage by the area of all buildings in the Emmet County Zoning Ordinance is 30%-35%. The recommended lot coverage for all impervious surfaces, not just the house, is 15% maximum. (Emmet County, Mich., Zoning, art. XIX, § 1900, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>).

The Zoning Ordinance does not allow flexible lot coverage standards, which is desirable to allow creative approaches that limit impervious surfaces. One example could be permitting a relaxation of front yard setbacks, where appropriate, to reduce driveway lengths and thus overall site imperviousness. However, included in the Planned Unit Development (PUD) provisions, under Section 1901, lot sizes can be reduced in exchange for open space. No density bonus is awarded; however, lot size reduction in lieu of open space can mean reduction in development costs (roads, utilities, etc.). Also, art. XVIII § 1805 (4) (b) offers "Any lands dedicated to the community for public use or public service (parks...) may be counted in the project for density calculation purposes at two times (double) the allowable density..."

The Zoning Ordinance also allows flexibility to reduce the number of parking spaces constructed, if warranted by the proposed development. Article XXII states that "[t]he deferral of off-street parking spaces may be allowable... In allowing a deferral the Planning Commission does not waive its rights to require providing the full number of spaces at a future time ... The Planning Commission may rule to defer the actual construction of up to 50% of the required parking space for the following reasons: ...The land proposed for the full amount of parking would better serve the community or the use as landscaped yard or other on-site open space use." [Emmet County, Mich., Zoning, art. XXII, § 2202(8), (b), (2), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]



Article XXI states that "[t]he following standards shall apply to all land development projects as described above. Unless the proposed access roads conform to Emmet County Road Commission Standards, all vehicle accessways shall provide sufficient side and overhead clearance to accommodate firefighting equipment, other emergency vehicles, snow plows, school buses, sanitation vehicles and similar service units, in accord with the following schedule: Road Surface 20-22 [feet]." [Emmet County, Mich., Zoning, art. XXI, § 2102(14) (b)(1), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>] Importantly, in that same Section, sub-paragraph (d) allows for flexibility: "It is declared that the design of any given development

plan is strongly influenced by the specific characteristics of each project area site, and that a universal application of adopted design standards may not be in the best interest of the community and/or applicant. The Planning Commission is therefore granted the authority to modify and/or alter the standards at the public hearing. Any modifications are subject to a showing that the strict application of those standards would serve no good or practical purpose..."

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing impervious surface lot coverage limits in all zoning districts (especially residential districts) to limit impervious surfaces to 15% of the total lot. Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.

**SUGGESTED ACTION:** Consider ways to encourage shorter driveways, and shared driveways, where appropriate.

### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 15, ADEQUATE

Emmet County regulates stormwater as part of the Zoning Ordinance. Article XIX, Notes to the Schedule of Regulations, includes: "Storm water problems shall be anticipated and resolved to the satisfaction of the Emmet County Planning Commission, subject to review by the County Drain Commissioner or any other property owner or municipality that may be impacted by storm water runoff." [Emmet County, Mich., Zoning, art. XIX, § 1900(d)(4), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The County Site Plan Review also includes stormwater instructions. Article XXIV states that "Storm water drainage plans shall address flows onto the site from adjacent sites and roads, storm water impact on the site (soils, impervious surfaces, potential impervious surface, retention ponds, detention ponds, and related management facilities as appropriate), and the storm water outfall, or flow control into adjacent drainage courses, ditches and the like. The drainage plan shall indicate the manner in which surface drainage is to be disposed of. This may require making use of the existing ditches, natural watercourses, or constructing tributaries, but shall not result in storm water that exits the detention pond and/or property site at an erosive velocity. Additional hard surfaces proposed for a site must provide for detention and/or retention." [Emmet County, Mich., Zoning, art. XXIV, § 2405(4)(f), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Also, in the Shoreline Bluff protection section of the Ordinance, the County Planning Commission shall "Seek the assistance of the Natural Resource Conservation (NRCS) and/or Soil Erosion/Stormwater Management Officer relative to issues of soil erosion or stormwater runoff control, if determined to be necessary or helpful in reaching a decision." [Emmet County, Mich., Zoning, art. XXII, § 2209(2)(4), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The ordinance does not require that all stormwater management systems be regularly evaluated and maintained. It also does not explicitly prohibit stormwater from exiting the property, after exposure to harmful sources.

### Stormwater Management: RECOMMENDATIONS

The Little Traverse Bay Watershed Management Plan includes the following task: "Provide programs

and resources to Emmet and Charlevoix Counties' contractors about soil erosion and stormwater management techniques.” (Little Traverse Bay Watershed Management Plan, Appendix H, Recommendations, A. Stormwater Recommendations, 6) The following suggested actions strengthen existing protections and also implement that Watershed Plan task by educating applicants about Best Management Practices (BMPs).

**SUGGESTED ACTION:** Require that all stormwater management systems be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters lakes or streams in Emmet County.

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs to the Site Plan Review section.

**SUGGESTED ACTION:** The County should prohibit stormwater from exiting the property after exposure to any harmful sources.

### Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff. Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.



Emmet County takes steps to ensure coordination and compliance with Part 91. Article XXIV states that “[a]ll site plans shall comply with the terms of the Soil Erosion and Sedimentation Control Act.” [Emmet County, Mich., Zoning, art. XXIV, § 2405(2)(i), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Also, for PUDs: “The applicant is directed to meet informally with the governing body of the township within which the project is located, and to obtain all pertinent design information from other agencies, including but not limited to the following responsibilities: sanitary sewers, drains, utilities, roads, soil erosion, wetlands, and construction codes (building, electrical, plumbing, mechanical).” [Emmet County, Mich., Zoning, art. XVIII, § 1802(1), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

We have no recommendations for this element.



### Sewer/Septic

POSSIBLE SCORE: 24

TOTAL SCORE: 10, ADEQUATE

Chapter five of the Emmet County Master Plan states that “Municipal sewage systems are provided in the more populated areas which include the Cities of Petoskey and Harbor Springs, as well the Villages of Mackinaw City and Alanson.” [Emmet County, Mich., Master Plan, Ch. 5, § 5.2.2, Sewer, Emmet County and Sewage Treatment, at 57 (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>] Partial sewer service is also available for Alanson, Bear Creek Township, Littlefield Township, Springvale Township, and Wawatam Township.

The Emmet County Sanitary Code requires periodic inspection of certain septic tank systems by an authorized inspector. Article nine states that “[t]he ATS [Advanced Treatment System] shall be inspected and the effluent sampled not less than twice annually by a maintenance contractor who shall be a State of Michigan Licensed Professional Engineer, State of Michigan or nationally registered Environmental Sanitarian or a certified ATS inspector.” Also: “The maintenance contract must be assignable to subsequent owners of the premises which is equipped with the ATS.” [Emmet County, Mich., District Sanitary Code, art. 9, § 9-2.4(a) (2007), [http://www.emmetcounty.org/uploads/Emmet\\_Sanitary\\_20Code.pdf](http://www.emmetcounty.org/uploads/Emmet_Sanitary_20Code.pdf)]

Finally, Emmet County requires that a septic system be located at least 100’ from lakes and streams. [Emmet County, Mich., District Sanitary Code, art. 7, § 7-4.2, tbl. 2 (2007), [http://www.emmetcounty.org/uploads/Emmet\\_Sanitary\\_20Code.pdf](http://www.emmetcounty.org/uploads/Emmet_Sanitary_20Code.pdf)]

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a county “point of transfer” septic inspection ordinance, working in coordination with local municipalities and the Health Department.

## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 6, WEAK

Wetlands are some of our most valuable water resources. They provide excellent wildlife habitat, help control flooding, and contribute to water quality protection. Wetlands are critical to the health of Emmet County's vast water resources, and they are difficult to restore, once they are damaged or filled.

Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated. Local governments have the opportunity to supplement the state's wetland protection program. Citizens in Emmet County continue to be interested in wetland protections because of the public benefits they provide.

Importantly, Emmet County does make an effort to protect local wetlands using coordination with state and federal agencies. Article XXIV states, "The protection of areas of environmental concern, such as wetlands... No activity shall be permitted on a site with regulated wetlands, unless a wetlands permit has been obtained by the applicant from the Michigan Department of Environmental Quality." [Emmet County, Mich., Zoning, art. XXIV, § 2405(10), (b), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Further, article XXII states, "Any filling or construction within flood plains or wetlands, or other environmental areas protected by State Law, or other laws, shall require appropriate permits from the government unit or agency having jurisdiction." [Emmet County, Mich., Zoning, art. XXII, § 2210(2), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>] However, this does not capture all wetlands in the County that contribute to surface and groundwater health.

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing a wetland setback of at least 25', similar to shoreline setbacks. Coupled with the provision that state permits must be issued in regulated wetlands before the County Zoning permit is issued, setbacks also protect these valuable resources. Eventually, a local wetland ordinance could be enacted to fill in any gaps in state protections, if needed, to respond to future growth pressures.

**SUGGESTED ACTION:** The County should adopt minimum shoreline lot frontage to help prevent the creation of unbuildable lot splits that consist of mostly wetlands.

**SUGGESTED ACTION:** Given the crucial role that wetlands play in overall water health, broadly educate citizens about the benefits of wetland protections.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 7, ADEQUATE

The Michigan State Wellhead Protection Program assists local communities to protect their water sources, if they use groundwater for their drinking water supply systems. There are two types of plans that can be submitted for approval. The first is a Source Water Protection Area, which designates plans that are done for community well fields that do not test positive for tritium, a radioactive isotope of hydrogen. If the tritium test is positive, a Wellhead Protection Area plan is completed, which is a more extensive process. Nine communities in Emmet County have taken part in this program, and they will be noted in their respective chapters. Additionally, the Emmet County Master Plan, Chapter 5 Facilities & Community Services; Table 5-1 Public Utility Service Areas



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(p.56) notes the following: Water service is available (wellhead) for Harbor Springs, Petoskey, and Mackinaw City. Partial water service is available (wellhead) for Bear Creek and Wawatam Townships.

Site Plan Review, Article XXII, states that “[i]n addition to the graphic requirements for site plans set forth in Section 2405(2) of this Ordinance, site plans required under this Section shall contain the following information: All lake shorelines, streams, wetlands, groundwater seeps, springs, soil types, soil strata and groundwater table on the disturbed area at the site.” [Emmet County, Mich., Zoning, art. XXII, § 2209(1)(1), Site Plan Review, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Further, it goes on to require “[s]tatements relative to the impact of the proposed development on soil erosion,

shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface), noise and the scale of development in terms of the surrounding environment.” [Emmet County, Mich., Zoning, art. XXII, § 2405(3)(c), Site Plan Review, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited by the County until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work.

Article XIV states that “[t]he following uses shall be permitted, subject to the conditions hereinafter imposed for each use and subject further to the review and approval of the site plan by the Planning Commission: Any of the following production or manufacturing uses[:] ...[m]etal plating operations, provided that no acids, chromates or similar chemicals are discharged into systems in any manner that would endanger sewage treatment plant operations or constitute a hazard to the waters of Emmet County (ground water, lakes, streams, and rivers).” [Emmet County, Mich., Zoning, art. XIV, § 1401, (1), (f) Site Plan Review, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Also, Article XXI says that “[m]etal recycling centers or yards, or facilities, including salvage yards or scrap yards, and which uses include the storage, dismantling, sorting, cutting, crushing, and/or other processing activities primarily associated with metal goods, provided: . . . [t]he applicant shall state in writing and/or illustrate how potentially hazardous liquids are to be prevented from entering the groundwater, and present a written plan for handling and disposal of such hazardous liquids. The applicant may be required to provide a written contingency plan for hazardous/toxic spills ... Unless the applicant can demonstrate that no good purpose would be served, the proposed site shall have a minimum of six (6) feet of vertical isolation from groundwater, and be at least 1,000 feet from an identified surface water.” [Emmet County, Mich., Zoning, art. XXI, § 2102(13)(b), (2)-(3), Site Plan Review, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Groundwater protection requirements for mining operations are included in the Zoning Ordinance. Article XXI states that “[s]ite plans for Special Use Permits shall be in accord with the site plan requirements of Section 2405, as applicable to the particular site, and shall in addition show: A statement on general ground water conditions, including levels and any possible impact on wells in the area ... Excavations which encounter ground water or trap surface

water, shall be treated in one or more of the following, as applicable to a particular situation...” [Emmet County, Mich., Zoning, art. XXI, § 2102(10)(a), (5), (d)(2), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

### **Groundwater and Wellhead Protection: RECOMMENDATIONS**

Groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important.

**SUGGESTED ACTION:** If direct or indirect discharges to groundwater are proposed, use Site Plan review or some other ordinance provision to prohibit this until appropriate approvals or permits are obtained from the State.

**SUGGESTED ACTION:** Protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in coordination with Local Emergency Planning Committee efforts.

#### **Other**

POSSIBLE SCORE: 48

TOTAL SCORE: 33, STRONG

Cross Village Township, Little Traverse Township, Readmond Township, Springvale Township, and West Traverse Township all participate in the National Flood Insurance Program (Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260745, 260748, 260755, 261017, 260993, <http://www.fema.gov/cis/MI.pdf>).

There is County ordinance language that regulates floodplain development. Article XXIV states that “The protection of areas of environmental concern, such as wetlands, high risk erosion, dunelands, floodplains, or steep slope areas, must be considered in conjunction with development and such areas must be developed in conformance with the following regulations of state and County agencies as applicable: . . . Flood Plain Areas are low areas adjacent to inland lakes and streams subject to flooding according to the one hundred (100) year flood hazard boundary map as administered by the Federal Emergency Management Agency (FEMA) or an Intermediate Regional Flood map prepared by the Army Corps of Engineers. A structure proposed within a floodplain is not permitted to be erected until a permit from the Michigan Dept. of Environmental Quality is obtained pursuant to Part 31 of the Michigan Natural Resource & Environmental Protection Act, 451 PA 1994.” [Emmet County, Mich., Zoning, art. XXIV, § 2405(10), (e), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Further, article XXII states that “[t]o provide minimum setback standards in the Zoning Ordinance to protect surface water resources and flood plains from adverse construction or alteration ... Any filling or construction within flood plains . . . shall require appropriate permits from the government unit or agency having jurisdiction.” [Emmet County, Mich., Zoning, art. XXII, § 2210, (2), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Additionally, chapter two states that “[t]he 100-year Great Lakes floodplain in Emmet County is determined by the Federal Emergency Management Agency (FEMA). A 100-year floodplain is an area within which there is a one percent chance of a flood occurring within any year. FEMA identifies floodplains to determine eligibility for the National Flood Insurance Program. Flood maps have been prepared for West Traverse, Little Traverse, Friendship, Cross Village, and Readmond Townships, and for the Village of Mackinaw City, the City of Petoskey, and the City of Harbor Springs. Floodplain lands abut surface waters and generally follow creeks and streams.” [Emmet County, Mich., Master Plan, Ch. 2, § 2.2.2, Floodplains (2009), <http://www.emmetcounty.org/uploads/Final-Emmet-County-2009-Master-Plan-with-links.pdf>]

The County also has steep slopes and high risk erosion areas (HREA). Article XXII states that “[t]he following regulations are applicable to those areas of the County which are generally defined as to be controlled by the Shore Lands

Protections and Management Act of 1970 (Act No. 245 of the Public Acts of 1970, as amended). The shore lands area affected consists of land which borders Little Traverse Bay and Lake Michigan situated at least one thousand (1,000) feet landward from the ordinary high water mark as defined in Section 2 of Act No. 245 of the P.A. of 1970, as amended... All uses permitted in the high risk erosion area are subject to the conditions herein after imposed for each use and subject to Site Plan Review by the Planning Commission. The minimum setback from the bluffline for all uses, both above and below the ground, shall be no less than that which would prevent or is likely to prevent damage or destruction to permanent buildings or structures within a 30-year period of life. In no instance shall this setback be less than that which is required in the applicable zoning district. This distance shall be based upon the average recorded shoreline recession rates as determined by the Natural Resources Commission.” [Emmet County, Mich., Zoning, art. XXII, § 2208, (1), (a), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

There is Ordinance language to regulate high risk erosion areas based on structure setbacks from the bluffline. The Setback is not defined in feet, but by potential for damage. Article XXII states that “[t]he minimum setback from the bluffline for all uses, both above and below the ground, shall be no less than that which would prevent or is likely to prevent damage or destruction to permanent buildings or structures within a 30-year period of life. In no instance shall this setback be less than that which is required in the applicable zoning district...” [Emmet County, Mich., Zoning, art. XXXII, § 2208, (1), (a) <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

The required and unique HREA definitions are included in the ordinance. Article XXII states that the “Bluff line[:] [is] [t]he edge or crest of the elevated segment of the shoreline above the beach or beach terrace which may be subjected to wave attack and normally presents a precipitous front and inclines steeply on the water side. Structure[:] A permanent residential, commercial or industrial building not including stairways, docks or permitted underground utilities.” [Emmet County, Mich., Zoning, art. XXII, § 2208(a), (b), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

All HREA development is subject to special use permits or Site Plan Review. Article XXII states that “[a]ll uses permitted in the high risk erosion area are subject to the conditions herein after imposed for each use and subject to Site Plan Review by the Planning Commission.” [Emmet County, Mich., Zoning, art. XXII, § 2208(1), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

In the Shoreline Bluff section, article XXII states that the “[t]op of the Bluff is the point where the slope toward Lake Michigan first exceeds a grade of 33%. Toe of the Bluff is the point where the slope toward Lake Michigan first decreases to a grade of less than 33%.” [Emmet County, Mich., Zoning, art. XXII, § 2209(a), (b), <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>]

Also: “Site plan approval by the Emmet County Planning Commission, in accordance with this Section, is required prior to any excavation or construction in the Shoreline Bluff Protection Zone.” (Emmet County, Mich., Zoning, art. XXII, § 2209, <http://www.emmetcounty.org/uploads/Entire-Ordinance.pdf>)

Finally, as noted earlier, the community also has critical dunes. Pursuant to previous state law, Emmet County assumed administration of critical dunes, with DEQ approval, to protect them. However, in 2012, the Michigan legislature passed measures to weaken the existing law. What Emmet County had in place, prior to any changes to the state law in 2012, is now in the process of being repealed.

### Other: RECOMMENDATIONS

**SUGGESTED ACTION:** Given the crucial role that Great Lake shorelines play in overall water quality and habitat health, review what should be done to replace lost protections from repeal of critical dune ordinances on the County’s Lake Michigan shoreline.

Next, the analysis of elements related to this project for the Townships covered by County Zoning will be presented.

## Evaluation Scores and Summary: Townships under County Zoning

As noted in the Introduction to this chapter, the Emmet County Zoning Ordinance covers 12 jurisdictions in the County. Even though the County serves as Zoning Administrator for these locations, whenever a proposal is submitted, the County also asks for a recommendation from the local jurisdiction. Therefore, local zoning decisions are a result of close coordination between County and township officials.

Also noted earlier, some of these townships have Master Plans and/or other water-related ordinances in place; others do not. Each will be considered separately, as appropriate to this project.

### **Bear Creek Township**

Beautiful Bear Creek Township “has nearly three miles of Lake Michigan frontage, as well as numerous rivers, streams, and inland lakes. The Bear River is the most significant river in the Township, traversing from Melrose Township into Little Traverse Bay...” [Bear Creek Township, Mich., Master Plan, Ch. 3, Natural Features Inventory, at 3-5, (2012), <http://apps1.emmetcounty.org/twp/BearCreek/planning.html>]

In addition to the Township Supervisor and Board, Bear Creek has a Parks and Recreation Committee, and the Springvale – Bear Creek Sewage Disposal Authority. It also has a Planning Commission and a current Master Plan, which notes: “The significant bodies of water are shown on the Natural Features Map (Exhibit 3-1).” These include magnificent locations: Little Traverse Bay, Walloon Lake, Crooked Lake, Round Lake, Spring Lake, Mud Lake, Tannery Creek, and the fabulous Bear River. The Plan and up to date contact information is available on the Township website at: <http://apps1.emmetcounty.org/twp/BearCreek/default.html>

The Township also has Ordinance 13-00 Land Division, which is relevant to wetlands and buildable lot splits; found at: <http://apps1.emmetcounty.org/twp/BearCreek/Ordinances/13-00%20Land%20Division%20Ordinance.pdf>

Additionally, Ordinance 11A-99 Private Road requires a road to be constructed “...so as to protect against or minimize soil erosion to prevent damage to the lakes, streams, wetlands, and natural environment of the Township...” (<http://apps1.emmetcounty.org/twp/BearCreek/Ordinances/11A-99%20Private%20Road%20Ordinance.pdf>)

Finally, the Township also has Ordinance 22-05 Sewer, which is described in the first paragraph this way: “An ordinance regulating the use of public and private sewers and drains, private sewage disposal, the installation and connection of building sewers, and the discharge of waters and wastes into the public sewer system; and establishing and providing for the collection of rates and charges for sewage disposal service; and providing penalties for violation of sections thereof, in the Township of Bear Creek, Emmet County, Michigan.” (<http://apps1.emmetcounty.org/twp/BearCreek/Ordinances/22-05%20Sewer%20Ordinance%20&%20Amendment.pdf>)

### **Bear Creek Township Master Plan Components**

POSSIBLE SCORE: 30

TOTAL SCORE: 21, STRONG

The Township has many strong points in the Master Plan, including the following:

“More than any other natural landform, wetlands are working landscapes whose ecosystem meets a variety of needs. They support a rich variety of wildlife, purify water, help contain flooding, and provide scenic and natural vistas.” [Bear Creek Township, Mich., Master Plan, Ch. 3, Natural Features Inventory, at 3-4, (2012), <http://apps1.emmetcounty.org/twp/BearCreek/planning.html>]

and

“Preserve and protect the scenic and natural features of the Bear River Valley by keeping it clean. Enforce existing regulations for the protection of natural resources including wetlands, stream corridors, and woodlands when

development occurs. Save land for open space.” [Bear Creek Township, Mich., Master Plan, Ch. 9, Guiding Principles, at 9-4, (2012), <http://apps1.emmetcounty.org/twp/BearCreek/planning.html>]

### Master Plan Components: RECOMMENDATIONS

**SUGGESTED ACTION:** When the Master Plan is updated again, it should specifically identify the watershed(s) in which the Township is located.

**SUGGESTED ACTION:** The Master Plan should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.



### **Bliss Township**

Breathtaking Bliss Township is located in the northwest tip of Emmet County, along the section of the Lake Michigan shoreline that includes Sturgeon Bay, partially formed by the curving of Waugoshance Point. Additionally, Bliss Township boasts other magnificent water features inland, including O’Neal Lake and Wycamp Lake, both remote and beautiful.

Wilderness State Park hugs the Township coastline, described on a Michigan Department of Natural Resources website in this way: “The majority of the many miles of shoreline consist of wide sandy beaches with scattered cobble, backed by one of the best developed and most diverse forested dune and swale complexes in Michigan, with some spectacular wetland areas mixed throughout. The scattered cobble beach areas provide some of the best habitat in Michigan for the federally endangered piping plover. In fact, almost the entire shoreline of the proposed natural areas is designated as critical habitat for the piping plover.” (MDNR website [http://www.michigan.gov/dnr/0,4570,7-153-31154\\_31260-54042--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-31154_31260-54042--,00.html); accessed 24 Feb 2013)

The Township does not have a website but the Town Hall contact information is:

Bliss Township Hall  
9325 W. Bliss Rd  
Levering, MI 49755  
Phone (231) 537-4728

There is very little development pressure in Bliss Township and we believe the arrangement with Emmet County is working well to protect water resources. Therefore, we have no additional recommendations.

## **Carp Lake Township**

Charming Carp Lake Township is home to Paradise Lake, which provides abundant recreational opportunities in a lovely setting. The Township website can be found here: [http://apps1.emmetcounty.org/twp/Carp\\_Lake/default.asp](http://apps1.emmetcounty.org/twp/Carp_Lake/default.asp).

Paradise Lake also has a Lake Improvement Board, with a website: <http://www.paradiselakeimprovementboard.com/>

“The township, created in 1879, was approximately 55 square miles located 8 miles southwest of the Straits of Mackinac... The name comes from the 1900 acre lake on the east side of the township...” (now renamed Paradise Lake) “It is fed, in part, by a Mud Creek, that comes out of Cheboygan County. Water flows out of the lake into the Carp River which flows, in turn, into Lake Michigan... there are large areas of the township that are sparsely or un-inhabited and wild, providing extensive opportunities for wildlife habitat, conservation, and watershed protection.” (Carp Lake Township website, [http://apps1.emmetcounty.org/twp/Carp\\_Lake/default.asp](http://apps1.emmetcounty.org/twp/Carp_Lake/default.asp); accessed 24 Feb 2013)

The Township also has Ordinance 6 Land Division which is relevant to wetlands and buildable lot splits; found at: [http://apps1.emmetcounty.org/twp/Carp\\_Lake/default.asp?Page=Ordinances](http://apps1.emmetcounty.org/twp/Carp_Lake/default.asp?Page=Ordinances)

Carp Lake Township is working closely with the County and its residents to protect Paradise Lake and other water resources in the area. We have no additional recommendations.

## **Center Township**

Gorgeous Center Township is home to Lark’s Lake, a special inland lake resource with its own Watershed Management Plan. That Plan notes: “Larks Lake is a small, shallow lake located in Center Township in northern Emmet County (Figure 1). Larks Lake is fed by spring outlets. It is the headwaters of Brush Creek; a tributary flowing into the west branch of the Maple River, and also what is known as the Pleasantview Swamp.

“Larks Lake is considered an important recreation resource for county residents with access provided at the Center Township Park and boat access at the end of Kaz Road. The Larks Lake Watershed land surface area is 4,640 acres. The Larks Lake Watershed is a small subwatershed of the larger Cheboygan River Watershed, which covers 1,461 square miles (935,000 acres) in Cheboygan, Otsego, Emmet, Presque Isle, Montmorency, and Charlevoix Counties...” [Lark’s Lake Watershed Management Plan, Tip of the Mitt Watershed Council website; (2006), <http://www.watershedcouncil.org/water%20resources/local%20watersheds/files/Larks%20Lake%20Watershed%20Plan.pdf>]



Center Township does not have a website but the Town Hall contact information is:

Center Township Hall  
981 Van Rd.,  
Pellston, MI 49769  
Phone (231) 539-8592

The Township coordinates with the County to protect water resources. We have no additional recommendations.

## **Cross Village**

“The two major surface water resources in Cross Village Township are Lake Michigan and Wycamp Lake. The Township's boundaries include seven miles of Lake Michigan frontage and approximately 2.5 miles of Wycamp Lake frontage...” [Cross Village Township, Mich., Master Plan, Ch. 3, Natural Resources, at 3-6, (2004), [http://www.harborinc.org/downloads/covertable\\_of\\_contents.pdf](http://www.harborinc.org/downloads/covertable_of_contents.pdf)]

The striking Lake Michigan coastline of Cross Village is a popular spot, as explained by the Township website: “Cross Village is a natural destination point for travelers in Emmet County, as it stands at the northern end of M-119, a state designated Scenic Heritage Route, that extends north from Harbor Springs following the Lake Michigan shoreline.

“This road is renowned for its natural scenery, particularly the bordering hardwood forests. En route to Cross Village, the traveler passes meadows, occasional panoramic views over Lake Michigan, historic cottages, tree stands that bridge the road in canopy fashion, minimum village services (at Goodhart) and antique shops. The road winds and twists to encourage slow speed and enhance the enjoyment of the scenic tour. While Cross Village is at the terminus of M-119, it is not the end of the road, as Shore Drive continues northeast out of the Township into Bliss Township.” (Cross Village Township website, <http://www.crossvillage.info/>)

The Township does not have a Planning Commission, but it does have a Township Supervisor and Board, and a current Master Plan. The Cross Village Township website is found at: <http://www.crossvillage.info/>. The Master Plan is online at: [http://www.harborinc.org/locgovt0452208\\_2.asp](http://www.harborinc.org/locgovt0452208_2.asp).

### **Cross Village Master Plan Components**

POSSIBLE SCORE: 30

TOTAL SCORE: 22, Strong

Cross Village Township has a strong Master Plan, including this section:

“These lakes and their associated tributary streams and creeks offer scenic and recreational amenities to Township residents and visitors. It is extremely important that the quality of these surface waters be protected from the negative impacts of development, such as pollution and loss of scenic views to open water...

“Lakes, creeks and wetlands are important for surface drainage, groundwater recharge and wildlife habitat. Alterations to the water features can contribute to flooding, poor water quality, insufficient water supply and loss of valuable wildlife habitat...

“While the current quality of surface waters in Cross Village Township is good, the threat of potential water pollution from point and non-point sources is not currently a major concern. Proper land use management can help control water quality conditions in Cross Village Township.” [Cross Village Township, Mich., Master Plan, Ch. 3, Natural Resources, at 3-6, (2004), [http://www.harborinc.org/downloads/covertable\\_of\\_contents.pdf](http://www.harborinc.org/downloads/covertable_of_contents.pdf)]

### **Master Plan Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** When the Master Plan is updated again, it should specifically identify the watershed(s) in which the Township is located.

**SUGGESTED ACTION:** The Master Plan should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.

**SUGGESTED ACTION:** Even though the Township is not currently under development pressure, as noted in the Plan, in order to ensure future protections, continue to educate citizens and businesses about the impacts of impervious surfaces and threats from polluted stormwater runoff.

## **Friendship**

As with Bliss and Cross Village, the entire western border of Friendship Township is five miles of frontage on the Great Lake Michigan shoreline, providing a memorable drive with eye-popping views. The M-119 Tunnel of Trees Scenic Heritage Route runs through this entire border on its 20-mile route from Harbor Springs to Cross Village.

“...residents of the northeast quarter of Friendship Township are located within the Lake Huron watershed, while the remaining three-quarters of the Township’s residents are located in the Lake Michigan watershed.” [Friendship Township, Mich., Master Plan, Ch. 5, Natural Features Inventory, at 40, (2008), <http://www.harborinc.org/locgovt8148715.asp>]

The Friendship Township Board has provided a website: <http://www.harborinc.org/ftwp.asp>. In addition to the Township Board, Friendship has a Planning Commission and a Master Plan that was updated in 2008. It can be found here: <http://www.harborinc.org/locgovt8148715.asp>

### **Friendship Township Master Plan Components**

POSSIBLE SCORE: 30

TOTAL SCORE: 27, STRONG

The Master Plan notes that no major inland lakes or streams are located in the community, but many seeps and intermittent streams exist. “As a result of the highly porous and highly permeable surface soils in the area, most portions of Friendship and Readmond Townships are devoid of any permanent surface water features such as lakes or rivers. The primary transport route for rainwater and snowmelt is downward by means of infiltration through the soil into the water table or ground water.” [Friendship Township, Mich., Master Plan, Ch. 5, Natural Features Inventory, at 33, (2008), <http://www.harborinc.org/locgovt8148715.asp>]

Additionally, the Plan acknowledges the presence of important community wetlands: “There are five large wetland areas located in Friendship Township... The two main ones are known as Five Mile Creek and its associated riparian wetland, and the Stutsmanville Bog.” [Friendship Township, Mich., Master Plan, Ch. 5, Natural Features Inventory, at 37, (2008), <http://www.harborinc.org/locgovt8148715.asp>]

Looking forward, the Township states the following Land Use Goal: “to protect and preserve the natural resources of FT through a comprehensive approach to natural resource management and the preservation of our natural features.” [Friendship Township, Mich., Master Plan, Ch. 8, Future Land Use Plan, Policies, Goals, and Actions , at 64, (2008), <http://www.harborinc.org/locgovt8148715.asp>] Strategies to do so include:

“Recognize the Lake Michigan Shoreline as an ecosystem that contributes to the natural and economic richness of the township...” and “Protect Water resources from contamination, degradation and depletion.” [Friendship Township, Mich., Master Plan, Ch. 8, Future Land Use Plan, Policies, Goals, and Actions , at 64-65, (2008), <http://www.harborinc.org/locgovt8148715.asp>]

We have no additional recommendations.



*Five Mile Creek*



## **Littlefield**

Picturesque Littlefield Township sits on the northern shorelines of both Crooked Lake and Pickerel Lake, and includes the fabulous Crooked River. In addition to its Township Board, Littlefield has an active Planning Committee that meets regularly.

The Township's important work includes a Corridor Study done in 2010, with support from Emmet County. "This study allowed the Township to build-upon the recent master planning work done at the County level, and further review and refine how and where the Township would like to guide growth and development for these three corridor areas. The locally proposed or refined development strategies for these three corridors are provided to the Littlefield Township Board, following review and finalization by the Littlefield Township Planning Committee. The Township Board can then, at their discretion, decide whether and when to send any or all of the recommendations of this study to the County Planning Commission for consideration as the Emmet County Zoning Ordinance is fully reviewed." [Littlefield Township, Mich., "Littlefield Township Corridor Studies: Oden, Ponshewaing, And M-68," October 2010, <http://www.emmetcounty.org/uploads/1291308120Littlefield-Twp.-Corridor-Studies---2010-Summary-Report.pdf>]

The Township does not have a website but their contact information is:

Littlefield Township Hall  
7631 Burr Ave., Alanson  
Phone (231) 548-2220

The Township works closely with the County to protect its water resources. We have no additional recommendations.

## **Maple River**

Majestic Maple River Township includes a portion of the Crooked River, the Maple River, and Lake Kathleen. "Drainage from the Pleasantview Swamp and Larks Lake form the West Branch of the (Maple) river while water flowing out of Douglas Lake forms the East Branch. The two branches converge at Lake Kathleen and then the main river flows southeast until emptying into Burt Lake." [Tip of the Mitt Watershed Council, Volunteer Stream Monitoring Report, (2012); [http://www.watershedcouncil.org/protect/volunteer%20stream%20monitoring/files/vsm\\_2012report\\_web.pdf](http://www.watershedcouncil.org/protect/volunteer%20stream%20monitoring/files/vsm_2012report_web.pdf)]

Maple River Township does not have a website but their contact information is:

Maple River Township Hall  
3989 US-31, Brutus  
Phone: (231) 529-3000

The Township does not have a planning body or Master Plan, but it takes a very active role in planning and zoning decisions. Currently, the Township Supervisor is serving as Chairperson for the Emmet County Planning Commission. The cooperative arrangement with Emmet County is working well to protect water resources in the Township; we have no additional recommendations.

## **McKinley**

McKinley Township is home to a portion of the fabulous Maple River, in addition to numerous small lakes and streams situated in a classic “Up North” landscape. There is very little development pressure in the Township. The working relationship with the County serves it well for water protection; we have no additional recommendations.

McKinley Township does not have a website but the Township contact information is:

McKinley Township Hall  
1820 N. US 31,  
Pellston, MI 49769  
Phone (231) 539-8388

## **Readmond**

Readmond Township is another spectacular Emmet County jurisdiction with its entire western border along the shores of the Great Lake Michigan. This provides awesome views from the M-119 Tunnel of Trees Scenic Heritage Route, which also runs through this entire border of the Township.

In Readmond Township, “There are no inland lakes nor major streams or rivers, but there are numerous intermittent streams and seeps located throughout the Township.” [Readmond Township, Mich., Master Plan, Ch. 5, Sec 5.3 Surface Water Resources (Proposed)]

“...residents of the southeastern one-third of Readmond Township are located within the Lake Huron Watershed, while the remaining two-thirds of Township’s residents are located in the Lake Michigan watershed. See Page 5.15a for a copy of the Emmet Co Watershed Boundaries Map.” [Readmond Township, Mich., Master Plan, Ch. 5, Sec 5.15 Watersheds (Proposed)]

Readmond Township has a website: <http://www.harborinc.org/rtwp.asp>. However, it is incomplete and sparse. It does include current contact information for the Township Supervisor and staff but does not list the Trustees or the Planning Commission members.

The Township is in the midst of a Master Plan update, and they shared what was described as close to the final draft, for us to use in this project. What we reviewed was strong, in terms of water protection efforts.

### **Readmond Township Master Plan Components**

POSSIBLE SCORE: 30  
TOTAL SCORE: 26, STRONG

The Township has many strong points in the proposed Master Plan draft that we reviewed, including the following:

“Within Readmond Township the long-term quality and conservation of natural resources, water quality protection, farmland conservation, and the protection of the environment shall be considered of significant importance when making land use decisions.” [Readmond Township, Mich., Master Plan, Ch. 8, Future Land Use Plan, Policies and Goals (Proposed)]

“To maintain and enhance environmental quality within Readmond Township, the Township shall: ...Promote the protection of sensitive environmental resources including but not limited to steep slopes, wetlands, wildlife habitat, springs/seeps, waterways, and shorelines.” Id.

“...Utilize best management practices, including but not limited to promoting the use of native plants, on-site treatment and disposal of storm water by encouraging low impact design techniques, soil conservation, sustainable forest yields, and the restoration of damaged lands.” Id.

And finally:

“To promote the maintenance and enhancement of Lake Michigan shoreline areas within Readmond Township, the Township shall: ...Protect the water quality and near shore environment of Lake Michigan from degradation, siltation, pollution, and other human impacts including off-road vehicle use, and the sanding and grooming of beaches and periodically exposed public bottomlands. ...Support the enforcement of existing federal, state, and local regulations/laws that protect shoreline resources and the environment. ...Protect and inventory endangered, threatened, and “of concern” species and geographic features within Readmond Township. Id.

We have no additional recommendations.

### **Springvale**

Stunning Springvale Township has magnificent views and water resources, including the southern shores of Pickerel and Crooked Lakes, as well as the wooded banks of Minnehaha Creek. The Township has a Planning Committee in addition to its Township Board, and their website can be found at: <http://apps1.emmetcounty.org/twp/Springvale/index.htm>

Springvale Township has a Marine Safety Ordinance in place for the waterway affectionately known as the Black Hole; that is: “On channel that connects Crooked Lake and Pickerel Lake Section 21, and 22 of T35N R4W in Springvale Township, Emmet County it is unlawful for the Operator of a vessel to exceed a slow—no wake speed.” [Springvale Township, Mich., Marine Safety Ordinance: Special Local Watercraft Controls – Emmet County, Crooked Lake / Pickerel Lake Channel “Slow – No Wake Speed”, Ordinance Number 2004071301 (2004), [http://apps1.emmetcounty.org/twp/Springvale/Ordinances/Marine\\_Safety\\_Ordinance.pdf](http://apps1.emmetcounty.org/twp/Springvale/Ordinances/Marine_Safety_Ordinance.pdf) ] This stretch of water includes a beautiful wetland complex, teeming with diversity. A No Wake Zone is completely appropriate and protective of this special area, and we appreciate the Township taking this important, protective step.

The Township takes an active role, in partnership with the County, to protect its waters. We have no additional recommendations.

### **Wawatam**

Dazzling Wawatam Township is truly at the Tip of the Mitt; the top of the lower peninsula of Michigan. It encompasses the remote and scenic French Farm Lake, in addition to the tip of Lake Michigan and the western edge of the Straits of Mackinaw. The Township also includes part of the Village of Mackinaw City, in addition to the northwestern most section of Wilderness State Park.

The Township Supervisor and Board have provided a website at: <http://apps1.emmetcounty.org/twp/Wawatam/default.htm>

There is very little development pressure in the Township, and the County relationship is working well. We have no additional recommendations.

### **Conclusion**

We applaud the excellent water protection measures that exist in Emmet County. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



Harbor Springs

## SECTION III: Analysis

### Chapter 2 City of Harbor Springs

#### Introduction

The unique City of Harbor Springs is located on the northern shore of Little Traverse Bay, in Emmet County and Little Traverse Township. “Harbor Springs is a community of views and vistas to Traverse Bay and Lake Michigan. With its pristine waters and sand beaches, historic home sites and charming commercial center, Harbor Springs is a seasonal destination for locals and visitors alike.” [City of Harbor Springs, Mich., Master Plan, Ch. 1, Introduction, at 1 (2007)]

This chapter summarizes results of the Local Ordinance Gaps Analysis project for Harbor Springs. In accordance with the Literature Review, you will find each Critical Element below scored and ranked for the City. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. Harbor Springs is an active and engaged partner in the Little Traverse Bay Watershed Protection Plan committee. Where appropriate, actions related to implementation of the Watershed Plan are also noted below, and recommendations include suggested actions.

#### Evaluation Scores and Summary: City of Harbor Springs

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 17, ADEQUATE

The City of Harbor Springs has a Master Plan, completed in 2007 [City of Harbor Springs, Mich., Master Plan (2007)]. The next update may be scheduled soon, as Master Plans should be updated every five years. It does not specifically identify the watershed(s) in which the community is located.

Master Plan Chapter 2 references the water resources of the City by stating that “[t]he water resources of the Little Traverse Bay Area consist of the surface and ground waters of the lakes and streams and that stored in the ground. Ground water obtained from glacial deposits is used in the municipal supply in the City of Harbor Springs.” [City of Harbor Springs, Mich., Master Plan, Ch. 2, Water Resources, at 7 (2007)] The Plan also includes a call to create a comprehensive inventory of natural features in the City, which presumably will include a listing of lakes, rivers, and wetlands, including maps of their locations [City of Harbor Springs, Mich., Master Plan, Ch. 10, § 2, at 68-69 (2007)]. This inventory should also identify or map groundwater recharge areas.

The Master Plan states that “[t]he City of Harbor Springs will retain its distinctive natural character defined by its waterfront setting, substantial bluffs and hillsides, and views of Little Traverse Bay.” [City of Harbor Springs, Mich., Master Plan, Ch. 8, § A Goal 1(a), (b), (d), at 47-48 (2007)] The City’s objectives are to: “[c]reate a detailed inventory of key natural elements and sensitive environmental features in the City; [c]raft an Environmental Protection Plan that utilizes the data presented in the natural features inventory; helps establish public support

for regulations through a citizen engagement and consensus building process; and provides a framework from which regulations can be developed; [r]eview existing regulatory structures, including the Zoning Code, and amend as appropriate, to conserve key features and critical environmental areas, including dunes, bluffs, hills, natural topography and significant areas of forestland.” Id.

Chapter 9 states that “[t]he Waterfront future land use designation covers lands adjacent to Little Traverse Bay... The Waterfront area should be limited to uses which stimulate waterfront activity, require a waterfront location and which would complement existing harbor uses. Further, all lands should be open to public use; private enterprises which restrict public enjoyment of Little Traverse Bay are not encouraged. The most predominant land uses should be public open space and marinas... Development is not encouraged in the open water portion of the bay consistent with the Harbor Plan, to preserve space for passive aquatic activities and to maintain open sight lines between the City and the water.” [City of Harbor Springs, Mich., Master Plan, Ch. 9, Waterfront, at 61-62 (2007)]

Further, Chapter 10 states that “[t]he Zoning Code should be amended to require the conservation of key features, including dunes, hills, bluffs, wetlands and woodlands. These standards may also be incorporated as landscaping or general provision regulations. Within residential districts, open space development should be included as a use by right with conventional subdivisions to be treated as special land uses, to help ensure the conservation of sensitive areas.” [City of Harbor Springs, Mich., Master Plan, Ch. 10, § 1(b), at 67 (2007)]

The Master Plan identifies stormwater management as an important community policy. While not a specific goal, the Master Plan states that “[t]he City of Harbor Springs has separate sanitary sewer and storm sewer systems as shown on the Sanitary Sewer District Map on page 35 and the Storm Sewer District map on page 37. The storm sewer system collects runoff from rain storms... Harbor Springs is one of several communities served by a regional sewage treatment system. Approximately 80% of the developed portion of the City is served by the facility.” [City of Harbor Springs, Mich., Master, Ch. 6, Sewer Systems, at 29 (2007)] The Master Plan does not call for minimizing impervious surfaces to reduce stormwater runoff. It also does not acknowledge the importance of well-constructed and maintained road stream crossings.

The Master Plan expresses concern for wildlife: “... the City should prepare a comprehensive inventory of natural features. The inventory would include identification and location of wildlife habitat, wildlife species, plant species, wetlands and associated features, and other substantial components of the natural environment.” [City of Harbor Springs, Mich., Master, Ch. 10, § 2, at 68-69 (2007)]

### **Master Plan Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** The Master Plan should be reviewed for needed updates. When the next plan is done, specifically identify the watershed in which the community is located.

**SUGGESTED ACTION:** The Master Plan should also call for minimizing impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration.

**SUGGESTED ACTION:** The Master Plan should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.



## Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 33, ADEQUATE

The Harbor Springs Zoning Code is Chapter 50 of the overall City Code, but it is also separated out for easy access on the City website. The Zoning Code states that “[i]n accordance with the authority and interest... of the State of Michigan... provided to meet the needs of the State’s residents for food, fiber, energy and other natural resources... to facilitate adequate and efficient provision for... sewage disposal, water, energy, education, recreation, and other public service and facility needs; to promote public health, safety, and welfare, and for those purposes the City of Harbor Springs is divided into districts with regulations imposed designating the uses...” [Harbor Springs, Mich., City Code, Preamble, tit. V, Ch. 50 (2005-2009), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Zoning Code also notes: “[t]he Planning Commissioner may impose such conditions or limitations in granting approval as may be permitted by State law or this Chapter which it deems necessary to fulfill the spirit and purpose of this Chapter. The conditions may include: conditions necessary to insure that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased service and facility loads caused by the land use or activity; to protect the natural environment and conserve natural resources and energy; to insure compatibility with adjacent uses of land, and to promote the use of land in a socially and economically desirable manner.” [Harbor Springs, Mich., Zoning Code, art. 20 § 50.2001(3)(d) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

It also includes a fee system and enforcement measures. The fees cover costs to the community for review of proposal applications or appeals, including professional reviews. Article 20 of the Zoning Code states that “[a] Site Plan, together with the required fees, shall be submitted to the Zoning Administrator...” [City of Harbor Springs, Zoning Code, art. 20 § 50.2001(3)(a) (2005-2008)] Further, Article 26 states that “[i]t shall be the duty of the ZA to receive and examine all applications for permits required by this Chapter and to approve or reject such application. He shall collect all special fees established hereby and turn them in daily to the City Treasurer.” [Harbor Springs, Mich., Zoning Code, art. 26 § 50.2601(2) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Article 3 states that “[e]ach person who violates any provision of this Section 50.301(1), or authorizes its violation, and/or is the owner or occupant of property where such violation occurs, is responsible for a municipal civil infraction, punishable by a civil fine...” [Harbor Springs, Mich., Zoning Code, art. 3 § 50.301(1)(f)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>] [See Harbor Springs, Mich., Zoning Code, art. 26, § 50.2600(4)(a)-(b) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Harbor Springs City Code includes Chapter 52, Subdivision Regulations, Article 3, 52.300 Initial Investigation: “Prior to the preparation of a preliminary plat, it is recommended that the subdivider meet informally with the City Planning Commission and the City Manager to investigate the procedures and standards of the City with reference to subdivision requirements. (1) The subdivider should obtain information concerning the following:... (e) Requirements for permits and compliance with other regulations governing land use, including the Soil Erosion and Sedimentation Control Act (Act 347 of 1972), the Shoreline Protection and Management Act (Act 245 of 1970), the City Building Code and others as applicable.”

However, the Zoning Code proposal review process is not explicitly coordinated with the receipt of other applicable County, State, and Federal permits. It also does not require a pre-application or pre-construction meeting for new development or redevelopment proposals. It does, however, require Site Plan Review. [See Harbor Springs, Mich., Zoning Code, art. 20 (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Site Plan Review process addresses coordination with Soil Erosion and Sedimentation Control this way: Article 3 states that “[a]n applicant for a zoning permit shall file with the application a set of plans and written

specifications sufficient to clearly and fully indicate the nature of the contemplated work, including the following: A statement and depiction of any proposed topographic changes to the lot, including excavation or addition of fill or dirt.” [Harbor Springs, Mich., Zoning Code, art. 3 § 50.301(1)(b)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Article 20 further states that “[s]urface drainage and a drainage plan, as approved by seal of a registered engineer to be obtained at the applicant's expense, and approved by the City Engineer.” [Harbor Springs, Mich., Zoning Code, art. 20 § 50.2001(2)(g)(xxii) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>] However, there is no explicit coordination with the County and Part 91 state permit requirements (more on that below).

The Harbor Springs Site Plan Review process also includes Open Space provisions. Article 8 states that “[c]ommon open space area(s) shall be provided for use by all residents of the development. The size of the common open space area(s) shall be based on a minimum of one hundred (100) square feet per dwelling unit in the development.” [Harbor Springs, Mich., Zoning Code, art. 8 § 50.802(4)(g) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Zoning Code also includes Planned Unit Development (PUD) provisions. The Intent section of this part of the code includes: “It is the intent of this Special Use to provide a more desirable living environment by retaining the natural character of the City through the preservation of open spaces, woodlands, streams, ponds, waterfrontage, hills, and similar natural assets. It is further intended that this permitted use encourage a more creative approach to residential development through the planned reduction or grouping of lots while maintaining the overall density of the zoning district.” [Harbor Springs, Mich., Zoning Code, art. 23 § 50.2300 (1) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Flexible site design criteria exist in Harbor Springs to encourage Open Space. Article 21 notes that “[t]he primary objective of the cluster zoning option is to preserve open space or specific geologic features for the common use and enjoyment of property owners by the clustering or grouping together of housing units. This option shall not increase the number of dwelling units otherwise permitted on a parcel of property.” [Harbor Springs, Mich., Zoning Code, art. 21 § 50.2101 (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Further, the PUD section notes that “[f]or all area gained through the reduction or grouping of lots, an equal area shall be set aside for the common use of the lot owners or residents within the development.” [Harbor Springs, Mich., Zoning Code, art. 23 § 50.2300(2)(d) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Article 23 states that “[w]ithin any Planned Development, no structure shall hereafter be used, erected, converted or altered externally in whole or in part if said use is not in accordance with the intent as stated in this Section except as otherwise provided in this Ordinance, for any other than one or more of the following-permitted uses: ...Open spaces including, but not limited to, fields, wooded areas, streams, ponds, waterfront parks and scenic hills.” [Harbor Springs, Mich., Zoning Code, art. 23 § 50.2300(3), (a)(iii) (2005-2008) <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Open Space is not required to be managed in a natural condition. However, it is required to be protected for the long term. Article 23 (PUD) states, “For all area gained through the reduction or grouping of lots, an equal area shall be set aside for the common use of the lot owners or residents within the development. This area shall be under legal procedure which shall grant a covenant or deeded interest therein so that it shall be assured of remaining undeveloped.” [Harbor Springs, Mich., Zoning Code, art. 23 § 50.2300(2)(d) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** Specifically require that applicants receive approval for all applicable county, state, and federal permits (such as soil erosion control, wetlands, inland lakes and streams, etc.) prior to, or as a condition for receiving a City zoning permit.

**SUGGESTED ACTION:** Approved Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses.

**SUGGESTED ACTION:** The City should also consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

#### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 43, STRONG

For its Great Lake Shoreline, the Harbor Springs Zoning Code delineates separate protection measures for bluff areas. [See Harbor Springs, Mich., Zoning Code, art. 3, § 50.302(5)(a)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>] and [Harbor Springs, Mich., Zoning Code, art. 3, § 50.302(5)(a)(ii)(2)(b)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Additionally, Article 15 states that “[the] minimum setback from the water’s edge shall be twenty-five (25) feet. Launch ramps and docks are excepted from the rear yard setback requirement.” [Harbor Springs, Mich., Zoning Code, art. 15 § 50.1501(2)(c) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The City of Harbor Springs has, in addition to the City Code, a Harbor Plan. “The Harbor Plan process was initiated in May of 1981 by the City and the Harbor Commission to gain an understanding of the forces that influence harbor use and, to the greatest extent possible, gain local control of this beautiful natural facility... The focus of the Harbor Plan is the map, which depicts all the working elements of the Harbor Plan... The Plan incorporates public input, data collected and presented by consultants, and over twenty years of application. It is a living document intended to accommodate changes and to best manage the Harbor resources.” [Harbor Springs, Mich., Harbor Commission 2003 Harbor Plan (October 22, 2003), page 3, <http://www.cityofharborsprings.com/charter,-codes-and-regulations-26/#sect-77>]

Importantly, Article 16 of the Zoning Code reflects the guidelines in Chapter 9 of the Master Plan. It states that “[b]ecause the waterfront of the City of Harbor Springs is a community resource, and the only means of access, both visually and physically, to the Harbor Springs harbor, which has been the source of this community’s desirability and prosperity, it is the intent of the City to restrict the waterfront from over-development, but to allow limited public, private and commercial uses which cannot be feasibly located elsewhere or which add to public enjoyment of the waterfront and public access to the water.” [Harbor Springs, Mich., Zoning Code, art. 15 § 50.1500 (2005-2008)] and [Harbor Springs, Mich., Zoning Code, art. 16 § 50.1600 (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

The Waterways Chapter of the City Code states that “[t]he ‘harbor’ shall be defined as those waters of Little Traverse Bay...” Further, the “‘Harbor Map’ is the Official Map...” Finally, that “[t]he ‘City Marina’ shall be defined as all property in the City of Harbor Springs owned, managed or controlled by the City which borders on Lake Michigan...” [Harbor Springs, Mich., City Code, tit. III, Ch. 31, art. I § 31.100(1), (2), (4) (2005-2009), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

A separate document, “Harbor, Waterfront and Marina Rules and Regulations,” is posted on the Marina section of the City website, and outlines the regulations that apply to the City Marina. These rules state that “[t]he Harbormaster is hereby authorized to regulate all dockage, anchorage, moorage and tie-up at the City Docks, the Moorage Area and the Refuge Anchorage Area, and to regulate navigation in all areas of the Harbor. Any person disobeying an order (verbal or written) of the Harbormaster intended to promote orderly dockage, anchorage and/or safe navigation, shall be subject to such penalties as are provided in Chapter 1 of the City Code.” [Harbor Springs, Mich., Harbor, Waterfront and Marina Rules and Regulations, § B-1(c) (2011), <http://www.cityofharborsprings.com/marina-45/>]

Also: “[N]o fuel cans shall be placed, stored or located in the City Marina, including but not limited to the City Docks, Ford Park or other City property, except within a watercraft. No fuel cans shall be stored or placed on any dock system in the City Marina or at Ford Park.” [Harbor Springs, Mich., Waterfront and Marina Rules and Regulations, § B-24 (2011), <http://www.cityofharborsprings.com/marina-45/>]

The Little Traverse Bay Watershed Protection Plan includes a priority objective to: “Work with marinas to reduce nonpoint source pollution from boaters and marina facilities and the spread of aquatic nuisance species by utilizing best management practices. Encourage marinas throughout the watershed to participate in Clean Marinas Program.” (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, B. Shoreline Protection, Restoration, and Management Recommendations, 4) To the great credit of the business owners and the City, all marinas currently located in the City of Harbor Springs voluntarily participate in the Clean Marina Program. The point of that program is for marinas to protect and improve Michigan’s waterways by reducing or eliminating releases of harmful substances, in addition to phasing out practices that damage aquatic ecosystems. We applaud the work done to implement this Watershed Plan step, and the 100% participation rate from business owners and the City of Harbor Springs.

The City has done a good job dealing with shoreline issues that affect the waters, given their unique setting. Because private marinas and the City are working so effectively, voluntarily implementing the Michigan Clean Marina Program, we see no need for additional regulations, at this time.

## **Impervious Surfaces**

POSSIBLE SCORE: 33

TOTAL SCORE: 7, WEAK

The more a local government can do to reduce impacts from impervious surfaces, the better for water quality. Impervious surfaces include things like streets, roofs, sidewalks, etc. that generate much more stormwater runoff than natural land. These surfaces limit the ability for rainwater to naturally percolate into the soils, thus reducing the opportunity for contaminants to be removed from runoff before it flows into waters. Instead, that polluted runoff discharges directly into Little Traverse Bay and Lake Michigan, and includes bacteria from pet and animal wastes, fertilizer, oil and grease, sediment, heavy metals, salt, etc.

To reduce impervious surfaces, a community should increase the retention or restoration of native vegetation in riparian areas and in open spaces. Simple and effective solutions exist, ranging from rain barrels and rain gardens, to engineering approaches that treat stormwater before it discharges into the water.

Low Impact Development (LID) practices, such as perforated curbs that allow water to flow into vegetated swales, are not being used. The Zoning Code does not require some portion of proposed parking lots to be planted with trees and vegetation within the parking lot paving. It also does not allow flexibility to reduce the number of parking spaces constructed, if appropriate. Additionally, the Zoning Code does not allow flexible lot coverage standards to encourage creative approaches that limit impervious surfaces (for both single lots and larger developments).

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** The Zoning Code should allow more flexibility to reduce the number of parking spaces constructed, if warranted by the proposed development. Further, it should also require some portion of proposed parking lots to be planted with trees/vegetation within the parking lot paving. Finally, allow the location of bioretention, rain gardens, filter strips and swales in parking lots, required setback areas, and common areas, as appropriate.

**SUGGESTED ACTION:** Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces.

#### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 9, WEAK

Although Harbor Springs does not regulate stormwater as a stand-alone ordinance, there are some provisions in the Zoning Code where stormwater management planning and implementation is required as part of the zoning review process.

Article 3 of the Zoning Code states that, “[a]ny building located in a district that has a setback requirement shall be located at such an elevation that a gradual sloping grade shall be maintained to cause the flow of surface water to run away from the walls of the building. A sloping grade, beginning at the sidewalk level (or right-of-way level if there are no sidewalks), shall be maintained and established from the front lot line to the finished grade at the front of the building, provided the change in slope shall not increase the water run-off. However, this shall not prevent the grading of a yard space to provide a sunken or terraced area, if proper means are provided and maintained to prevent the runoff of surface water from flowing onto adjacent properties or into the sanitary sewer system... [f]inal grades shall be approved by the Zoning Administrator. If he deems necessary a “Certificate of Grading and Location of Building” shall be duly completed and certified by a registered engineer or land surveyor before final grades are approved.” [Harbor Springs, Mich., Zoning Code, art. 3, § 50.301(7) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Article 8 of the Zoning Code notes that, “[t]he management of storm water shall be consistent with City standards.” [Harbor Springs, Mich., Zoning Code, art. 8, § 50.802(4)(L)(I) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>] This appears in a section that addresses the construction of a condominium in the Multiple Residential District, but what those standards are, exactly, is not articulated in the Zoning Code. However, the Harbor Springs Harbor Plan includes Appendix H - Environmental Standards, where item #2 is stated this way:

“Urban storm water runoff into the bay is likely to be a much greater influence on chemical and biological quality in the bay than is boat density. New development and redevelopment within the watershed, and especially near the shoreline, should incorporate available and innovative technologies to mitigate the impacts of runoff discharges in the bay. Methods to control runoff impacts include greenbelts, grassed drainage ways, screens and/or gravel filters over storm drain inlets, system retention, control of fertilization amounts and timing, street cleaning and litter and leaf pickup programs.” [Harbor Springs, Mich., Harbor Commission 2003 Harbor Plan (October 22, 2003), Appendix H, page 31, #2. <http://www.cityofharborsprings.com/charter,-codes-and-regulations-26/#sect-77>]

This item in Harbor Plan Appendix H gives good guidelines, but strong, clear stormwater management regulations should be articulated as standards in the Zoning Code, including construction phases. At the very least, these standards should be much easier to find, and more accessible to applicants.

A similar general statement appears in Article 18, that “[a]ll parking areas shall be constructed in a manner so as to provide for adequate drainage of surface water from the parking area to some suitable place for storage, run-off or removal. Plans for the development of a parking lot or off-street parking area shall include a plan for drainage which shall be approved by the building inspector prior to construction of said off-street parking area. No drainage system shall permit the run-off of surface water onto adjacent properties or into the sanitary sewer system.” [Harbor Springs, Mich., Zoning Code, art. 18, § 50.1802(10) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

### **Stormwater Management: RECOMMENDATIONS**

**SUGGESTED ACTION:** Make the City standards for stormwater management more accessible and easy to find. Codify those standards to explicitly protect the waters of Harbor Springs from stormwater runoff during construction.

**SUGGESTED ACTION:** Explicitly prohibit stormwater from exiting the property after exposure to any harmful sources.

**SUGGESTED ACTION:** Implement the following targets for the City of Harbor Springs from The Little Traverse Bay Watershed Protection Plan, Chapter Four: Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations: “8. Work cooperatively with local units of government to develop and implement stormwater management plans.” and “9. Implement priorities identified in stormwater management plans.”

### **Soil Erosion and Sediment Control**

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

All properties located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. Sediment, by volume, is the single largest pollutant to waters of the United States. Any time earth is disturbed or graded, as typically happens during the construction process, there is a potential for soil to erode and sediment to be deposited into lakes, streams, and wetlands. Construction, or use of steep or unstable slopes, can also present an erosion and sedimentation hazard.

Because local governments have the opportunity to review every single development project as part of zoning review, they are uniquely situated to ensure that soil erosion is controlled and sedimentation is minimized. The Emmet County Planning, Zoning, and Construction Resources Department administers Part 91 of Michigan’s Natural Resources and Environmental Protection Act (NREPA), Michigan’s Soil Erosion and Sedimentation Control (SESC) statute.

Article 3 states that “before the excavation, or modification of topography, of any lot, and before proceeding with the erection, alteration, repair, moving or removal of any structure, building, temporary building, sign, fence, awning, canopy, parking lot or part thereof, an owner or authorized agent shall apply for and obtain a zoning permit.” It goes on to note that “[a]n applicant for a zoning permit shall file with the application a set of plans and written specifications sufficient to clearly and fully indicate the nature of the contemplated work, including the following: A statement and depiction of any proposed topographic changes to the lot, including excavation or addition of fill or dirt.” [Harbor Springs, Mich., Zoning Code, art. 3, § 50.301(1)(a) and (1)(b)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

While the Zoning Code indicates an interest in soil erosion control, it does not clearly state that a SESC permit from the Emmet County Soil Erosion agent is required before a Harbor Springs permit will be issued. Requiring zoning applicants to receive soil erosion permits from Emmet County effectively ensures that erosion is addressed.

### **Soil Erosion and Sediment Control: RECOMMENDATIONS**

**SUGGESTED ACTION:** The Zoning Code should be updated to explicitly require County approval of SESC measures before granting zoning permits.

**Sewer/Septic**

POSSIBLE SCORE: 24

TOTAL SCORE: 17, STRONG

The City Code, Chapter 22, includes strong, comprehensive sewer regulations. The Harbor Springs Master Plan explains that “[t]he City of Harbor Springs has separate sanitary sewer and storm sewer systems as shown on the Sanitary Sewer District Map on page 35 . . . [T]he sanitary sewer system collects and treats sewage from homes, businesses and other locations. Harbor Springs is one of several communities served by a regional sewage treatment system. Approximately 80% of the developed portion of the City is served by said facility.” [City of Harbor Springs, Mich., Master Plan, Ch. 6, Sewer Systems, at 29 (2007)]

The other 20% of users are on wells and septic systems, and there exists a need for broad education about septic system maintenance and oversight, to ensure failing systems are not transferred to new owners. For stronger coordination, a point of transfer septic ordinance is something to consider.

**Sewer/Septic: RECOMMENDATIONS**

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

**Wetlands**

POSSIBLE SCORE: 21

TOTAL SCORE: 0, Missing

The City of Harbor Springs only mentions wetlands once in its regulations: “All condominium land subdivision plans shall be submitted for review . . . and include the following additional information: (3) A plan delineating all natural and manmade features on the site including, but not limited to, drains, ponds, lakes, streams, floodplains, wetlands and woodland areas.” [Harbor Springs, Mich., City Code, tit. V, ch. 52, art. I4 § 52.1402 (3) (2005-2009), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

It is understandable that wetlands are not a high priority in the City, because they are rare; but they do exist and should be protected and kept intact, where possible. The benefits of wetlands are numerous. They provide excellent wildlife and bird habitat, help control flooding, and protect water quality by absorbing stormwater runoff. Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated. Local governments can support wetland protection through zoning and by requiring wetland permits from state and federal agencies, prior to granting local zoning permits.

**Wetlands: RECOMMENDATIONS**

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, providing habitat, and minimizing flooding, it is beneficial to educate citizens on the importance of protecting wetlands.

**SUGGESTED ACTION:** Consider amending the Zoning Code to make it clear that permits are required for any state or federally regulated wetlands in the City, before any permit on a wetland parcel is issued, regardless of the zoning district. An applicant should be required to demonstrate that disturbing the wetland does not require a state or federal permit.

**SUGGESTED ACTION:** Consider establishing a 25’ wetland setback similar to shoreline setbacks, to help protect wetlands in the City.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 11, ADEQUATE

The Michigan State Wellhead Protection Program assists local communities to protect their water sources, if they use groundwater for their drinking water supply systems. There are two types of plans that can be submitted for approval. The first is a Source Water Protection Area, which designates plans that are done for community well fields that do not test positive for tritium, a radioactive isotope of hydrogen. If the tritium test is positive, a Wellhead Protection Area plan is done, which is a more extensive process. Ten communities in Emmet County have taken part in this program; Harbor Springs is one of them, and the City has developed a Wellhead Protection Plan. [See Harbor Springs, Mich., Wellhead Protection Program Plan, Action Plan Summary (2004), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Additionally, groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important. Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work.

### Groundwater and Wellhead Protection: RECOMMENDATIONS

**SUGGESTED ACTION:** Protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in regular coordination with Local Emergency Planning Committee efforts.

**SUGGESTED ACTION:** If direct or indirect discharges to groundwater are proposed, use site plan review or some other ordinance provision to prohibit this until appropriate approvals or permits are obtained from the state.

## Other

POSSIBLE SCORE: 48

TOTAL SCORE: 28, ADEQUATE

The City of Harbor Springs participates in the National Flood Insurance Program (See Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260675, <http://www.fema.gov/cis/MI.pdf>).

Additionally, Zoning Code Article 3 states that “[n]o building shall be erected or land used within a designated flood hazard and plain area unless constructed to suitably protect such building from future flood damage.” [Harbor Springs, Mich., Zoning Code, art. 3 § 50.302(11) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

Additionally, the City has an entire section of the Zoning Code devoted to the Bluff Area (Harbor Springs, Mich., Zoning Code, art. 3, § 50.302(5)(a)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>; Harbor Springs, Mich., Zoning Code, art. 3, § 50.302(5)(a)(ii)(2)(b)(i) (2005-2008), <http://www.cityofharborsprings.com/planning-and-zoning-26/>).

We have no recommendations for this element.

## Conclusion

We applaud the numerous water protection measures that exist in Harbor Springs. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



Harbor Springs

Photo: Wikipedia, Harbor Spring



*Bear River - Petoskey*

## SECTION III: Analysis

### Chapter 3 City of Petoskey

#### Introduction

The office of Tip of the Mitt Watershed Council is located in Petoskey, described as “a quaint resort community with unmatched beauty and charm. Petoskey has been a destination for resorters for more than 100 years and for multiple generations. People return to soak in the rich views, breathe the clean air, eat at world-class restaurants and shop in the specialty shops and boutiques of its historic downtown.” That description comes from the Petoskey Regional Chamber of Commerce website, and we think it gives a fitting tribute to a gem of a city on Little Traverse Bay.

Encompassing approximately 4,000 acres, along eight miles of the Lake Michigan shoreline, Petoskey is blessed with tremendous water resources, including Little Traverse Bay and the Bear River. How blessed? One example is the fact that “[t]he last mile of the Bear River’s length through the City contains the steepest drop of any river in Michigan’s Lower Peninsula. The majority of the land immediately adjacent to the river through this stretch is in public ownership. Upstream of the Lake Street dam that was part of a hydro-electric plant in the past, the river supports a native brook trout fishery, while a salmon and steelhead fishery lies downstream.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-11 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

This chapter summarizes results of the Local Ordinance Gaps Analysis project for the City of Petoskey. In accordance with the Literature Review, each Critical Element below is scored and ranked for the City. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. The City of Petoskey is an active and engaged member of the Watershed Plan Project Advisory Committee. This chapter makes recommendations and suggestions, including relevant steps from the Little Traverse Bay Watershed Protection Plan.

#### Evaluation Scores and Summary: City of Petoskey

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 25, STRONG

The City has a Master Plan called Blueprint Petoskey. Chapter nine of the Master Plan states that “[t]he City should regularly evaluate progress towards achieving the recommendations of the plan. All decisions on development proposals, public investments, regulations, incentives and other actions of the City should be evaluated against the recommendations of the plan.” [Petoskey, Mich., Master Plan, Ch. 9 at 9-1 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Blueprint Petoskey identifies relevant watersheds in the community. Chapter two states that “[t]wo of the City’s greatest amenities, Little Traverse Bay and the Bear River are critical surface water resources... At approximately 45 square miles, Little Traverse Bay is Lake Michigan’s fourth largest bay. The land area of the Bay’s watershed

is approximately 174 square miles. The Bay receives water from both precipitation and Lake Michigan currents, as well as many tributaries from throughout the watershed.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-11 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Further, Blueprint Petoskey includes a detailed inventory of water resources, wetlands, and groundwater: Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-10 – 2-13 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222).

Also included in Blueprint Petoskey, we find: “There is no question that the topography of the City and surrounding area provide views of Little Traverse Bay that create an important community resource. Residents place great importance on views of the Bay, as identified in many public surveys and the Blueprint Petoskey design charrette process. The top two design principles that came out of the public process were:

1. The waterfront will be enhanced as the community’s most important asset.
2. Development policies and practices will protect views of the lake.”

[Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-10 – 2-13 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

In Chapter two, “Natural Resources,” the Master Plan states that “[t]he Petoskey area is abundant with natural resources; the natural beauty of the area sustains the resort and tourist economy as well as the housing market. The protection of these resources is therefore critical to the continued viability of the community.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-10 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Also, the City’s “Natural Resources Goals and Objectives” includes: “[e]nsure that the community’s natural resources are protected for current and future users . . . [and] provide high quality drinking water and clean air to all residents.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-18 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Blueprint Petoskey devotes important attention to water protection, noting efforts to: “[c]omplete and implement the City’s Wellhead Protection Plan... [c]ontinue to implement the Little Traverse Bay Watershed Protection Plan in conjunction with the Little Traverse Bay Watershed Protection Project Advisory Committee and Tip of the Mitt Watershed Council... [and] update the City’s storm water, erosion control, and other natural resource protection ordinances.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-18 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Open Space is valued in the City, as reflected in Blueprint Petoskey. In Chapter two, “Parks and Open Space,” the Master Plan states: “[t]he City’s parks and open spaces are a tremendous asset for area residents and visitors... The City maintains twenty-four park sites... The parks include 8,000 feet of Lake Michigan shoreline, a four-mile-long linear park alongside the Bear River, a 100-slip marina...” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-14 to 2-15 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Additionally, the Plan notes that the City works “cooperatively with the County, adjacent townships, the Tribe and the Little Traverse Land Conservancy to respond to the public’s desire to protect open space, both within and outside, the City.” Id.

Blueprint Petoskey was adopted in 2009, and plans to improve access to the Bear River Valley and acquire additional open space are successfully being implemented, as of 2012. The idea was “to increase citizen contact with and protection of the many natural resources the community has to offer.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-14 to 2-15 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]



Per the City's website, the newly created Bear River Valley Recreation Area covers 36 acres and is 1.5 miles in length, including a .25 mile whitewater boating area in the Bear River. Its Main Entrances are on West Lake Street and Sheridan Street, but there are also several local neighborhood pedestrian entry points. "The Bear River Valley also features steep bluffs, unpaved trails, concrete path, boardwalks, whitewater rapids, and forest areas all in the heart of the City of Petoskey. Natural forest and open space areas are rich in plant species and local history. The park is, for the most part, undeveloped and is currently used for primarily passive activities including hiking, cross-country skiing, fishing, rafting, environmental education, and rock hounding. There are several large open grass areas and shelters that can accommodate group gatherings. Its natural setting and high water quality of the Bear River make it an important ecological value within the City." (Petoskey, Mich., website, Bear River Valley Recreation Area, <http://www.petoskey.us/departments/parks-a-recreation/community-parks/bear-river-valley-recreation-area>)

Blueprint Petoskey also identifies stormwater management as an important community policy, stating that it is the intent of the City to "[u]pdate the City's storm water, erosion control, and other natural resource protection ordinances." [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-18 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

However, it does not call for minimizing or mitigating impacts of impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration.

The importance of erosion and sediment to water quality is acknowledged by Blueprint Petoskey. In Chapter two, "Surface Water, Bear River," it states that "While there is no longer a large amount of industry and subsequent potential for industrial contaminants along the river, there continue to be threats impacting its water quality as well as the water quality of Little Traverse Bay, including stream bank erosion and storm water run-off that carries sediment and pollutants into the watershed." [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-12 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

### Master Plan Components: RECOMMENDATIONS

**SUGGESTED ACTION:** The next Plan update should call for minimizing impervious surfaces in new construction and redevelopment projects to reduce stormwater runoff and improve infiltration.

## Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 39, Strong

The City of Petoskey Zoning Ordinance is found as Appendix A of the City Code of Ordinances. The Code of Ordinances states that “[p]ursuant to the authority conferred by the Public Acts of the State of Michigan... for the purpose of promoting, and protecting the public health, safety... and general welfare of the inhabitants of the City of Petoskey... providing adequate light, air, and reasonable access; and facilitating adequate and economical provision of... water... and by other means, all in accordance with a comprehensive plan.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, preamble <http://library.municode.com/index.aspx?clientId=14735>)

It includes a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews: (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 16). The Zoning Ordinance also has methods in place for enforcement. “The provisions of this ordinance shall be administered and enforced by the city manager, zoning administrator, city planner, building official or other officer appointed by the city manager.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XIX, § 1900, <http://library.municode.com/index.aspx?clientId=14735>).

The Zoning Ordinance proposal review process is coordinated with the receipt of other applicable County, State, and Federal permits: “A certificate for [of] occupancy shall not be issued for a building approved as part of a Site Plan Review until a final inspection has been conducted by city staff to determine if the site improvements comply with all requirements of the approved site plan... A site plan compliance certificate will not be issued until as-built drawings, reflecting any changes for site improvements, including utilities, are submitted and approved.” [Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVII, § 1716(2)(e)(3)(L) <http://library.municode.com/index.aspx?clientId=14735>]

Additionally, in Site Plan Review we find: “Sec. 1716. - Site plan review [all districts]. 2. Site plan review package. (3) Graphic illustration: The following items shall be included in a complete site plan drawing... (m) Soil erosion control plan: Plans for soil erosion control shall be submitted in accordance with provisions of Michigan Public Act 347.” It also states that “[n]atural features such as unique or constraining soils, creeks, ponds, drainage courses, wetlands, floodplains, etc., shall be shown.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVII, § 1716-2-e-3-g, <http://library.municode.com/index.aspx?clientId=14735>)

Subdivisions are required to coordinate permit efforts, as well: “The proprietor shall file a valid preliminary plat with the clerk together with a certified list of all authorities required for approval in sections 113 through 119 of the subdivision act. The proprietor shall also submit approved copies of preliminary plats (Stage 2) from each of the required authorities. These may include one or more of the following as applicable: a. County road commission. b. County drain commission. c. Department of state highways. d. Department of natural resources. e. Water resources commission. f. Health department. g. County plat board. h. Public utilities.” (Petoskey, Mich., Code of Ordinances, pt. II, app. B, art. III, § 302-1-d-1, <http://library.municode.com/index.aspx?clientId=14735>)

Open Space provisions are included in Site Plan Review and other sections of the Petoskey Zoning Ordinance, stating that “[t]he [C]ity may require revision of a site plan to provide the best landscape, greenbelt or open space plan and to incorporate the minimum amount of impervious surface in a site. Landscape materials planted shall meet requirements of section 1709 of this ordinance.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVII, § 1716-3-c-4, <http://library.municode.com/index.aspx?clientId=14735>)

Allowable uses in the Open Space are not restricted to low impact uses, but in an urban setting, this can be appropriate. Open Space is not required to be protected through a conservation easement, but the Zoning Ordinance includes sensitive area protections. Consider: “The park reserve district is designated to enhance already existing open space in the Central Business District and adjacent zones and to permit and provide for significant open space in all portions of the city as a district zoning classification.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XXVII, § 2701, <http://library.municode.com/index.aspx?clientId=14735>) See also: (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVI, § 1602, <http://library.municode.com/index.aspx?clientId=14735>); and (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. VI, § 602-2, <http://library.municode.com/index.aspx?clientId=14735>)

The City Zoning Ordinance also allows for Planned Unit Development (PUD). The purpose of the PUD district is to “permit flexibility in the regulation of land development; encourage innovation in land use and variety in design, layout, and type of structures constructed; achieve economy and efficiency in the use of land, natural resources.”(Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XXV, § 2500, <http://library.municode.com/index.aspx?clientId=14735>)

PUD requirements include: “A pre-application conference should be held with the project developers and the City of Petoskey staff to review the basic requirements of the zoning ordinance, to explain review procedures, and to review the preliminary plans, design features and ordinance standards. At this stage, the applicant is encouraged to ... compile information from any and all other relevant agencies including information regarding sanitary sewers, water supply, storm sewers... soil conditions...” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XXV, § 2504-1, <http://library.municode.com/index.aspx?clientId=14735>)

### Basic Zoning Components: RECOMMENDATIONS

The City of Petoskey has a strong Zoning Ordinance in place that incorporates steps needed to protect water resources. Urban settings have unique challenges, and urban communities always have to plan for the future, which has multiple demands for multiple uses.

**SUGGESTED ACTION:** Consider where, if appropriate, allowable uses in designated Open Space should be restricted to low impact uses. Protect Open Space using conservation easements or other mechanisms, for the long term, where appropriate.

**SUGGESTED ACTION:** Also, consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on any undeveloped site.

### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 35, ADEQUATE

As noted earlier, the City of Petoskey includes eight miles of shoreline along Lake Michigan’s Little Traverse Bay. This area consists largely of the City Marina, but also includes both public and private shoreline east of the City’s breakwater. Most of this shoreline is zoned for single and multiple family uses, and development has been happening along this shoreline since the late 1800s. The City addresses this vital area by using Waterways and Marina regulations, and ensuring that the state Soil Erosion program is enforced for any earth changes within 500’ of a stream or lake.

The Little Traverse Bay Watershed Protection Plan includes a priority objective to: “Work with marinas to reduce nonpoint source pollution from boaters and marina facilities and the spread of aquatic nuisance species by utilizing best management practices. Encourage marinas throughout the watershed to participate in Clean Marinas Program.” (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, B. Shoreline Protection, Restoration, and Management Recommendations, 4)

To the great credit of the City, the Petoskey City Marina voluntarily participates in the Michigan Clean Marina Program. The point of that program is for marinas to protect and improve Michigan’s waterways by reducing or eliminating releases of harmful substances, in addition to phasing out practices that damage aquatic ecosystems.

We applaud the work done by the City to implement this Watershed Plan step, and the 100% participation rate from the cities and business marina owners on Little Traverse Bay. Blueprint Petoskey celebrates the City’s designation: “In addition, continuing to promote environmentally sound management practices at City facilities, such as the

City's recent recognition as a 'Michigan Clean Marina,' are important steps to showing the City's commitment to resource protection..." [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 2 at 2-14 to 2-15 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

In addition to the voluntary Clean Marina Program, the City also has formal marina regulations. The Code states that "[t]he authority to regulate the use of the docks in the city municipal marina and to regulate the use of the waters of Little Traverse Bay in the municipal harbor adjacent to the municipal marina and in the area lying eastwardly of the breakwater shall be exercised by the harbor master of the [C]ity. The authority to be exercised by him shall include the authority to control and regulate pedestrian traffic on the docks, breakwaters, small boat launching ramp and in the parking areas, lawns and walkways adjacent to the marina, and he shall further regulate marine traffic, anchorages, manner of piloting vessels, launching small boats, the cleaning of fish, and generally all activities on land and on water in the marina area to the extent the municipality is able to do so under the general statutes of the state, the United States of America and the various rules and regulations promulgated by federal and state agencies having jurisdiction over the same." (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 25, § 25-1, <http://library.municode.com/index.aspx?clientId=14735>)

Further, the Code also notes that, "[t]he harbor master is hereby vested with the powers and responsibilities of a deputy constable of the [C]ity for the purpose of enforcing both the orders provided under section 25-2 and any other applicable ordinances, laws, rules or regulations of the [C]ity, the state and the United States of America or any rule making or regulatory agent thereof having jurisdiction in the premises." (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 25, § 25-3, <http://library.municode.com/index.aspx?clientId=14735>)

Blueprint Petoskey highlights the following, in Chapter two: "Historically, the bay provided an important means of transportation that brought cruise ships from cities around the great lakes, while today, it is valued for its beauty and recreational possibilities. However, its scenic draw has led to increased threats from development pressure. As more and more land is converted to residential or commercial uses, the potential for water quality degradation is increased. Other pollutants that threaten the Bay's health today are nutrients and sediments from different human activities such as shoreline development, polluted runoff, stream bank erosion, and agricultural activities. Invasive species, both plant and animal, are also threats." [Petoskey, Mich., Master Plan, Blueprint Petoskey, ch. 2 at 2-11 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Also, as noted above regarding the Bear River: "...there continue to be threats impacting its water quality as well as the water quality of Little Traverse Bay, including stream bank erosion and storm water run-off that carries sediment and pollutants into the watershed." Id., 2-12

The Bear River will benefit from this point in the Zoning Ordinance: "There shall be a minimum setback of 30 feet to any exterior property line." (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVI, § 1600.1-f, <http://library.municode.com/index.aspx?clientId=14735>) This can be beneficial to rivers and streams because: "Boundaries indicated as following shorelines shall be construed to follow such shorelines, and in the event of change in the shoreline shall be construed as moving with the actual shoreline; boundaries indicated as approximately following the centerline of streams, rivers, canals, lakes, or other bodies of water shall be construed to follow such centerlines." (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. III, § 302-5, <http://library.municode.com/index.aspx?clientId=14735>)

All rivers and streams in the City would benefit from a requirement in the Zoning Ordinance for riparian buffers, at least 25' deep. It should go on to specify the degree of vegetation which may be removed in the riparian buffer zone, to be most effective in curbing runoff pollution, providing habitat, and preserving natural scenic beauty. Further, it should specify the use of native plant species in the riparian buffer zone, and that invasive and exotic plants are prohibited from being used.

Petoskey is also covered by the Emmet County "[o]rdinance to [c]ontrol and eradicate phragmites along the Lake Michigan shoreline in accordance with Sec 10 of 1941 PA 359, as amended, by providing for the appointment of

a phragmites administrator, inspection and reports; by providing for the designation of phragmites eradication zones for phragmites treatment, using procedures intended to comply with Federal and State due process requirements before including private property in such zones; by providing for the required permit application for such treatment; and by providing for payment of permit fees and other costs. June 17, 2010.” [Emmet County, Mich., Ordinance, no. 10-2 (2010), <http://www.emmetcounty.org/uploads/Phragmites.pdf>]

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** The City should consider updating the Zoning Ordinance to require riparian buffers on inland rivers and streams, a minimum of 25’ deep. As noted earlier, it should also specify the degree of vegetation which may be removed in the riparian buffer zone. Further, it should also specify the use of native plant species in the riparian buffer zone. Finally, invasive and exotic plants should be prohibited.

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 10, WEAK

Impervious surfaces include things like streets, roofs, sidewalks, etc. that generate much more stormwater runoff than natural land. These surfaces limit the ability for rainwater to naturally percolate into the soils, thus reducing the opportunity for contaminants to be removed from runoff before it flows into waters.

There are many opportunities for local governments to reduce impervious surfaces through their Zoning Ordinance. The Little Traverse Bay Watershed Protection Plan includes a priority objective to reduce the pollutant load from stormwater in urban areas. Reducing impervious surfaces supports this objective (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations).

Among other low cost approaches, a community can increase retention or restoration of native vegetation in riparian areas and in open spaces, in order to reduce impervious surfaces. Minimizing impervious surfaces can also be addressed in other creative and cost-effective ways, ranging from using Low Impact Design (LID) techniques in development plans, to incentives for limiting impervious surface lot coverage in zoning ordinances, to the use of rain barrels and rain gardens.

The Zoning Ordinance does allow flexible lot coverage standards for creative approaches that limit impervious surfaces (for both single lots and larger developments; rural or urban). The Code states that “[t]he entire parking area, including parking spaces and maneuvering lanes, shall be provided with asphaltic or concrete surfacing in accordance with specifications approved by the [C]ity, unless the [C]ity determines that due to unique conditions it would be in the best interest for purposes of drainage management, public safety or similar reasons that a particular parking area not be provided an impervious surface.” Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XXVII, § 1705-8, <http://library.municode.com/index.aspx?clientId=14735>.

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** The Zoning Ordinance should allow more flexibility to reduce the number of parking spaces constructed, if appropriate to the proposed development. Further, it should also require some portion of proposed parking lots to be planted with trees/vegetation within the parking lot paving. Finally, allow the location of bioretention, rain gardens, filter strips and swales in parking lots, required setback areas, and common areas, as appropriate.

**SUGGESTED ACTION:** Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces.

## Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 10, ADEQUATE

Part of Petoskey's beauty comes from being built upon bluffs with steep slopes. This also creates stormwater challenges, not only during construction but also after the urban environment is built. The following excerpt from Blueprint Petoskey describes this challenge, perfectly: "Storm water runoff is an inevitable byproduct of urban development that impacts surface water quality. The City's storm water system is crucial to ensuring water quality in Little Traverse Bay, and has an increased challenge given the City's bluff location and resulting high velocity of run-off as it reaches the bay." [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 3 at 3-1 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

To its credit, the city takes great pains to address these challenges: "The City maintains approximately 15.64 miles of storm sewer pipes and approximately 3.75 miles of pipes on the State Highways. The system includes approximately 1,000 catch basins that trap debris and sediment entering the system before discharging into Lake Michigan. The basins are cleaned on a two-year rotating basis. The three City retention/detention structures are maintained and the street sweeper cleans sediment from roadway gutter pans on a regular basis. Given the age of much of the City's infrastructure, system upgrades occur in conjunction with street projects, however, reducing the amount of runoff to reach the bay, through system-wide management practices and development standards, is the best way to improve water quality." Id.

To address issues during construction or redevelopment, the Petoskey City Code states that "[t]he [C]ity will review and approve stormwater drainage for all site plans. Plans may also require approval of the Michigan Department of Transportation where stormwater drainage facilities owned by the state are proposed for use. All runoff generated from site improvements should be retained on site. Stormwater drainage plans shall be designed to detain stormwater from buildings, parking lots and other impervious surfaces on site. Stormwater drainage facilities shall be designed for a 50-year storm event performance standard.

"Where sites have adequate open space or lawn area, stormwater retention should be used to minimize the impact upon existing drainage facilities and to allow for on-site filtration and settling. Retention basin slopes shall not



exceed 1:3. Where drainage is directed to a street, underground connection via catch basins may be required to minimize surface ‘sheeting’ of drainage across streets, sidewalks or other access areas. Where there is no available retention area or there is limited stormwater drainage capacity in adjacent storm sewers, plans may utilize a portion of the parking lot on a site for storage of stormwater during peak storm conditions...

“The site plan drawing shall show the location and perimeter of the area in the lot impacted by stormwater under storm event conditions. Such retention should be removed from high pedestrian or vehicular traffic areas. All plans should address seasonal requirements for either on-site snow storage or complete removal of plowed snow.” Also: “[a]ll runoff generated from site improvements should be retained on site. Stormwater drainage plans shall be designed to detain stormwater from buildings, parking lots and other impervious surfaces on site. Stormwater drainage facilities shall be designed for a 50-year storm event performance standard. Where sites have adequate open space or lawn area, stormwater retention should be used to minimize the impact upon existing drainage facilities and to allow for on-site filtration and settling. Retention basin slopes shall not exceed 1:3.” (Petoskey, Mich., Code of Ordinances, pt. II, app. A, art. XVII, § 1716-3-i, <http://library.municode.com/index.aspx?clientId=14735>)

### Stormwater Management: RECOMMENDATIONS

**SUGGESTED ACTION:** The City should require that all stormwater management systems be regularly evaluated and maintained.

**SUGGESTED ACTION:** Implement the following targets for the City of Petoskey from The Little Traverse Bay Watershed Protection Plan, Chapter Four: Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations: “8. Work cooperatively with local units of government to develop and implement stormwater management plans.” and “9. Implement priorities identified in stormwater management plans.”

### Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 15, STRONG

Any time earth is disturbed or graded, there is a potential for soil to erode and sediment to be deposited into lakes, streams, and wetlands. Construction, or use of steep or unstable slopes, can present an erosion and sedimentation hazard. Because local governments have the opportunity to review every single development project as part of zoning review, they are uniquely situated to ensure that soil erosion is controlled and sedimentation is minimized.

“The City of Petoskey shall be the municipal enforcing agency responsible for the administration and enforcement of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (“Part 91”), within the [C]ity. The administrative rules promulgated under the authority of Part 91 are hereby incorporated by reference... Before ground breaking of any construction project in the [C]ity, involving one or more acres of land or of a site located within 500 feet of a stream or lake, a completed permit application and an erosion- and sedimentation-control plan shall be submitted to the [C]ity, in accordance with Part 91.” (Petoskey, Mich., Code of Ordinances, pt. II, ch. 16, §§ 16-1 to 16-2, <http://library.municode.com/index.aspx?clientId=14735>)

The Code also states that “[u]pon payment of the necessary fees to the [C]ity in accordance with a fee schedule and bonding provisions, approved by the city council within the [C]ity’s annual budget, the submitted plans under section 16-2 shall be reviewed and, if approved, a permit shall be issued, provided the plans meet the standards adopted by reference in section 16-1, to prevent soil erosion at all major construction sites within the [C]ity in excess of one acre and all sites located within 500 feet of a stream or lake.” (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 16, § 16-3, <http://library.municode.com/index.aspx?clientId=14735>)

Finally, the SESC ordinance requires that controls be maintained and monitored on a periodic basis. The Code states that “[t]he [C]ity shall inspect any construction site affected by this chapter in accordance with Part 91.” Petoskey, Mich., Code of Ordinances, pt. II, ch. 16, § 16-5  
<http://library.municode.com/index.aspx?clientId=14735>.

We have no recommendations for this element.

## **Sewer/Septic**

POSSIBLE SCORE: 24

TOTAL SCORE: 18, STRONG

The City has a delineated Sewer Service Area. The Sewer Service Area map is used in zoning decisions. [See Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 3 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222); Petoskey, Mich., Code of Ordinances, pt. II, Ch. 22, art. II, div. 3, §§ 22-36, 22-39, <http://library.municode.com/index.aspx?clientId=14735>]

Blueprint Petoskey states that “[t]he wastewater treatment plant was awarded by the U.S. Government Environmental Protection Agency (EPA) as one of the best operated and maintained plants in six of the Great Lakes States in 2007. Figure 3.2 illustrates the City’s sewer system boundary. Given the limitations of the existing treatment plant, future Township growth will require the construction of a new treatment facility or agreements with the Harbor Springs Sewer Authority.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 3 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

Blueprint Petoskey also notes that the City plans to “update the City’s Capital Improvement Plan to facilitate improvements, [and] install state-of-the-art... waste-water infrastructure.” [Petoskey, Mich., Master Plan, Blueprint Petoskey, Ch. 3 (2009), [http://www.petoskey.us/component/docman/cat\\_view/71-planning/74-blueprint-petoskey?Itemid=222](http://www.petoskey.us/component/docman/cat_view/71-planning/74-blueprint-petoskey?Itemid=222)]

The Zoning Ordinance states that “[a] permit for a private sewage disposal system shall not become effective until the installation is completed to the satisfaction of the local health agency. The local health agency shall be allowed to inspect the work at any stage of construction and, in any event, the applicant for the permit shall notify the local health agency when the work is ready for final inspection, and before any underground portions are covered. The inspection shall be made within seven days of the receipt of notice by the local health agency. All persons receiving a permit for a private sewer disposal system shall provide the [C]ity with copies of all final approved inspection reports issued by the local health agency.

“The type, capacities, location and layout of a private sewage disposal system shall comply with all recommendations of the local health agency. No septic tank or cesspool shall be permitted to discharge to any public sewer or natural outlet. At such time as a public sewer becomes available to a property served by a private sewage disposal system as provided in section 22-35(4), a direct connection shall be made to the public sewer in compliance with this article, and any septic tanks, cesspools and similar private sewage disposal facilities shall be abandoned for sanitary use and filled with a suitable material.” (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 22, art. II, div. 3, §§ 22-37, <http://library.municode.com/index.aspx?clientId=14735>)

Regulations that pertain to septic systems are coordinated with the County Health Department regulations. The Code states that “[w]here a public sewer is not available under the provisions of section 22-35(4), the building sewer shall be connected to an approved private sewage disposal system. Before commencement of a private

sewage disposal system, the owner shall first apply to the local health agency for a soil evaluation test. At completion of the above soil evaluation test showing positive results, the property owner shall apply for a permit for installation of the proposed sewage system. He shall include plans, specifications and other information as deemed necessary by the local health agency. At the time the application is filed, the fee determined by the local health agency for the permit and inspection shall be paid.” (Petoskey, Mich., Code of Ordinances, pt. II, ch. 22, art. II, div. 3, §§ 22-37, <http://library.municode.com/index.aspx?clientId=14735>)

Further, the Code states that “[t]he proprietor shall file a valid preliminary plat with the clerk together with a certified list of all authorities required for approval in sections 113 through 119 of the subdivision act. The proprietor shall also submit approved copies of preliminary plats (Stage 2) from each of the required authorities. These may include one or more of the following as applicable: a. County road commission, b. County drain commission, c. Department of state highways, d. Department of natural resources, e. Water resources commission, f. Health department, g. County plat board, h. Public utilities.” (Petoskey, Mich., Code of Ordinances, pt. II, app. B, art. III, § 302-d-1, <http://library.municode.com/index.aspx?clientId=14735>)

We have no recommendations for this element.

## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 0, MISSING

The benefits of wetlands are numerous. They provide excellent wildlife and bird habitat, help control flooding, and contribute to water quality protection by absorbing stormwater runoff. Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated.

Local governments can support wetland protection through zoning, and also by requiring wetland permits from state and federal agencies, prior to granting local zoning permits. In addition to the coordination of permits in state and federally regulated wetlands, it would be helpful to have the ordinance articulate at least a 25 foot setback from the edge of City wetlands. This is much better than constructing a use right at the edge of the wetland.

### Wetlands: RECOMMENDATIONS

The City of Petoskey does not mention wetlands in its Zoning Ordinance, so we offer the following suggestions:

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, providing habitat, and minimizing flooding, it is beneficial to educate citizens on the importance of protecting wetlands.

**SUGGESTED ACTION:** Consider amending the Zoning Ordinance to make it clear that permits are required for any regulated wetlands in the City, before any permit on a wetland parcel is issued, regardless of the zoning district. An applicant should be required to demonstrate that disturbing the wetland does not require a state or federal permit.

**SUGGESTED ACTION:** Consider establishing a wetland setback of 25’ similar to shoreline setbacks, to help protect wetlands in the City.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 8, ADEQUATE

Groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important. Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work.

The Petoskey Code states that “[a]ny industry or structure discharging process flow to the sanitary sewer, storm sewer or receiving stream shall file the information listed below with the [C]ity (extensive & detailed list: a-p). Any industry which does not normally discharge to the sanitary sewer, storm sewer or receiving stream, but has the potential to do so from accidental spills or similar circumstances, shall also file the information listed below. The [C]ity may require each person who applies for or receives sewer service, or through the nature of the enterprise creates a potential environmental problem, to file the information on a disclosure form prescribed by the [C]ity.” (Petoskey, Mich., Code of Ordinances, pt. II, Ch. 22, art. II, div. 3, § 22-36 (1), <http://library.municode.com/index.aspx?clientId=14735>)

The Code also states that “[t]he City of Petoskey adopts by reference the Water Supply Cross Connection Rules of the Michigan Department of Public Health, being R325.431 – R325.440 of the Michigan Administrative Code.” (Petoskey, Mich., Code of Ordinances, pt. II, ch. 22, art. II, div. 2, §§ 22-27, <http://library.municode.com/index.aspx?clientId=14735>)

It further states that “[i]t shall be the duty of the water superintendent to cause inspections to be made of all properties served by the public water supply where cross connections with the public water supply is deemed possible. The frequency of inspections and reinspections based on potential health hazards involved shall be as established by the Petoskey Water Superintendent and as approved by the Michigan Department of Public Health.” [Petoskey, Mich., Code of Ordinances, pt. II, Ch. 22, art. II, div. 2, §§ 22-28, <http://library.municode.com/index.aspx?clientId=14735>; See DEQ Source Water Protection Areas, §§ 03, 04, 05, 06, 07, 08, 09, 10 (1996)]



Petoskey takes part in the Wellhead Protection program, and the City has developed a wellhead protection plan. [See Harbor Springs, Mich., Wellhead Protection Program Plan, Action Plan Summary (2004), <http://www.cityofharborsprings.com/planning-and-zoning-26/>]

### Groundwater and Wellhead Protection: RECOMMENDATIONS

**SUGGESTED ACTION:** If not already in place, protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in regular coordination with Local Emergency Planning Committee efforts.

**Other**

POSSIBLE SCORE: 48

TOTAL SCORE: 26, ADEQUATE

The City participates in the National Flood Insurance Program [See Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260072#, <http://www.fema.gov/cis/MI.pdf>]. The checklist evaluation score for this section reflects this participation. We have no further recommendations.

**Conclusion**

We applaud the excellent focus on water protection in the City of Petoskey. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.118





*Little Traverse Township Park*

## SECTION III: Analysis

### Chapter 4 Little Traverse Township

#### Introduction

“Little Traverse Township lies on the north side of Little Traverse Bay, between the cities of Petoskey and Harbor Springs. Even though Little Traverse Township is small in land area (18 square miles, or half the size of a standard 36 square mile geographic township), its location makes it the heart of Emmet County. The Township includes historic resorts covering most of its Little Traverse Bay waterfront, the community of Conway which is situated along US-31, the former railroad, and Crooked Lake. Many of the golf/ski resorts in the County are located either in, partially in, or immediately adjacent to Little Traverse Township...” [Little Traverse Township, Mich., Master Plan, Ch. 1, at 1-1 (2012), <http://www.harborinc.org/lttpw.asp>]

That Introduction to the Township Master Plan says it all, and what a beautiful heart it is.

Little Traverse Township is an active and engaged member of the Little Traverse Bay Watershed Protection Plan Advisory Committee. The Township also participated in watershed planning for other watersheds in their jurisdiction.

This chapter summarizes results of the Local Ordinance Gaps Analysis, makes recommendations, and includes suggested actions. It also references Watershed Plan implementation steps, where appropriate. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 27, STRONG

As noted earlier, Little Traverse Township has a Master Plan, and it was updated in 2012. Chapter four states that “Little Traverse Township is split, almost down the middle, between the Lake Michigan/Lake Huron Watershed Divide. Therefore in the west half of the Township water runs to Lake Michigan and in the east half of the Township water runs to Lake Huron via the Cheboygan River Watershed through various courses including sub-watersheds of Round Lake, Crooked Lake, and the Maple River.” [Little Traverse Township, Mich., Master Plan, Ch. 3, at 3-7 (2012), <http://www.harborinc.org/lttpw.asp>]

The Master Plan includes an inventory of lakes, rivers, groundwater recharge areas, and wetlands. It also includes goals for community acquisition or conservation of Open Space to protect surface water, ground water, and wetlands. “Encourage the inclusion of parks and open spaces with non-motorized linkages through new and

existing developments for recreation and establish community interconnectedness.” [Little Traverse Township, Mich., Master Plan, Ch. 3 Fig 3-3 at 3-8 (2012); Ch. 6, goal (2), policy (7), at 6-9 (2012), <http://www.harborinc.org/lttpw.asp>]

Little Traverse Township identifies stormwater management as an important community concern. Chapter four states that “[t]he Northeast Michigan Council of Governments and the Tip of the Mitt Watershed Council worked together to develop the Crooked-Pickerel Lakes Watershed Non-Point Source Pollution Management Plan. This plan found that the projected sources of sediment into the watershed (in order from most detrimental to least) include changing land use, stormwater, agriculture, shoreline management, road/stream crossings, and then logging. It found that sources of nutrients into the watershed included shoreline management, changing land use, agriculture, stormwater, logging, and then road /stream crossings. This information shows that better land use practices can help the community preserve vital water resources.” [Little Traverse Township, Mich., Master Plan, Ch. 3, at 3-7 (2012), <http://www.harborinc.org/lttpw.asp>]

The Master Plan does not call for minimizing impervious surfaces in new construction and redevelopment projects to reduce stormwater runoff and improve infiltration.

One of the Township’s goals is to “Encourage a land use pattern that is oriented to and respects the natural features of the area. Promote the protection of sensitive features including shoreline, wildlife habitat, wildlife corridors, wetlands, water quality, steep slopes and wooded areas.” [Little Traverse Township, Mich., Master Plan, Ch. 6, goal (2), Policy (1), at 6-9 (2012), <http://www.harborinc.org/lttpw.asp>]

Chapter eight states that the “Land within [the Natural Resource Conservation class] is considered protected open space within the township. These lands are set aside for undeveloped uses to protect natural and scenic resources considered important for maintaining community character and affording residents the opportunity to enjoy these resources in the future. These lands include the Mackinaw State Forest, Little Traverse Nature Conservancy, and environmentally sensitive lands best maintained in their native, natural state.” [Little Traverse Township, Mich., Master Plan, Ch. 7 at 7-2 (2012), <http://www.harborinc.org/lttpw.asp>]

### **Master Plan Components: RECOMMENDATIONS**

The Little Traverse Township Master Plan is very strong and we applaud their effort.

**SUGGESTED ACTION:** When the Township Master Plan is updated again, consider calling for minimizing impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration.

### **Basic Zoning Components**

POSSIBLE SCORE: 54

TOTAL SCORE: 50, STRONG

Little Traverse Township has a unique working relationship with Emmet County: “Emmet County acts as Assistant Zoning Administrators to Little Traverse Township. Site Plan Review, Special Use Permits, and Zoning Variances are reviewed through the Township Planning Commission and Zoning Board of Appeals. Residential permit applications are reviewed by the Emmet County Office of Planning, Zoning and Construction Resources. After plans have been approved, Zoning Permits are issued through Emmet County Zoning Office.” (Emmet County website, County Zoning & Jurisdiction, <http://www.emmetcounty.org/county-zoning--jurisdiction-104/>, accessed 9-12-12)

This means all approved permits are issued by the County for the Township, and simple Zoning permit applications are also handled by the County, directly. However, if the County has any substantive questions, or, if the application needs a variance, it will be referred to the Township for review and approval. Additionally, the Township directly handles more complicated proposals needing site plan or special use reviews.

The Zoning Ordinance includes a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews. Article XV says that “[f]ees for inspection and the issuance of permits or copies thereof required or issued under the provisions of this Ordinance may be collected by the Zoning Administrator in advance of Issuance...” [Little Traverse Township, Mich., Zoning, art. XV, § 1504, at 84 (2012), <http://www.harborinc.org/lttpw.asp>]

Further, “the provisions of this Ordinance shall be administered by the Zoning Administrator or by such deputies of his department as the Zoning Administrator may delegate to enforce the provisions of this Ordinance.” [Little Traverse Township, Mich., Zoning, art. XV, § 1500, at 82 (2012), <http://www.harborinc.org/lttpw.asp>]

Importantly, the Township specifies and emphasizes the need for an applicant to coordinate permit requirements for PUD projects: “Following final approval of a PUD application and submittal, to the zoning administrator, of all recorded documents required in Section 1015B above, a permit may be obtained from the County. The issuance of this permit, however, shall not relieve the applicant from complying with applicable local, county, state, and federal permit requirements. The failure of the applicant to obtain any required local, county, state, or federal permit shall render the PUD permit issued under this subsection void.” [Little Traverse Township, Mich., Zoning, art. X-B, § 1016B at 43 (2012), <http://www.harborinc.org/lttpw.asp>]

The Site Plan Review process requires coordination with County regulations for Soil Erosion and Sedimentation Control. Article XV states, “Any site grading shall be accompanied by plans and specifications prepared by or approved and signed by a professional engineer or by an architect and no site plan or plat shall be approved unless it includes soil erosion sediment control measures in accordance with the technical standards of the Emmet County Soil Conservation District. These protecting measures shall apply to all developments on sites of three acres or more, and shall include preventative soil erosion devices or measures, both during and after any site work related to the development.” [Little Traverse Township, Mich., Zoning, art. XV, § 1508(3), (d), at 86 (2012), <http://www.harborinc.org/lttpw.asp>]

Additionally, the Ordinance makes flexible site design criteria available to encourage developers to include Open Space or cluster design provisions. PUD Open Space includes: “Under the provisions of this Section for each square foot of land gained within a subdivision through the reduction of lot size below the minimum requirements as outlined in the ‘SCHEDULE OF REGULATIONS,’ at least equal amounts of land shall be dedicated to the common use of the lot owners of the subdivision.” [Little Traverse Township, Mich., Zoning, art. XII(c), at 50 (2012), <http://www.harborinc.org/lttpw.asp>]

The update in 2012 resulted in this additional provision: Art X-B Planned Unit Development Overlay District - “It is the intent of this conditional use overlay district to encourage site design in a manner which seeks to integrate new structures and uses with natural site characteristics to minimize impacts on the site and adjoining properties while enhancing total project design with planned open space.” [Little Traverse Township, Mich., Zoning, art X-B § 1001B at 32 (2012)]

Further, “The Planning Commission may require that the site be designed to preserve and protect, to the greatest extent feasible, existing natural or unique features such as, but not limited to, mature trees, significant vegetation, waterways, steep slopes or scenic views. The Planning Commission may also require additional plantings to be added and maintained in order to minimize erosion potential or to increase aesthetic appearance of the development. Plantings that do not survive must be replaced no later than the next nearest planting season.” Little Traverse Township, Mich., Zoning, art X-B § 1005B at 36 (2012) <http://www.harborinc.org/lttpw.asp>. The zoning process does not require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

Site Plan Review also states that “[b]uffer techniques, fences, walls, greenbelts, and landscaping may be required by the Planning Commission in pursuance of the objectives of this Section and/or as a condition of the establishment of the proposed use.” [Little Traverse Township, Mich., Zoning, art. XV, § 1508(4)(c), at 86 (2012), <http://www.harborinc.org/lttpw.asp>]

Finally, the Township may require a statement on the “[i]mpact of the proposed use on the quality and quantity of water resources, domestic water supplies; and capacity to absorb the anticipate sewage disposal demand.” [Little Traverse Township, Mich., Zoning, art. XIII, § 1304 (3) at 57(2012), <http://www.harborinc.org/lttpw.asp>]

### Basic Zoning Components: RECOMMENDATIONS

Little Traverse Township has very strong water protection efforts included in its Zoning Ordinance, and we applaud these measures.

**SUGGESTED ACTION:** Consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site, where appropriate.

#### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 23, ADEQUATE

The Township uses an Overlay District, to protect critical dunes on its Great Lake shoreline. Article XVII notes, “Lands that are within 250 feet of a critical dune area, that are determined by the Township Planning Commission to be essential to the hydrology, ecology, topography, or integrity of a critical dune area shall also receive all the protection afforded to critical dunes in the Overlay District, even if not so depicted on the Zoning Map.” [Little Traverse Township, Mich., Zoning, art., § 1702, (2012), <http://www.harborinc.org/lttpw.asp>]

Also, shoreline development is addressed in Site Plan Review, with these requirements: “Impact Specifications to Accompany all Required Site Plans ... A technical program including statements relative to the impact of the proposed development on the natural resources of Little Traverse Township and the waters of Lake Michigan. Particular references must be made relative to site erosion, shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface), and the scale of development in terms of the Township environment as a place of residence.” [Little Traverse Township, Mich., Zoning, art. XV, § 1508(3), (b), at 86 (2012), <http://www.harborinc.org/lttpw.asp>]

The Little Traverse Bay shoreline protection steps are good, and they reflect the needs of sensitive areas co-existing with stretches of shoreline that is already developed. There is minimal evidence in the Ordinance of other shoreline protection steps for inland lakes and streams, such as specified waterfront setbacks or riparian buffer zones. As noted earlier, the Township states in Site Plan Review that “[b]uffer techniques, fences, walls, greenbelts, and landscaping may be required by the Planning Commission in pursuance of the objectives of this Section and/or as a condition of the establishment of the proposed use.” [Little Traverse Township, Mich., Zoning, art. XV, § 1508(4)(c), at 86 (2012), <http://www.harborinc.org/lttpw.asp>]

Shoreline greenbelts could be required under this provision, but they should be specified for new or re-development proposals, moving forward. Our scores reflect the already developed nature of the Township’s inland lake shorelines; the Township was not penalized for this. However, we think reconsideration should be given to questions that might arise, with future development pressure. Additionally, we see no evidence of marinas in the Township and no marina regulation, either.

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider education efforts that would encourage permanent retention of native vegetation in areas immediately adjacent to water bodies throughout Little Traverse Township. When appropriate for the community, consider requiring setbacks and vegetative buffer strips along the water, where appropriate.

**SUGGESTED ACTION:** If appropriate and necessary in the future, consider regulations for marinas to ensure water protection. Include restricting boat repair and maintenance activities to clearly marked areas, to prevent debris from falling into the water and limit the spread of invasive species. Require fueling stations to have spill containment equipment that is stored in a clearly marked location. Require a spill contingency plan, posting emergency phone numbers in a prominent location. Require signs of leakage or spillage to be investigated immediately, and undertake cleanup in accordance with applicable Best Management Practices (BMPs).

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 20, ADEQUATE

As noted earlier in this volume, the Little Traverse Bay Watershed Protection Plan includes a priority objective to reduce the pollutant load from stormwater in urban areas. Reducing impervious surfaces supports this objective. Among other low cost approaches to reduce impervious surfaces, a community can increase the retention or restoration of native vegetation in riparian areas and in Open Spaces.

Minimizing impervious surfaces can be also addressed in other creative and cost-effective ways, ranging from using Low Impact Design (LID) techniques in development plans, to incentives for limiting impervious surface lot coverage in zoning ordinances (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations).

The Township also added this section in 2012: Art X-B Sec 1004B 5. Parking - “In reducing the required parking, the Planning Commission may require the reservation of a portion of the PUD site for future parking. Parking areas shall be so designed to maximize and encourage the use of landscape breaks and/or buffers to minimize the unbroken expanse of surfaced areas.” [Little Traverse Township, Mich., Zoning, art. X-B, § 1004B (5) at 35 (2012), <http://www.harborinc.org/ltrwp.asp>]

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing impervious surface lot coverage limits in all zoning districts (especially residential districts) to limit impervious surfaces to 15% of the total lot. Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.



*Crooked Lake*

## Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 17 ADEQUATE

The Township requires the following, regarding stormwater management: “Storage uses, buildings and parking lots shall provide a minimum setback of 25 feet from all side and rear property lines to afford transition space for storm water... The Zoning Board may require more setback if they deem necessary, to provide for storm water runoff protection of adjacent properties.” [Little Traverse Township, Mich., Zoning, art. IX, (6)(f), § 901(3)(c), at 28 (2012), <http://www.harborinc.org/lttpw.asp>]

Also: “The final PUD plan shall meet the requirements of Section 1508 Site Plan Review, include all the elements of the preliminary PUD plan, all the changes and/or conditions stipulated by the Planning Commission, plus all of the following: ... (v) All arrangements for design, construction, maintenance and operation of utility, septic or waste treatment systems, and soil erosion and storm water control, shall have been finalized.” [Little Traverse Township, Mich., Zoning, art. X-B, § 1010B (2) (v) at 40 (2012), <http://www.harborinc.org/lttpw.asp>]

### Stormwater Management: RECOMMENDATIONS

The Little Traverse Bay Watershed Management Plan includes the following task: “Provide programs and resources to Emmet and Charlevoix Counties' contractors about soil erosion and stormwater management techniques.” (Little Traverse Bay Watershed Management Plan, Appendix H, Recommendations, A. Stormwater Recommendations, 6) Short of passing a township stormwater ordinance, the following suggested actions strengthen existing protections and also implement the Watershed Plan task by educating applicants about Best Management Practices (BMPs).

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs to the site plan review section.

**SUGGESTED ACTION:** Require that all stormwater management systems be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters lakes or streams in the Township.

**SUGGESTED ACTION:** The Township should prohibit stormwater from exiting the property after exposure to any harmful sources.

## Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

The Little Traverse Township Zoning Ordinance, Article XV, states that “[a]ny site grading shall be accompanied by plans and specifications prepared by or approved and signed by a professional engineer or by an architect and no site plan or plat shall be approved unless it includes soil erosion sediment control measures in accordance with the technical standards of the Emmet County Soil Conservation District. These protecting measures shall apply to all developments on sites of three acres or more, and shall include preventative soil erosion devices or measures, both during and after any site work related to the development.” Little Traverse Township, Mich., Zoning, art. XV, § 1508(3)(d), at 86 (2012), <http://www.harborinc.org/lttpw.asp>.

Also, as noted earlier, the Little Traverse Township Zoning Ordinance proposal review process requires that “[e]xcept for single family dwellings intended for seasonal or permanent occupancy, unless otherwise stated

below, a complete and detailed site plan shall be submitted to the Little Traverse Township Planning Commission... Impact Specifications to Accompany all Required Site Plans... A technical program including statements relative to the impact of the proposed development on the natural resources of Little Traverse Township and the waters of Lake Michigan. Particular references must be made relative to site erosion, shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface) ..." [Little Traverse Township, Mich., Zoning, art. XV, § 1508(1), (3)(b), at 86 (2012), <http://www.harborinc.org/ltrwp.asp>]

The coordination between the Township and the County makes this element very strong; we have no recommendations.

### Sewer/Septic

POSSIBLE SCORE: 24

TOTAL SCORE: 13, ADEQUATE

The updated Master Plan notes, "In 1969 the City of Harbor Springs and Little Traverse Township formed the Harbor Springs Area Sewage Disposal Authority (HSASDA) to acquire, own, improve, enlarge, extend and operate a sewage disposal system to serve those municipalities..."

"...The system includes part of Little Traverse, Littlefield, the Village of Alanson, and by contract Bear Creek, and Springvale Townships as well. The east system added a 16 acre holding pond which holds about 55 million gallons.

"In 2003 the wastewater treatment plant was replaced with a BioLac activated sludge wastewater treatment plant. This eliminated the requirement for the larger holding ponds, the spray irrigation and lagoons, thus reducing the land area requirement for treatment to 28 acres, and increased the treatment capacity considerably. Currently the plant operates at about 38% of it's design capacity.

"In 2011 Bear Creek was added to the Authority. Construction is taking place to redirect sewage from the area North of Bay View (previously treated at the Petoskey treatment plant) to the HSASDA treatment plant. Several pump station upgrades are being made and a force main is being installed along the DNR rail trail from Bay View to North Conway Road Pump station. This project will increase the efficiency of the HSASDA treatment plant, free up Petoskey capacity, and help reduce HSASDA operating costs by adding customers." [Little Traverse Township, Mich., Master Plan, Ch. 5, at 5-3 (2012), <http://www.harborinc.org/ltrwp.asp>]

Township citizens who are not serviced by sewer have on-site septic systems, which are regulated by the Emmet County Sanitary Code.

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a "point of transfer" septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.



## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 1, WEAK

Little Traverse Township does not provide much oversight for wetland resources. The Township Subdivision Open Space Plan includes: “The land area necessary to meet the minimum requirements of this section shall be of a useable shape and dimension and further shall not include bodies of water, swamps or lands that normally would not be developable. The entire area may, however, be located in a flood plain.” [Little Traverse Township, Mich., Zoning, art. XII, (d), at 50 (2012), <http://www.harborinc.org/lttpw.asp>]

The Zoning Ordinance update added this: “The preliminary PUD plan shall contain the following: 7(h) All major environmental features, such as major stands of trees and other vegetation, wetlands (both regulated and unregulated), flood plains, drainage ways, outcroppings, slopes of ten (10%) or more gradient, and/or other surface features.” [Little Traverse Township, Mich., Zoning, art. X-B, (7)(h), at 38 (2012), <http://www.harborinc.org/lttpw.asp>]

Wetlands are some of our most valuable water resources. They provide excellent wildlife habitat, help control flooding, and protect water quality. Wetlands are critical to the health of the Township’s water, and they are difficult to restore, once they are damaged or filled.

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Make it clear that permits are required for any state or federally regulated wetlands in the Township, before any permit on a wetland parcel is issued, regardless of the zoning district. An applicant should be required to demonstrate that disturbing the wetland does not require a state or federal permit.

**SUGGESTED ACTION:** Consider establishing a wetland setback of at least 25’, similar to shoreline setbacks. Coupled with the provision that state permits must be issued in regulated wetlands before a Township Zoning permit is issued, setbacks will add protection for these valuable resources.

**SUGGESTED ACTION:** Given the crucial role that wetlands play in overall water health, broadly educate citizens about the benefits of wetland protections.



## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 13, STRONG

Article XV notes that Site Plans must include: "... a technical program including statements relative to the impact of the proposed development on the natural resources of Little Traverse Township and the waters of Lake Michigan. Particular references must be made relative to site erosion, shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface), and the scale of development in terms of the Township environment as a place of residence." [Little Traverse Township, Mich., Zoning, art. XV, § 1508(3)(b), at 86 (2012), <http://www.harborinc.org/lttwp.asp>].

Additionally, article X states that "[m]etal plating operations, provided that no acids, chromates or similar chemicals are discharged into systems in any manner that would endanger sewage treatment plant operations or constitute a hazard to the waters of Little Traverse Township (ground waters, lakes, streams and rivers)." Little Traverse Township, Mich., Zoning, art. X-A, § 1012A(1)(f), at 32 (2012), <http://www.harborinc.org/lttwp.asp>.

We have no recommendations for this element.

## Other

POSSIBLE SCORE: 48

TOTAL SCORE: 26, ADEQUATE

The Township participates in the National Flood Insurance Program. See Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260748, <http://www.fema.gov/cis/MI.pdf>. The checklist evaluation score for this section reflects this participation.

The Township also has critical dunes, but has not assumed administration of Part 353, with DEQ approval, to protect them. See Little Traverse Township, Mich., Zoning, art. XVII, at 91 (2012), [http://www.harborinc.org/downloads/ltt\\_zoning\\_ordinance.pdf](http://www.harborinc.org/downloads/ltt_zoning_ordinance.pdf)

We have no recommendations for this element.

## Conclusion

We applaud the numerous strong water protection measures that exist in Little Traverse Township. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



**Boyne Highlands**

## SECTION III: Analysis

### Chapter 5 Pleasantview Township

#### Introduction

Pleasantview Township is located in the central portion of Emmet County, just north of the Petoskey-Harbor Springs urban corridor. The Township's notable surface water resource is the beautiful Maple River and its tributaries. Pleasantview Township "provides a major advantage in terms of the complexity of land uses needed in the community. Visitors to Boyne Highlands – Nub's Nob ski areas have excellent access to urban services without traversing the lower density areas of the township. There is little or no demand for higher density and commercial uses in the remainder of the township." [Pleasantview Township, Mich., Master Plan, ch.1, Introduction, at 1-1 (2009), <http://www.harborinc.org/locgovt3936030.asp>]

This chapter summarizes results of the Local Ordinance Gaps Analysis for Pleasantview Township and includes suggested actions. In accordance with the Literature Review, each Critical Element below is scored and ranked for Pleasantview Township. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. Where appropriate, the chapter also relates implementation steps from the Little Traverse Bay Watershed Protection Plan, since the southwest corner of the Township is located in that watershed.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 18, ADEQUATE

In 2009 Pleasantview Township adopted a draft Master Plan. The website copy shows it as a draft, but Township meeting minutes indicate that it was formally adopted July 27, 2009 (<http://www.harborinc.org/locgovt3741853.asp>).

The Plan does not identify the watersheds in which the community is located (Little Traverse Bay, Maple River, and the Cheboygan River), but chapter three includes an inventory of the natural resources in the Township. Both chapter three and six of the Pleasantview Township Master Plan include goals to protect water resources.

Chapter three states that, "Both groundwater and surface water are important resources within Pleasantview Township. Because there is no central water distribution system, residents must rely upon individual wells for drinking water. The vulnerability of drinking water aquifers to surface contamination is high in the Township due to the highly permeable soils. Surface waters in lakes and creeks of the Township are an important resource for scenic, recreational and groundwater recharge amenities. It is therefore important that water resources be protected and managed in a manner which would ensure their quality." [Pleasantview Township, Mich., Master Plan, ch.3, Water Resources, at 3-8 (2009), <http://www.harborinc.org/locgovt3936030.asp>]

Further, in chapter six, the Township lists as one of its goals the protection and preservation of “groundwater, surface water, woodlands, wetlands, air quality, open space wildlife habitat and steep slopes.” And, the Township’s land use goal is: “Maintain a sound balance between human activities and the environment to retain the Township’s scenic and rural character.” Finally, chapter six identifies a natural resource goal to “[e]ncourage a land use pattern that is oriented to the natural features and water resources of the area.” [Pleasantview Township, Mich., Master Plan, ch.6, goals and objective, Natural Resource Goal, 6-2, 6-3 (2009), <http://www.harborinc.org/locgovt3936030.asp>]

Stormwater management is also identified as an important community policy. “The Township’s objectives include supporting groundwater protection and stormwater management regulations while encouraging the continued natural use of wetlands as groundwater recharge, stormwater filtering and stormwater holding areas.” [Pleasantview Township, Mich., Master Plan, ch.6, goals and objective, Natural Resource Goal, 6-3 (2009), <http://www.harborinc.org/locgovt3936030.asp>] However, the Master Plan does not call for minimizing impervious surfaces in new construction and redevelopment projects, to prevent or reduce stormwater runoff. It also does not acknowledge the impacts of poorly maintained road stream crossings creation of sediment pollution.

### **Master Plan Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** In the next Plan update, identify the watersheds in which the Township is located.

**SUGGESTED ACTION:** Include a goal to minimize impervious surfaces in new construction and redevelopment projects, to prevent or reduce stormwater runoff and protect good infiltration.

**SUGGESTED ACTION:** The Master Plan should also acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.

### **Basic Zoning Components**

POSSIBLE SCORE: 54

TOTAL SCORE: 42, STRONG

Pleasantview Township’s Zoning Ordinance states that “It is the declared policy of Pleasantview Township to implement a Zoning Ordinance that will... Prescribe a plan for land use designed to promote and protect the public health, safety, resources, and general welfare...” [Pleasantview Township, Mich., Zoning, art. I, § 1.2, <http://www.harborinc.org/pvtwp.asp>]

A fee system is in place “[t]o assist in defraying the costs of investigating, reviewing, and administering zoning applications, appeals, rezoning requests from individual property owners, and other types of decisions which result in extra costs to the Township, the Township Board may from time to time adopt by resolution a fee schedule establishing basic zoning fees.” [Pleasantview Township, Mich., Zoning, art. IV, § 4.4(1), <http://www.harborinc.org/pvtwp.asp>]

Additionally, “the provisions of this Ordinance shall be administered by the Zoning Administrator or by such deputy Zoning Administrators as the Township Board may from time to time appoint to enforce the provisions of this Ordinance. A violation of this Ordinance constitutes a municipal civil infraction.” (Pleasantview Township, Mich., Zoning, art. IV, §§ 4.1, 4.5.1, 4.5.2, <http://www.harborinc.org/pvtwp.asp>)

Importantly, the Pleasantview Township Zoning Ordinance proposal review process is coordinated with the receipt of other applicable County, State, and Federal permits. Article IV states, “No zoning permit shall be issued unless Health Department, soil erosion, wetlands, or any other required Local, State, or Federal permits have been issued.” (Pleasantview Township, Mich., Zoning, art. IV, § 4.6, <http://www.harborinc.org/pvtwp.asp>)

The Ordinance also requires Site Plan Review. Article XIV: “[t]here shall be two types of site plans required by this Ordinance as follows: Simple Site Plan... [and] Detailed Site Plan.” (Pleasantview Township, Mich., Zoning, art. XIV, § 14.15, <http://www.harborinc.org/pvtwp.asp>) Article VI states that buildings and uses in any district shall be subject to Site Plan Review (Pleasantview Township, Mich., Zoning, art. VI, § 6.3, <http://www.harborinc.org/pvtwp.asp>).

The Pleasantview Township Zoning Ordinance includes Open Space provisions, found in articles VIII, IX, XIV, and XVI. It does not restrict allowable uses in the Open Space to low impact uses, nor require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered species on site. However, there are efforts to manage Open Space in a natural condition.

Article XVI states that “It is the intent of these Special Uses to provide a more desirable living environment by retaining the natural character of the Township through the preservation of open spaces, woodlands, streams, ponds, water frontage, hills, and similar natural assets.” [Pleasantview Township, Mich., Zoning, art. XVI, § 16.0, <http://www.harborinc.org/pvtwp.asp>]

Further, article XV states that “[i]n evaluating a proposed special use permit, the Township Planning Commission shall consider the following factors upon which to base their decision and/or approval: ...Preservation of elements of the natural environment such as trees, natural land forms, shore areas and drainage patterns.” [Pleasantview Township, Mich., Zoning, art. XV, § 15.3(3)(F), <http://www.harborinc.org/pvtwp.asp>] No pre-application or pre-construction meeting is required.

Planned Unit Development (PUD) provisions are available in Pleasantview Township. Article XVI defines PUDs as: “The development of a ten (10) acre or larger parcel of land under the ownership or control of the developer designed to meet overall density requirements of the zoning district in which it is located. Densities within specified areas of the development may be greater than required in the zoning district for which it is planned as long as the average overall density does not exceed the maximum allowed in the district. A pre-approved detailed site plan is required.” (Pleasantview Township, Mich., Zoning, art. XIV, § 14.19, <http://www.harborinc.org/pvtwp.asp>)

The Township offers flexible site design criteria to encourage developers to include Open Space or cluster design provisions. Article XVI states that “[f]or all area gained through lot size reduction and grouping of lots, an area adequate to meet average density requirements in (Section 16.2-3) above, shall be set aside for the exclusive common use of lot owners or residents within the development or maintained in an open space recreational use allowed in the zoning district in which the Planned Development is located.” [Pleasantview Township, Mich., Zoning, art. XVI, § 16.2(4), <http://www.harborinc.org/pvtwp.asp>]

Open Space is required to be protected through a conservation easement or other similar mechanism. Article XVI states, “This area [maintained in an open space recreational use] shall be under legal procedure, which shall grant a covenant or deeded interest therein so that it shall be assured of remaining undeveloped or in perpetual uses as open space recreational use.” [Pleasantview Township, Mich., Zoning, art. XVI, § 16.2(4), <http://www.harborinc.org/pvtwp.asp>]



Photo courtesy of Nubs Nob

Finally, the Zoning Ordinance includes sensitive area designations. Article X states that “The FRP District is intended to provide a classification for large tracts of public owned land currently used for forest and game management and low density noncommercial recreation activities.” (Pleasantview Township, Mich., Zoning, art. X, § 10.0, <http://www.harborinc.org/pvtwp.asp>) “FRP District” refers to the Forest Recreation Preserve Zoning District for the Township.

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider encouraging pre-application or pre-construction meetings for new development or redevelopment proposals.

**SUGGESTED ACTION:** Consider restricting allowable uses in the Open Space to low impact uses, and require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site, as part of the Township’s Site Plan Review process.

#### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 34, ADEQUATE

There is very little shoreline in Pleasantview Township. However, what does exist is along the important Maple River and its tributaries, which benefit from this provision in the Zoning Ordinance: “No building or structure, temporary or permanent, including porches, breezeways and extensions, shall be placed or erected within one hundred (100) feet of the ordinary high water mark of any stream, lake or water course.” (Pleasantview Township, Mich., Zoning, art. XIV, § 14.8, <http://www.harborinc.org/pvtwp.asp>) The Zoning Ordinance does not require riparian buffers, which would create additional water quality protection and habitat, and further mitigate impacts from existing impervious surfaces – roads, rooftops, etc.

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** The Township should consider adopting an Ordinance that requires riparian buffers, a minimum of 30ft deep, on inland shorelines. Specify the use of native plant species in the riparian buffer zone, and prohibit the use of invasive and exotic plants.

#### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 3, WEAK

As mentioned earlier in this volume, the Little Traverse Bay Watershed Protection Plan includes a priority objective to reduce the pollutant load from stormwater in urban areas. Even though Pleasantview is quite rural today, it is good to think about potential future pressures. It also borders the urban corridor. Reducing impervious surfaces supports this Watershed Plan objective.

Among other low cost approaches to reduce impervious surfaces, a community can increase the retention or restoration of native vegetation in riparian areas and in Open Spaces. Minimizing impervious surfaces can be also addressed in other creative and cost-effective ways, ranging from using Low Impact Design (LID) techniques in development plans, to incentives for limiting impervious surface lot coverage in zoning ordinances (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, A. Stormwater Recommendations).

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing impervious surface lot coverage limits in all zoning districts (especially residential districts) to limit impervious surfaces to 15% of the total lot. Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.

**SUGGESTED ACTION:** Require the retention or restoration of native vegetation in riparian setback areas and in Open Spaces.

### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 6, WEAK

In Article XV of the Zoning Ordinance, Pleasantview Township requires that “In reviewing the application and site plan and approving, disapproving or modifying the same, the Planning Commission shall be governed by the following standards: ... That a plan for erosion control and storm water discharge has been approved by appropriate public officials.” [Pleasantview Township, Mich., Zoning, art. XV, § 15.3, (2)(H), <http://www.harborinc.org/pvtwp.asp>]

Soil Erosion and Sedimentation Control is covered by the County for Pleasantview Township, but stormwater control is not. Therefore, stormwater management areas and facilities, whether on-site or off-site, are not required by the Township Ordinance to be designed, constructed, and maintained to prevent flooding and protect surface and groundwater quality. It also does not require that all stormwater management systems be regularly evaluated and maintained, nor prohibit stormwater from exiting the property after any potential exposure to harmful sources.

### Stormwater Management: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs to the site plan review section.

**SUGGESTED ACTION:** Address stormwater management design and construction in the Township. Create stormwater runoff control standards, such as limiting the velocity of discharge.

**SUGGESTED ACTION:** Require that all stormwater management systems be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters waters of the Township.

**SUGGESTED ACTION:** The Township should prohibit stormwater from exiting the property after exposure to any harmful sources.

### Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

All properties that are located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff.

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.

We have no recommendations for this element.

## Sewer/Septic

POSSIBLE SCORE: 24

TOTAL SCORE: 16, ADEQUATE

It is not appropriate for this community to have a delineated Sewer Service Area; however, “[p]ortions of Pleasantview Township are served by community water systems. Currently there are nine such systems serving the following developments or areas: Boyne Aire, Boyne Highlands, Chestnut Valley, Five Seasons, Hidden Hamlet, Hamlet West, Hamlet Village Condominiums, Trout Creek and Evergreen Lane. Boyne Highlands, Five Seasons and Trout Creek also each operate separate community septic systems. However, the Township residents in the more rural portions of the Township have on-site private wells for domestic drinking water and individual septic systems. Septic systems and wells are regulated by the local Health Department.” [Pleasantview Township, Mich., Master Plan (2009), ch. 5, Water and Sewage Disposal Systems, at 5-1, <http://www.harborinc.org/pvtwp.asp>]

Also: Article XVI requires that “Sewerage and Water Facilities, in all Districts both public and private shall meet all requirements of the County Sanitary Code and any applicable State or Federal requirements.” [Pleasantview Township, Mich., Zoning, art. XVI, § 14.6(11), <http://www.harborinc.org/pvtwp.asp>]

There is a real need, generally, for broad education about septic system maintenance and oversight to ensure failing systems are not transferred to new owners. To ensure strong coordination, a point of transfer septic ordinance is something to consider.

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with Emmet County, other municipalities, and the Health Department.



## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 4, WEAK

Pleasantview Township takes an important step toward protecting wetlands. Article VI states that “[n]o zoning permit shall be issued unless Health Department, soil erosion, wetlands, or any other required Local, State, or Federal permits have been issued.” (Pleasantview Township, Mich., Zoning, art. VI, § 4.6, [http://www.harborinc.org/downloads/ptzoning\\_ordinance1.pdf](http://www.harborinc.org/downloads/ptzoning_ordinance1.pdf)) This goes a long way to ensure that regulated wetlands are not disturbed, without proper evaluation of the proposal to do so, and oversight.

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing a wetland setback of at least 25’, similar to shoreline setbacks. Coupled with the provision that state permits must be issued in regulated wetlands before a Township permit is issued, setbacks will add important protections for these valuable resources.

**SUGGESTED ACTION:** Given the crucial role that wetlands play in overall water health, broadly educate citizens about the benefits of wetland protections.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 11, ADEQUATE

Pleasantview Townships participates in the Michigan State Wellhead Protection Program. See DEQ Wellhead Protection Program, [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3675\\_3695---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3675_3695---,00.html), spreadsheet §§ 05, 19, 20, 28, 29, 30, 31, 32, 33, 36.

Additionally, Site Plan Review is required to ensure there are no unnecessary threats posed to groundwater by new or redevelopment proposals. Article XIV states that “[a] detailed site plan shall be required ... and shall include, all of the items included in (Section 14.15-1) plus: Measures to protect surface and ground water.” [Pleasantview Township, Mich., Zoning, art. XIV, § 14.15, (2)(B)(2), <http://www.harborinc.org/pvtwp.asp>]

We have no recommendations for this element.

## Other

POSSIBLE SCORE: 48

TOTAL SCORE: 32, ADEQUATE

The Other category is not applicable to Pleasantview Township. The checklist evaluation score for this section reflects this. We have no recommendations for this element.

## Conclusion

We applaud the good water protection measures that exist in Pleasantview Township. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*East Park, Resort Township*

## SECTION III: Analysis

### Chapter 6 Resort Township

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#### Introduction

Resort Township has some of the most breathtaking views in Emmet County. According to the Township Master Plan, “[i]t’s irregular size and shape is due to the shorelines of Lake Michigan and Walloon Lake... Resort Township is bounded on the north by the Little Traverse Bay, on the east by Bear Creek Township and the north arm of Walloon Lake, and on the south and west by Walloon Lake and Charlevoix County. The City of Petoskey borders the northeast corner of Resort Township. The City of Charlevoix and Traverse City are approximately 10 and 62 miles southwest of the Township, respectively.” [Resort Twp., Mich., Master Plan, Ch. 3, at 3-1 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

This chapter summarizes results of the Local Ordinance Gaps Analysis project and includes suggested actions. In accordance with the Literature Review, each Critical Element is scored and ranked for the Township. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. Where appropriate, it also includes relevant implementation steps from the Little Traverse Bay Watershed Protection Plan, because Resort Township is a partner in that plan.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 21, STRONG

Resort Township has a Master Plan, last updated in 2010. Chapter three states, “One of the most valuable natural resources of Resort Township is water. The Township is located within four main watersheds: the Lake Michigan watershed, the Walloon Lake watershed, the Lake Charlevoix watershed, and the Bear River Watershed (see Figure 3-8).” It also includes an inventory of natural resources. [Resort Twp., Mich., Master Plan, Ch. 3, at 3-1, 3-8 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

In chapter seven, the Master Plan highlights the Township’s natural resource goal to “Protect and preserve groundwater, surface water, woodlands, wetlands, open space, wildlife habitat and steep slopes.” [Resort Twp., Mich., Master Plan, Ch. 7, at 7-6 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

The Township has also identified “Natural Resource Action Steps,” which include:

- “Utilizing tools to control density, including cluster development, the implementation of other best management practices to limit impervious surfaces, protection of open space and the preservation of wildlife corridors;
- Encourag[ing] forests to be managed to provide wildlife habitat, erosion control, micro-climate control and scenic views;
- Encourag[ing] and participat[ing] in local community education efforts to raise awareness regarding natural resource protection issues;
- Protec[ing] water quality of Walloon Lake, Lake Michigan and area creeks through waterfront usage and development standards, protection of the greenbelt and restriction or prohibition of keyhole and second tier development;
- Restrict[ing] the use of fertilizer within the greenbelt.”

Further, the Township has identified “Open Space Protection Action Steps” that include:

- “Promot[ing] conservation through the use of the recently adopted Purchase of Development Rights ordinance;
- Develop[ing] a conservation strategy to provide permanent protection of open space, especially areas of agricultural importance or environmental sensitivity based on Open Space
- Taskforce survey findings and the 2010 Township survey findings;
- Pursu[ing] the preservation of agricultural lands, forestlands and open space;
- Encourag[ing] education and outreach activities regarding open space protection and preservation.”

[Resort Twp., Mich., Master Plan, Ch. 7, at 7-6 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

The Master Plan does not acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources. It also does not identify stormwater management as an important community policy. However, it does call for minimizing impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration: “Utilize tools to control density, including cluster development, the implementation of other best management practices to limit impervious surfaces.” Id.

As noted above, part of the Township’s Natural Resource Goal is to protect wildlife habitat. The Natural Resource Action Steps include “...protection of open spaces and the preservation of wildlife corridors; Encourage forests to be managed to provide wildlife habitat...; Encourage and participate in local community education efforts to raise awareness regarding natural resource protection issues.” Id.

Additionally, chapter eight of the Master Plan states that “[t]he Township encourages the establishment of conservation, parklands and open space, including the preservation of wetlands and riverine habitats for scenic, passive recreation uses and wildlife protection.” [Resort Twp., Mich., Master Plan, Ch. 8, at 8-2 and fig. 8-1 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

Finally, the Open Space Protection Action Steps include developing “...a conservation strategy to provide permanent protection of open space, especially areas of agricultural importance or environmental sensitivity based on Open Space Taskforce survey findings and the 2010 Township survey findings.” [Resort Twp., Mich., Master Plan, Ch. 7, at 7-6 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)].

## Master Plan Components: RECOMMENDATIONS

**SUGGESTED ACTION:** The Township should identify stormwater management as an important community goal in the Master Plan when it is next updated.

**SUGGESTED ACTION:** The Master Plan should also acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.

### Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 38, STRONG

Even though the Township Master Plan is on the Resort Township website, the Zoning Ordinance is not. This is an inconvenience for Township citizens, and difficult to understand because the Township website is sophisticated and maintained. The Zoning Ordinance should also be posted for easy access by citizens or anyone hoping to do business in the Township.

The Township Zoning Ordinance notes that its purpose is "to promote and preserve the health, safety, security, and general welfare... to encourage the use of lands and resources in accordance with their character and adaptability; to limit and discourage the improper use of lands..." Article VII states that "the WR Waterfront Resource Overlay Area... established to protect scenic... resources along rivers... lake shores and impounding waters... Because... environmental control [is a] major aspect of the Township's existing and future land use... it is deemed such protection shall be to the fullest extent..." [Resort Twp., Mich., Zoning Ordinance, Intent, 1; art. VII, Intent, 23 (2003-2008)]

Additionally, the intent of article XVII is "to protect surface water and related aquatic resources and floodplains from adverse construction or alteration... Protect the natural environment of streams and lakes for wildlife habitat purposes..." [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1808, Intent, at 110 (2003-2008)]

The Zoning Ordinance includes a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews. It also has methods in place for enforcement; article XX states that "the provisions of this Ordinance shall be administered by the Zoning Administrator or by such deputies of the Zoning Administrator's department as the Township Board may delegate to enforce the provisions of this Ordinance..." [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2009, 130 (2003-2008)]

The Zoning Ordinance proposal review process strives to be coordinated with the receipt of other applicable County, State, and/or Federal permits. Article XX requires that "a complete Site Plan shall be submitted to the Resort Township Planning Commission, for the approval of: Any use located on a property with sensitive or critical environmental areas as defined or as regulated by: The Shore land Protection and Management Act... The Inland Lakes and Streams Act... The Soil Erosion and Sedimentation Control Act... The Natural Rivers Act... The Goemaere-Anderson Wetland Protection Act... [and] [t]he Biological Diversity Conservation Act." [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(1)(d), at 124 (2003-2008)]

Importantly, article XIV urges the applicant "to schedule a Pre-Application Conference with the Zoning Administrator to review the basic requirements of the Zoning Ordinance..." [Resort Twp., Mich., Zoning Ordinance, art. XIV, § 1402(1), at 39 (2003-2008)]

Site Plan Review is required for some uses under Article XX, which includes "an inventory of special site features that may be present including, but not limited to regulated wetlands as defined by law, critical dunes, bluff lines, wooded areas, water courses, and natural or man made drains, as are known to the applicant or as may be suspected

based on reviews of soil maps, aerial photographs, U.S.G.S. Quadrangle maps, on-site inspections, and/or other competent sources.” Article XX also requires an impact statement: “...relative to the impact of the proposed development on soil erosion, shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface) noise and the scale of development in terms of the surrounding environment, and the cumulative and secondary impacts of such proposed development.” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(2)(h), 125; §§ 2005(1), (3)(c), at 126 (2003-2008)]

The Site Plan Review process requires that “[a]ll site plans... comply with the terms of the Soil Erosion and Sedimentation Control Act MCL 324.9101 et seq, and ‘as built’ plans or construction drawings shall be filed... immediately after construction is completed demonstrating compliance with this Act.” Further, article XV requires that “[t]he Site Plan contains an engineered plan for the control of erosion, sedimentation and storm water runoff.” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(2)(i), 125; and art. XV, § 1502(11), 57; (2003-2008)]

Open Space is also addressed throughout the Ordinance. Article IV requires that “[p]ublic buildings, churches, public schools, private schools, and their local supporting services, provided at a minimum: All sites for uses permitted... shall maintain a minimum open space area equal to sixty (60%) percent of the site area. Open spaces shall not include buildings, parking lots, pedestrian walks, and/or driveways, and other paved or blacktop surfaces.” [Resort Twp., Mich., Zoning Ordinance, art. IV, § 401(2)(a), at 16 (2003-2008)]

Further, “[a]ll multiple family unit developments must preserve a minimum 50% of the net acreage of the site as open space... Open space excludes structures, parking areas and other impervious surfaces.” [Resort Twp., Mich., Zoning Ordinance, art. XV, § 1500(c)(2)(a), at 52 (2003-2008)]

Article XIV of the Zoning Ordinance includes Planned Unit Development (PUD) provisions. PUDs partially require inclusion of a minimum Open Space threshold. Article XIV states, “[a]ll common open space areas... shall be documented on the plan and no use of these areas other than those identified on the plan shall be permitted without formal revision of the plan.” It goes on to say that “[t]he setback area shall be maintained as open space in lawns or be landscaped, or wooded areas, but shall exclude paved surfaces, parking areas, or buildings of any kind.” [Resort Twp., Mich., Zoning Ordinance, art. XIV, § 1402(6)(b)(5), 41; art. XIV, § 1405(1), at 46 (2003-2008)].

Some Open Space may be required to be protected for the long term. Article XVII states that “[o]pen spaces and common areas, when offered by an applicant as an integral element of a Planned Use Development or Special use Permit Project, may be required to be formally assured by... Scenic, Farmland, or Open Space Easement; Conservation Easement; Deed Restriction; A similar dedication mechanism.” [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1700(12)(a)-(d), at 62 (2003-2008)] The Ordinance does not require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

All but three districts have a Maximum Percent of Lot Coverage by the Area of Buildings [Resort Twp., Mich., Zoning Ordinance, art. XV, § 1500, at 51 (2003-2008)]. Flexible site design criteria or incentives are available to encourage developers to include open space or cluster design provisions. Article XV states that “[a] higher number of dwelling units per acre will be allowed depending on the percentage of open space preserved...” [Resort Twp., Mich., Zoning Ordinance, art. XV, § 1500(c)(2)(a), at 52-53 (2003-2008)]

### **Basic Zoning Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** The Zoning Ordinance should be posted on line for easy access by residents and business concerns.

**SUGGESTED ACTION:** Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses. The Township should also consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

## Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 21, ADEQUATE

Resort Township has a shoreline along the Lake Michigan, and uses an Overlay District to protect this precious shoreline. Article VII states that “the Waterfront Resource Overlay Areas shall be deemed to extend at right angles from the ordinary high water level of rivers, lakes, impoundments... to a depth of four hundred (400) feet; and to a depth of four hundred (400) feet from the nearest right-of-way of any scenic highway, street or road, or to the depth of the abutting property, whichever is less...

“No buildings or land shall be used and no building shall be erected except for... [p]ermitted uses in the RR Recreation Residential Area shall be permitted in the WR Overlay Area . . . . Every use in the WR Overlay Area shall abide by the requirements of section 1808 Waterfront Regulations, Setbacks & greenbelts.” [Resort Twp., Mich., Zoning Ordinance, art. VII, §§ 700(1)-702, at 23 (2003-2008)]

Additionally, article XVIII states, “Permanent structures, parking lots and other impervious surfaces... shall observe a minimum setback of sixty (60) feet from the documented 1986 High Water Mark in all Residential and Farm-Forest Districts, and twenty-five (25) feet in Commercial and Industrial Districts. ...

“Any property which borders on or contains a natural river, stream, pond, or lake, which is identifiable on the U.S. Geological Survey Map of Resort Township, shall be subject to waterfront setbacks for buildings and uses... Every waterfront use shall establish and maintain a forty (40) foot wide greenbelt yard or strip from the ordinary high water mark or the edge of any wetland that is contiguous to any streams, rivers, creeks, lakes or impoundments... Said greenbelt... to be preserved and maintained in its natural undisturbed state except where trimming, pruning, thinning, cutting or removal is required...” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(1)(a)-(b), at 110-111 (2003-2008)]

Further, article XVIII states that “[a]pplications for zoning permits for any uses on waterfront property shall include a plot plan... [T]he plot plan shall accurately depict the existing vegetation within the entire setback...” And article XVIII states that “a limited alteration of native trees and shrubs in setback shall be allowed... provided however, that the impact... shall be minimized. Tree thinning shall be limited to 30% of the total trees and any area of open view shall not be wider than 30 ft. for each 100 ft. frontage.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(4), at 112; art. XVIII, § 1808(1)(a), at 111 (2003-2008)] Invasive and exotic plants are not prohibited from being used.



*Little Traverse Bay*

Article VI states that “[t]he Recreation Residential District is designed to accommodate cottages and seasonal home developments... “For recreational uses defined in this Section, which have inland lake frontage, limitations on the extent, number and location of uses or facilities shall be established... Not more than three powered craft per 150 ft. of horizontal property width, but not more than fifteen (15’) power craft... Boat Docks: 1-Per 150 ft. of horizontal lot width.” [Resort Twp., Mich., Zoning Ordinance, art. VI, Intent, at 21; § 601(4)(d), (g), at 22 (2003-2008)]

Article XVIII requires “[m]arinas or other water dependent uses shall comply with all other provisions of this ordinance. A marina shall be authorized in the land use district for which it is proposed and shall require a special use permit... “ [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(1)(b), at 111 (2003-2008)]

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** The County should prohibit the use of invasive and exotic plants in the required natural vegetation strip.

**SUGGESTED ACTION:** Consider specific steps for marinas to ensure water protection. Include restricting boat repair and maintenance activities to clearly marked areas, to prevent debris from falling into the water and limit the spread of invasive species. Require fueling stations to have spill containment equipment that is stored in a clearly marked location. Require a spill contingency plan, posting emergency phone numbers in a prominent location. Require signs of leakage or spillage to be investigated immediately, and undertake cleanup in accordance with applicable Best Management Practices (BMPs).

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 10, WEAK

The Little Traverse Bay Watershed Protection Plan includes the following discussion of the cold water fishery: “In Walloon Lake, nutrients are potentially the most harmful. A known source of nutrients is urban stormwater runoff caused by increased impervious surfaces and inadequate treatment of stormwater. Other known or suspected sources of nutrients are septic systems that are outdated or improperly maintained, over-application of lawn fertilizers and pesticides, and unrestricted access of livestock. Excessive aquatic plant growth as a result of nutrient pollution can decrease the oxygen available in the bottom of the lake (hypolimnion) during the summer months.” (Little Traverse Bay Watershed Protection Plan, 2007. Chapter One: Getting to Know the Little Traverse Bay Watershed, 2. Designated Uses and Water Quality Summary, F. Water Quality Summary, p. 23)

To handle this type of water degradation, local governments should be mindful about creating new impervious surfaces, as rural areas become more urban. Among other low cost approaches to reduce impervious surfaces, a community can increase the retention or restoration of native vegetation in riparian areas and in Open Spaces. Minimizing impervious surfaces can be also addressed in other creative and cost-effective ways, ranging from using Low Impact Design (LID) techniques in development plans, to incentives for limiting impervious surface lot coverage in zoning ordinances (Little Traverse Bay Watershed Protection Plan, 2007. Chapter Four: Little Traverse Bay Watershed Project – Goals, Objectives, and Recommended Actions, 2. Recommended Actions to Protect the Little Traverse Bay Watershed, A. Stormwater Recommendations, p. 72).

Importantly, Resort Township Zoning Ordinance allows flexibility to reduce the number of parking spaces constructed, if warranted by the proposed development. Article XVIII states that “[t]he Planning Commission may rule to defer the actual construction of up to 50% of the required parking spaced for the following reasons: The proprietor/ owner demonstrates to the Planning Commission that providing 100% of the required parking would not be necessary to serve the level of the property use[, or] [t]he land proposed for the full amount of parking would better serve the community or the use as landscaped yard or other on-site open space use.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1801(8)(b), at 89 (2003-2008)]

Article XVIII also states, “All off street parking lots of twenty (20) spaces or more shall follow the provisions of Section 1805.6 regarding the planting of trees.” It goes on to state that “[f]or any off street parking lots of twenty (20) spaces or more, there shall be provisions for the planting of canopy trees subject to the following conditions: One (1) such tree shall be required for each ten (10) surface parking spaces, Trees shall be of the deciduous type...” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1801(12), at 89; and § 1805(6)(a)-(b), at 89 (2003-2008) (corrections to original)]

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing impervious surface lot coverage limits in all zoning districts (especially residential districts) to limit impervious surfaces to 15% of the total lot. Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.

### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 12, ADEQUATE

Resort Township Zoning Ordinance article XVIII requires that “[a] road plan submitted for approval shall include: Drainage and storm water control plan and the location of all ditches, basins, culverts...” and easements. “A drainage plan must be approved by the Emmet County Soil Erosion and Sedimentation Control Officer. The drainage plan shall be prepared and sealed by a Michigan registered professional engineer.

“The plan shall be designed to meet the requirements of the Emmet County Soil and Water Conservation District standards and/or standards outlined by the Storm water management ordinance, the Natural Resources and Environmental Protection Act, Part 91 Soil Erosion and Sedimentation Control Act, Part 17, Michigan Environmental Protection Act, Part 303 Wetland Protection Act and the guideline and criteria of the MDNR Guidebook Best Management Practices for Michigan Watersheds.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1810(3), at 116; and § 1810(8), at 117-118 (2003-2008)]

Article XV states, “[stormwater] problems shall be anticipated and resolved to the satisfaction of the Resort Township Planning Commission, subject to review by the County Drain Commissioner or any other property owner or municipality that may be impacted by storm water runoff.” It further requires that “[t]he Site Plan contains an engineered plan for the control of erosion, sedimentation, and storm water run-off.” [Resort Twp., Mich., Zoning Ordinance, art. XV, § 1500(4), at 53; and § 1502(11), at 57 (2003-2008)]

### Stormwater Management: RECOMMENDATIONS

The Little Traverse Bay Watershed Management Plan includes the following task: “Provide programs and resources to Emmet and Charlevoix Counties’ contractors about soil erosion and stormwater management techniques.” (Little Traverse Bay Watershed Management Plan, Appendix H, Recommendations, A. Stormwater Recommendations, 6) Short of passing a township stormwater ordinance, the following suggested actions strengthen existing protections and also implement the Watershed Plan task by educating applicants about Best Management Practices (BMPs).

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs to the Site Plan Review section.

**SUGGESTED ACTION:** Require that all stormwater management systems be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters lakes or streams in Resort Township.

**SUGGESTED ACTION:** The County should prohibit stormwater from exiting the property after exposure to any harmful sources.

## Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

By volume, sediment is the single largest pollutant to waters of the United States. Any time earth is disturbed or graded, as typically happens during the construction process, there is a potential for soil to erode and sediment to be deposited into lakes, streams, and wetlands. Construction, or use of steep or unstable slopes, can also present an erosion and sedimentation hazard.

Because local governments have the opportunity to review every single development project as part of zoning review, they are uniquely situated to ensure that soil erosion is controlled and sedimentation is minimized. In Article XX, Resort Township states that “[n]o land use, zoning compliance, and/or building permits shall be issued except for uses that are in full compliance with the provisions and conditions specified in the Site Plan Review Process.” Additionally, “[a]ll site plans shall comply with the terms of the Soil Erosion and Sedimentation Control Act MCL 324.9101 et seq, and “as built” plans or construction drawings shall be filed... immediately after construction is completed that demonstrated compliance with the soil erosion plan and this Act.” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(2)(i), at 125; and § 2005(5), at 127 (2003-2008)]

Article XX also notes: “No excavation, clearing, or grading for purposes of construction of any building or structure shall occur unless a zoning permit, conditional use, special use, site plan, PUD or other approval has been obtained...” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2002, at 123 (2003-2008)]

Further, article XVII states, “the Zoning Administrator may accept documents required for permits under Act 347 of 1972, the Soil Erosion and Sedimentation Control Act, as amended, now Part 91 of the Natural Resources and Environmental Protection Act, MCL 324.9101, et seq. ...[T]he Applicant must file a soil and erosion and storm water control plan... demonstrating it complies with Act 347...” [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1702(9)(e), at 127 (2003-2008)]

Finally, article XVIII states that “[a]ny excavating, filling or grading or other on-site construction activity shall insure that silting will not impact adjacent waters and that all banks, slopes, and hillsides are stabilized to prevent soil erosion.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(1)(a), at 111 (2003-2008)]

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, OR if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.



### Soil Erosion and Sediment Control: RECOMMENDATIONS

**SUGGESTED ACTION:** The Harbor Springs Zoning Code should be updated to explicitly require County approval of SESC measures before granting zoning permits.

**Sewer/Septic**

POSSIBLE SCORE: 24

TOTAL SCORE: 10, ADEQUATE

The Resort Township Master Plan includes: “Promote implementation of county regulations to require septic system inspections at time of sale or property transfer.” [Resort Twp., Mich., Master Plan, Ch. 6, at 6-9 (2010), [http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat\\_view/61-master-plan](http://www.resorttownship.org/departments/planning-zongin/master-plan-update/cat_view/61-master-plan)]

This important coordination is also included: “Public and private sewer and water facilities must be located, permitted, and operated pursuant to the requirements of the County Sanitary Code and any applicable State or Federal requirements.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1804, at 95 (2003-2008)]

**Sewer/Septic: RECOMMENDATIONS**

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

**Wetlands**

POSSIBLE SCORE: 21

TOTAL SCORE: 15, STRONG

The benefits of wetlands are numerous. They provide excellent wildlife and bird habitat, help control flooding, and contribute to water quality protection by absorbing stormwater runoff. Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated. Local governments can support wetland protection through zoning, and also by requiring wetland permits from state and federal agencies, prior to granting local zoning permits.

Resort Township recognizes the importance of wetlands in the Zoning Ordinance, and the importance of ensuring that any proposed work in wetlands be coordinated during the permitting process. Article XVIII states, “[a]ny filling or construction within flood plains or wetlands, shorelines, or other environmental areas protected by State Law, or other laws, shall require appropriate permits from the government unit or agency having jurisdiction.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(2), at 112 (2003-2008)]

Additionally, article XIV states that “[i]n case of the need to interpret... whether or not the property has wetlands for the purposes of this Section, the Planning Commission shall make the interpretation and may enlist the expertise of recognized outside agencies...” [Resort Twp., Mich., Zoning Ordinance, art. XIV, § 1405(4)(d), at 47 (2003-2008)]

Finally, in addition to the coordination of permits in state and federally regulated wetlands, it is helpful to have the Zoning Ordinance articulate a setback from the edge of wetlands, if a local wetland ordinance is not in place. This is much better than constructing a use right at the edge of the wetland. Importantly, article XVIII requires “[e]very waterfront use shall establish and maintain a forty (40) foot wide greenbelt yard or strip from the ordinary high water mark or the edge of any wetland that is contiguous to any streams, rivers, creeks, lakes or impoundments.” [Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1808(1)(a), at 110 (2003-2008)]

**Wetlands: RECOMMENDATIONS**

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, providing habitat, and minimizing flooding, it is beneficial to educate citizens on the importance of protecting wetlands.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 8, ADEQUATE

The Michigan State Wellhead Protection Program assists local communities to protect their water sources, if they use groundwater for their drinking water supply systems. There are two types of plans that can be submitted for approval. The first is a Source Water Protection Area, which designates plans that are done for community well fields that do not test positive for tritium, a radioactive isotope of hydrogen. If the tritium test is positive, a Wellhead Protection Area plan is done, which is a more extensive process. Nine communities in Emmet County have taken part in this program, and Resort Township is one of them.

Groundwater protection in Resort Township is addressed in a few sections of the Zoning Ordinance. In Site Plan Review: “A complete Site Plan shall be submitted... for approval of: Any use located on a property with sensitive or critical environmental areas ...” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(1)(d), at 124 (2003-2008)] Further, Article XVII states that “[t]he applicant must show... how potentially hazardous materials... are to be prevented from entering the groundwater or surface water on or off-site, and present a written plan for handling and disposal of hazardous... materials.” [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1702(12)(b)(2), at 75 (2003-2008)]

Additionally, article XX states that “the proposed site shall have a minimum of six (6) feet of vertical isolation from groundwater, and be at least 1,000 feet from an identified surface water... [I]f there is a likelihood of release of hazardous substances... then a secondary containment facility and remediation and cleanup plan... shall be provided.” [Resort Twp., Mich., Zoning Ordinance, art. XX, § 2005(12)(b)(3), at 76 (2003-2008)]

Importantly, article XVII states, “Waste, wastewater and other effluent shall be disposed of as required by federal, state, and county law or regulation;... if there is no such law... then the applicant must show... that treatment or disposal is not likely to pollute, impair or destroy groundwater surface water wetlands...” And: “No oils, lubricants, or other liquids from vehicles, machinery, or equipment or other materials, shall be disposed of on-site, unless State of Michigan approved facilities are properly in place... No burial of wastes shall be permitted...” [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1702(8)(c), at 67; § 1702(12)(b)(2), at 75 (2003-2008)]

Finally, for excavation and mining, article XVII requires “[a] statement on general ground water conditions, including levels and any possible impact on wells in the area.” And: “Excavations which encounter groundwater or trap surface water shall be treated...” [Resort Twp., Mich., Zoning Ordinance, art. XVII, § 1702(9)(a)(5), at 68; § 1702(9)(d)(2), at 71 (2003-2008)]

We have no additional recommendations for this element.

## Other

POSSIBLE SCORE: 48

TOTAL SCORE: 34, ADEQUATE

The community does have high risk erosion areas, addressed in the Zoning Ordinance. “All uses permitted in the high-risk erosion area are subject to the conditions herein after imposed for each use and subject to the Site Plan Review by the Planning Commission.” Resort Twp., Mich., Zoning Ordinance, art. XVIII, § 1807(1), at 108 (2003-2008).

We have no further recommendations.

## Conclusion

We applaud the water protection measures that exist in Resort Township. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*Walloon Lake*



*Harbor Point*

## SECTION III: Analysis

### Chapter 7 West Traverse Township

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#### Introduction

West Traverse Township has an irregular size and shape, due to its sparkling shoreline on Lake Michigan. Treasured features include a portion of the Tunnel of Trees Scenic Heritage Route, and the Thorne Swift Nature Preserve. Located on the north side of Little Traverse Bay, West Traverse Township is bounded on the south by the City of Harbor Springs and the Bay, on the west by Lake Michigan, on the north by Friendship Township, and on the east by Little Traverse Township.

The most important water resources of West Traverse Township include Lake Michigan, Weimer's Lake in a nature preserve, and Five Mile Creek, the only creek within the Township that runs year round. According to its Master Plan, Five Mile is also "the only sizeable cold water creek between Harbor Springs and Mackinaw City." [West Traverse Township, Mich., Master Plan, Ch. 3, Water Features, at 3-6 to 3-7 (2008), <http://www.westtraversetownship.com/>]

This chapter summarizes results of the Local Ordinance Gaps Analysis project for West Traverse Township, including suggested actions. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. The Township is an active and engaged member of the Little Traverse Bay Watershed Protection Plan Advisory Committee, and where appropriate, Watershed Plan implementation steps are also noted.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 25, STRONG

The Township Master Plan was published in 2008. "The purpose of the West Traverse Township Master Plan is to provide guidelines for future development, while protecting the natural resources and rural character of the Township." [West Traverse Township, Mich., Master Plan, Ch. 1, Introduction, at 1-1 (2008), <http://www.westtraversetownship.com/>]

The Master Plan identifies watersheds in the community by stating that "the lay of the land, or topography, determines the direction water falling on the surface will drain. In turn, the topography also outlines the size and shape of these drainage basins. One of these basins is called a watershed. Precipitation accumulated in these watersheds supplies water to streams, lakes, underground reservoirs, and overall water table... There are several small drain-ways within the Township draining into Lake Michigan. There are two large drain-ways within the Township, Five Mile Creek drains an area in the North West portion on the Township, and the Franklin Park

drain-way which drains the Birchwood Farms area and flows east and through Franklin Park and then into drainage ways within the City of Harbor Springs.” [West Traverse Township, Mich., Master Plan, Ch. 3, Watersheds, at 3-6 (2008), <http://www.westtraversetownship.com/>]

The jurisdiction’s Master Plan has the following goal: “NATURAL FEATURES Goal: Preserve and enhance West Traverse Township’s natural features and environment for the betterment of its people.” The Objectives for this Goal reflect a value of Open Space and include the following: “Encourage landowners to use conservation easements to protect and preserve open spaces, such as scenic views, farmlands, and forest areas;” “Encourage the use of open space/conservation designs for site development.” [West Traverse Township, Mich., Master Plan, Ch. 6, at 6-1 (2008), <http://www.westtraversetownship.com/>]

Additional objectives reflect the need to limit impervious surfaces and protect water resources from stormwater runoff: “Encourage the use of combined driveways along public roads;” “Provide for the preservation of the Lake Michigan Shoreline;” “Support the water setback section of the Zoning Ordinance;” “Continue to support The Thorne Swift Nature Preserve.” Id.

The same chapter also includes: “WATER AND WASTEWATER Goal: Protect and improve our water heritage to ensure the health and well-being of the township's people. Objectives for this Goal include: “Require the protection of the waters of Lake Michigan through zoning setbacks and other regulations;” “Encourage the use of community wells/water systems where appropriate;” and “Encourage the proper maintenance of the private water and wastewater systems within the Township.” Id.

Further, chapter seven states, “The Conservation and Parkland category includes existing public lands, park lands, as well as land owned and protected by a land conservancy as preserves. Uses proposed in the Conservation and Parkland area include public forestry, wildlife habitat, recreation, and similar open space uses.” [West Traverse Township, Mich., Master Plan, Ch. 7, Land Use Policies, at 7-1 (2008), <http://www.westtraversetownship.com/>]

### **Master Plan Components: RECOMMENDATIONS**

We applaud the strong protections for water articulated in the Master Plan, and have only one suggestion:

**SUGGESTED ACTION:** In the next update, the Master Plan should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of water resources.



Courtesy of Birchwood Farms Golf and Country Club

## Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 40, STRONG

Zoning Ordinance Article III states that “[t]he economic and environmental well being of West Traverse Township is predicated on the preservation of its waterfront resource... Many of the landscape features found in the waterfront district are susceptible to wind and wave erosion and should be protected from adverse human impact. Future land development and redevelopment should not be conducted at the expense of the West Traverse Township's natural features. The natural features of the waterfront district should be preserved.” [West Traverse Township, Mich., Zoning, art. III, W-1, Purpose and Intent, (1), (4)-(6), <http://www.westtraversetownship.com/>]

The Zoning Ordinance includes a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews. It also has methods in place for enforcement. Article VII states that “[t]he Zoning Administrator may issue a citation for violation of this Ordinance. A violation of this Ordinance is a municipal civil infraction, for which the fine shall be not more than \$500.00, in addition to all other costs, damages, expenses, and other fees and remedies provided or allowed by law.” [West Traverse Township, Mich., Zoning, art. VII, § 701:6, (1)-(5), art. VII, § 702, <http://www.westtraversetownship.com/>]

Some coordination with other agency permitting is required. For a Planned Unit Development (PUD), Article IV states that “[p]rior to Planning Commissioner final review, the applicant must submit copies of the preliminary plan to government review agencies, as applicable, to gain compliance with health laws, drain laws, environmental laws, as well as rules governing road construction. Local fire protection agencies must also be contacted prior to the Planning Commission final review.” PUDs also require a pre-application meeting: “A pre-application conference shall be held with the Planning Commission and/or zoning administrator for the purpose of determining the eligibility of the proposed PUD application and to review the procedures and standards for PUD approval.” (West Traverse Township, Mich., Zoning, art. IV, § 404:9, § 404:11, <http://www.westtraversetownship.com/>)

If Site Plan Review is used, Article IV requires that an “[i]mpact Statement shall accompany any application for Site Plan Review and shall include the following: Statements relative to the impact of the proposed development on soil erosion, shoreline protection, wildlife habitat, air pollution, water pollution (ground and surface), noise and the scale of development in terms of the surrounding environment.” [West Traverse Township, Mich., Zoning, art. IV, § 403:3, (3), <http://www.westtraversetownship.com/>]

Site Plan Review also includes Open Space provisions. Additionally, article IV states that, “[a] PUD project shall have open space of no less than 30% of the entire project area.” [West Traverse Township, Mich., Zoning, art. III, § 305:1, (2)(a), (c); art. IV, § 404:5(2), <http://www.westtraversetownship.com/>] Neither process requires developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site. Also, allowable uses in the Open Space are not restricted to low impact uses, and Open Space is not required to be managed in a natural condition.

However: “The Planning Commission may require that the site be designed to preserve and protect, to the greatest extent feasible, existing natural or unique features such as, but not limited to, mature trees, significant vegetation, waterways, steep slopes or scenic views. The PC may also require additional plantings to be added and maintained in order to minimize erosion potential or to increase aesthetic appearance of the development. Plantings that do not survive must be replaced no later than the next nearest planting season.” [West Traverse Township, Mich., Zoning, art. IV, § 404:6, <http://www.westtraversetownship.com/>]

Additionally, Open Space is required to be protected for the long term. Article IV states that “[t]his required open space shall be dedicated to the public or set aside for the common use of the owners and users within the PUD. A covenant or deeded interest for this open space area shall be recorded with the County Register of Deeds so that it shall be assured of remaining undeveloped. Copies of recorded documents shall be filed with the Zoning Administrator.” [West Traverse Township, Mich., Zoning, art. IV, § 404:5(2), <http://www.westtraversetownship.com/>]

Further, article III states that “[f]or all areas gained through the reduction or grouping of lots, an equal area shall be set aside for the exclusive common use of the lot owners or residents within the development. This area shall be under legal procedure which shall grant a covenant or deeded interest therein so that it shall be assured of remaining undeveloped.” [West Traverse Township, Mich., Zoning, art. III, § 301:3(19)(g), <http://www.westtraversetownship.com/>]

Flexible site design criteria or incentives are available to encourage Open Space. Article IV states, “To promote creativity and flexibility in site design, the Planning Commission may, subject to the following limitations, alter the other dimensional regulation, as required by the zoning district, including, but not limited to minimum lot size, density and setbacks within the PUD project... Density increases may be approved for the creation and/or preservation of open space, the protection of the natural environment or for conservation of natural resources and energy. In no case shall densities be increased by more than fifteen (15) percent.” [West Traverse Township, Mich., Zoning, art. IV, § 404:5(4), (c), <http://www.westtraversetownship.com/>]

Finally, article III states that “[t]he S-1 Public District is established to provide scenic, open space and recreational areas for use by the general public.” [West Traverse Township, Mich., Zoning, art. III, § 305 S-1, <http://www.westtraversetownship.com/>] Further, article III states that: “The Waterfront Overlay District is enacted to implement a protection strategy for the West Traverse Township waterfront resource.” [West Traverse Township, Mich., Zoning, art. III, W-1, <http://www.westtraversetownship.com/>]

### Basic Zoning Components: RECOMMENDATIONS

We also applaud the strong water protection features included in the West Traverse Township Zoning Ordinance. We offer the following, in order to improve the Open Space protections:

**SUGGESTED ACTION:** Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses.

**SUGGESTED ACTION:** The Township should also consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 42, STRONG

West Traverse Township uses an Overlay District to protect its Great Lake shoreline. Article III requires: “All structures within the Waterfront Overlay District shall be set back according to the requirements below... All structures shall be a minimum of sixty (60) feet from the 1986 high water mark for Lake Michigan as documented by the U.S. Army Corps of Engineers, said mark being 581.99 feet. If the beach/dune environment extends a distance greater than sixty (60) feet landward from the 1986 high water mark, then structures shall be placed in a fashion as described in #1 Natural Vegetation above.” [West Traverse Township, Mich., Zoning, art. III, W-1(2) Setbacks, (a), <http://www.westtraversetownship.com/>]

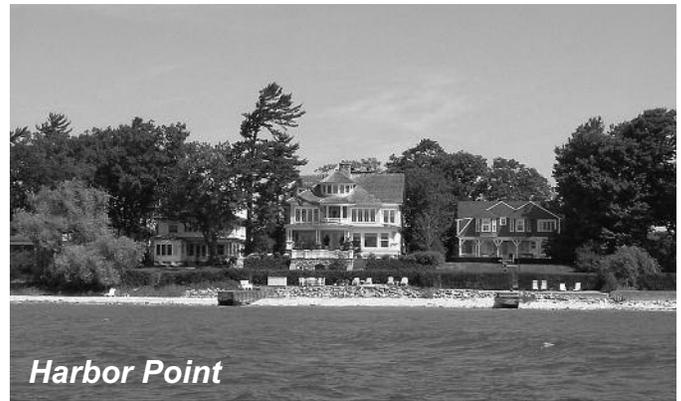
Further, article IV states that “[a] site plan shall be required and approved... [F]or any use located within an environmental area or high risk area as defined and determined under the provisions of the Shorelands Protection and Management Act (1955 P.A. 59: MCL 324:32301 and any amendment thereto).” [West Traverse Township, Mich., Zoning, art. IV, 403:1, Setbacks, <http://www.westtraversetownship.com/>]

Additionally, West Traverse Township seeks to balance use of the shoreline with important water quality protection steps, which brings other benefits. Article III says, “To minimize erosion, stabilize the coast, protect water quality, preserve wildlife habitat, maintain aesthetic values, a natural vegetation strip shall be maintained, to the maximum

extent possible, between the ordinary high water mark and the landscape predominated by forest vegetation. To preserve the fragile and transient nature of the beach/dune landscape, whenever possible, the lakeshore side of all structures, except those listed in 3-B, should be located within the landscape predominated by forest vegetation...

Natural ground cover shall be preserved to the fullest extent feasible and where removed, it shall be replaced with native vegetation that is equally effective in retarding runoff, preventing erosion and preserving natural beauty. Attempts should be made to incorporate existing mature trees into the design, with trimming

for filtered views whenever possible.” [West Traverse Township, Mich., Zoning, art. III, W-1, Application and Use, (1), <http://www.westtraversetownship.com/>] Invasive and exotic plants are not prohibited from being used.



Currently, the township does not regulate marinas, and there seems no pressing need to do so. However, there could be requests for marina development in the future.

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** The Township should prohibit the use of invasive and exotic plants in the required natural vegetation strip.

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 14, ADEQUATE

The Little Traverse Bay Watershed Plan notes that impervious surfaces limit opportunities for rainwater to naturally percolate into the soils. This reduces the opportunity for contaminants to be removed from stormwater runoff, before it flows into lakes, rivers, and wetlands. The more a local unit of government can do to reduce impervious surfaces, the better for water quality.

The West Traverse Township Zoning Ordinance indicates some flexibility in parking requirements to help minimize impervious surfaces. Article III says that “[t]he number of off-street parking spaces required by this Ordinance shall be considered the minimum required, however, the Planning Commission, subject to approval of the Site Plan, may defer until a future time the construction of the full number of parking spaces based on the following: The Site Plan shall indicate that the legal number of spaces required per this Section can be physically provided to serve the use. The Planning Commission may rule to defer the actual construction of up to 50% of the required parking space for the following reasons: The proprietor/owner demonstrates to the PC that providing 100% of the required parking would not be necessary to serve the level of the property use. The land proposed for the full amount of parking would better serve the community or the use as landscaped yard or other on-site open space use.” [West Traverse Township, Mich., Zoning, art. III, § 304A:3(6)(d), (a)-(b)(1)-(2), <http://www.westtraversetownship.com/>]

Additionally, some proposed parking lots are required to be planted with trees within the parking lot paving. Article III states, “For any off-street parking lots of twenty (20) spaces or more, there shall be planting of canopy trees subject to the following conditions: One (1) such tree shall be required for each ten (10) surface parking spaces[;] Trees shall be not less than two and one-half (2-1/2”) inches in caliper[;] Trees shall be planted prior to the issuance of a Certificate of Occupancy and shall be maintained in a healthy, growing condition[;] The required trees may be evenly distributed or concentrated in clusters as approved by the Planning Commission. If evenly distributed each tree shall be provided with an open land area of not less than eighty (80) square feet to provide area for infiltration and with a minimum diameter of five (5) feet at the trunk base for added protection. Tree plantings shall also be protected from automobiles with curbing, bollards or other suitable devices.” [West Traverse Township, Mich., Zoning, art. III, § 304A:3(6), (a)-(d), <http://www.westtraversetownship.com/>]

Article III states that Private Access way standards are set with this intent: “(added 4/1/07) The Private Access ways standards contained in this Ordinance are declared to be necessary to protect the public health, safety and welfare by regulating... private access ways to meet the following objectives... To protect against or minimize soil erosion to prevent damage to lakes, streams, wetlands and the natural environment.” [West Traverse Township, Mich., Zoning, art. III, § 306:2, Intent, (4) <http://www.westtraversetownship.com/>]

### **Impervious Surfaces: RECOMMENDATIONS**

**SUGGESTED ACTION:** Consider reducing parking space dimensions and setting them as a maximum. Also consider reducing the number of required parking spaces and setting the number as a maximum number, as opposed to a minimum.

**SUGGESTED ACTION:** Establish impervious surface lot coverage limits in all zoning districts (especially residential districts) to limit impervious surfaces to 15% of the total lot. Provide incentives for using Low Impact Development (LID) techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.

**SUGGESTED ACTION:** Consider adding a provision that allows for flexibility in front yard setbacks or side yard setbacks to encourage shorter driveways or shared driveways between two lots.

## **Stormwater Management**

POSSIBLE SCORE: 27

TOTAL SCORE: 3, WEAK

Stormwater runoff from buildings, driveways, parking lots, streets, and other impervious surfaces is a major source of pollutants to northern Michigan’s waterways. Impervious surfaces prevent infiltration of stormwater, and that significantly alters the quantity, quality and rate of stormwater entering surface waters. Conversely, pervious surfaces, such as unpaved ground, slow the movement of stormwater, allowing sediments, nutrients and other contaminants to infiltrate rather than flowing directly into the receiving water body. Local governments can do much to reduce stormwater runoff as part of their zoning ordinance, and they should.

In West Traverse Township, stormwater management is only minimally addressed. Zoning Ordinance article IV states that “[t]he Planned Unit Development shall not result in greater storm water runoff to adjacent property after development than before development for up to a 50 year storm. The open space shall be provided with ground cover suitable to control erosion and vegetation.”[West Traverse Township, Mich., Zoning, art. IV, § 404:14(A)(11), <http://www.westtraversetownship.com/>]

### **Stormwater Management: RECOMMENDATIONS**

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs and other water quality protections to Site Plan review.

**SUGGESTED ACTION:** Stormwater management areas and facilities, whether on-site or off-site, should be required to be designed, constructed, and maintained to prevent flooding and protect surface and ground water quality. The ordinance should also require runoff leaving the site to be controlled to a non-erosive velocity, both during and after construction. Finally, the Township should require that all stormwater management systems be regularly evaluated and maintained.

## Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

All properties that are located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff.

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.

### Soil Erosion and Sediment Control: RECOMMENDATIONS

**SUGGESTED ACTION:** The Township Zoning Code should explicitly require County approval of SESC measures before granting zoning permits.

## Sewer/Septic

POSSIBLE SCORE: 27

TOTAL SCORE: 9, ADEQUATE

Chapter five of the West Traverse Township Master Plan says that “[p]ortions of West Traverse Township are served by two separate sewer systems, which are operated and maintained under contract with the Harbor Springs Sewer Authority. The Harbor Point area is served by the City of Harbor Springs system as of January 2008. Pine Trail, and Forest Beach Drive are served by the West Traverse Township sewer system.” [West Traverse Township, Mich., Master Plan, Ch. 5, Water and Sewage Disposal Systems, at 5-1 (2008), <http://www.westtraversetownship.com/>]

Regulations that pertain to septic systems are coordinated with the County Health Department regulations [West Traverse Township, Mich., Zoning, art. IV, § 404:11(1), <http://www.westtraversetownship.com/>]; and [West Traverse Township, Mich., Master Plan, Ch. 3, Septic Limitations, at 3-6 (2008), <http://www.westtraversetownship.com/>]

Generally, there is a need for broad education about septic system maintenance and oversight to ensure failing systems are not transferred to new owners. To ensure strong coordination, a point of transfer septic ordinance is something to consider.

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 0, MISSING

Wetlands are some of our most valuable water resources. They provide excellent wildlife habitat, help control flooding, and protect water quality. Wetlands are critical to the health of water, and they are difficult to restore, once they are damaged or filled.

Wetlands are required by the Township to be noted during Site Plan Review: “An existing conditions map, including: ...All major environmental features, such as major stands of trees and other vegetation, wetlands (both regulated and unregulated), flood plains, drainage ways, outcroppings, slopes of ten percent (10%) or more gradient, and/or other surface features.” [West Traverse Township, Mich., Zoning, art. IV, § 404:10(7), (h) [http://www.westtraverse township.com/](http://www.westtraverse-township.com/)]

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Make it clear that permits are required for any state or federally regulated wetlands in the Township, before any permit on a wetland parcel is issued, regardless of the zoning district. An applicant should be required to demonstrate that disturbing the wetland does not require a state or federal permit.

**SUGGESTED ACTION:** Consider establishing a wetland setback of at least 25', similar to shoreline setbacks. Coupled with the provision that state permits must be issued in regulated wetlands before a Township Zoning permit is issued, setbacks will add protection for these valuable resources.

**SUGGESTED ACTION:** Given the crucial role that wetlands play in overall water health, broadly educate citizens about the benefits of wetland protections.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 3, WEAK

The Michigan State Wellhead Protection Program assists local communities to protect their water sources, if they use ground water for their drinking water supply systems. There are two types of plans that can be submitted for approval. The first is a Source Water Protection Area, which designates plans that are done for community well fields that do not test positive for tritium, a radioactive isotope of hydrogen. If the tritium test is positive, a Wellhead Protection Area plan is done, which is a more extensive process. West Traverse Township participates in this program. (DEQ Wellhead Protection Program, §§ 01, 02, 06, 07, 11, 12, 14, 25, 31, 36).



Additionally, groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important. Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work.

### Groundwater and Wellhead Protection: RECOMMENDATIONS

**SUGGESTED ACTION:** If direct or indirect discharges to groundwater are proposed, use site plan review or some other ordinance provision to prohibit this until appropriate approvals or permits are obtained from the State.

**SUGGESTED ACTION:** If not already in place, protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in coordination with Local Emergency Planning Committee efforts.

#### Other

POSSIBLE SCORE: 48

TOTAL SCORE: 27, ADEQUATE

West Traverse Township participates in the National Flood Insurance Program. Additionally, Article IV states that “[a] site plan shall be required and approved... [F]or any use located within an environmental area or high risk area as defined and determined under the provisions of the Shorelands Protection and Management Act (1955 P.A. 59: MCL 324:32301 and any amendment thereto).” [West Traverse Township, Mich., Zoning, art. IV, 403:1, Setbacks, <http://www.westtraversetownship.com/>] See also: Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260721, <http://www.fema.gov/cis/MI.pdf>

West Traverse Township also addresses High Risk Erosion Areas ([http://www.michigan.gov/documents/deq/lwm-highrisk-westtraverse\\_261708\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-highrisk-westtraverse_261708_7.pdf)). The Township requires that “All structures within the Waterfront Overlay District shall be set back... If the beach/dune environment extends a distance greater than sixty (60) feet landward from the 1986 high water mark, then structures shall be placed in a fashion as described in part 3-A.” [West Traverse Township, Mich., Zoning, art. III, § W-1, Application and Use, Setbacks, (2), (a), <http://www.westtraversetownship.com/>]

Further, the Township requires that “a site plan shall be required and approved... [for] any use located within an environmental area or high risk area as defined and determined under the provisions of the Shorelands Protection and Management Act (1955 P.A. 59: MCL 324:32301 and any amendment thereto).” (West Traverse Township, Mich., Zoning, art. IV, § 403:1, <http://www.westtraversetownship.com/>)

We have no additional recommendations for this element.

## Conclusion

We applaud the water protection measures that exist in West Traverse Township. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*Inland Waterway, Alanson*

## SECTION III: Analysis

### Chapter 8 Village of Alanson

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#### Introduction

Alanson is a beautiful hub along the 40 mile stretch of rivers and lakes that make up the Inland Waterway. “The Village of Alanson is serenely nestled on the bank of the Crooked River, a major link in the Inland Waterway of Northern Michigan, making it easily accessible by either boat or automobile. We are conveniently located 10 miles north of Petoskey on U.S. 31 and M-68.” This description comes from the Village website, and we think it serves as a fitting introduction to a lovely spot in Emmet County.

This chapter summarizes results of the Local Ordinance Gaps Analysis project for the Village of Alanson. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request. The chapter summarizes the evaluation scores, makes recommendations and includes suggested actions.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 13, ADEQUATE

The Village of Alanson has a Master Plan, but it was not available on the Village website. There was a spot for a link to the Master Plan on the Downtown Development Authority page of the Village website, but the link is not live. This should be corrected to make the Plan accessible to citizens, businesses, and visitors.

Master Plan chapter three states, “One of the most valuable natural resources of the Village of Alanson and surrounding area is water... Both groundwater and surface water are vital resources within the Village... As the sole source of drinking water for the Village, the protection of groundwater is critical to ensuring the long-term quality of life for residents and visitors.” (Village of Alanson, Mich., Master Plan, Ch. 3, at 3-6)

The plan goes on to note: “Although only one square mile in size, the Village is located within three watersheds: the Crooked Lake watershed in the north half and southwest area, the Pickerel Lake watershed on the southeastern area, and a small portion of the Burt Lake watershed in the east-central area.” Id. It also includes an inventory of lakes and rivers.

Importantly, the Master Plan also notes that “[o]ne of the greatest threats to surface water is non-point source pollution,” and that “effective measures using stormwater retention and detention systems, can do much to

reduce or eliminate non-point source pollution to surface water.” (Village of Alanson, Mich., Master Plan, Ch. 6, at 6-7) It does not go on to call for minimizing impervious surfaces in new construction and redevelopment projects. It also does not acknowledge the importance of preventing sediment pollution by ensuring well-constructed and maintained road stream crossings to protect water quality.

One Village goal is to: “Guide new development in a manner that preserves community character and environmentally important resources yet meets the long-term needs of the community.” (Village of Alanson, Mich., Master Plan, Ch. 6, at 6-4) Despite the rural character of Alanson, the plan does not call for identification and protection of wildlife corridors. However, preservation of land for environmental protection and recreational opportunities is appreciated by the Village, and this provides benefit from tourism and other economic drivers related to clean water.

For example, the Master Plan also includes this goal: “Improve and maintain the transportation systems, community facilities, programs and public utilities to accommodate the needs of residents, visitors and commercial enterprises.” (Village of Alanson, Mich., Master Plan, Ch. 6, at 6-7) Two policies listed to help achieve this are:

- “Support cooperative recreational planning and development between the Village, Littlefield Township, school, non-profit, civic and church groups, and private entities,” Id.; and
- “Pursue outside funding sources, such as grants, for land acquisition and/or recreational improvements, as outlined in the joint Village/Township Recreation Plan.” Id.

### **Master Plan Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** During the next Master Plan update, consider including an objective to minimize impervious surfaces in new construction and redevelopment projects, in order to reduce stormwater runoff and improve infiltration.

**SUGGESTED ACTION:** Also, the Village should acknowledge the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources in the next update.

**SUGGESTED ACTION:** The Master Plan should call for the identification and protection of wildlife corridors.

### **Basic Zoning Components**

POSSIBLE SCORE: 54

TOTAL SCORE: 23, ADEQUATE

The Village of Alanson Zoning Ordinance was created: “...for the purpose of promoting and protecting the public health, safety, ...and general Welfare of the inhabitants of the Village of Alanson, ...by securing the most appropriate use of land; preventing overcrowding of the land and undue congestion of population; ...and facilitating adequate and economical provisions of transportation, water, sewers, ...and other public requirements...” (Village of Alanson, Mich., Zoning Ordinance, Preamble, at 1, <http://www.villageofalanson.com/services/planning-zoning-department/>)

Article XVIX states, “Fees for inspection and issuance of Permits or copies thereof required or issued under the provisions of the Ordinance may be collected by the Zoning Administrator in advance of issuance. The amount of such fees shall be established by resolution of the Alanson Village Council.” Further, “...the provisions of this [O]rdinance shall be administered by the Zoning Administrator or by such deputies of his department as the Zoning Administrator may delegate to enforce the provisions of this [O]rdinance.” (Village of Alanson, Mich., Zoning Ordinance, art. XVIX, § 1904, at 32; and § 1900, at 80, <http://www.villageofalanson.com/services/planning-zoning-department/>)

The Village Zoning Ordinance does not specify the need for coordination of permits with other agencies, but it does include Site Plan Review. That process does not require a Soil Erosion and Sedimentation Control Plan, but

it signals potential coordination with the county by requiring: “Generalized soil analysis data, which may include data prepared by the Emmet County Soil Conservation District regarding the soils and their adaptability to the use. More detailed information may be required where the Planning Commission determines that the site and use warrant a more critical review of soils.” (Village of Alanson, Mich., Zoning Ordinance, art. XXIX, § 1906, at 82, <http://www.villageofalanson.com/services/planning-zoning-department/>)

The Site Plan Review process does not include open space provisions, nor require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site. However, the Zoning Ordinance does include Planned Unit Development (PUD) provisions, and Open Space is required: “All PUD projects shall establish and maintain a perimeter setback of fifty (50) feet... The setback area shall be maintained as open space in lawns or be landscaped, or wooded areas, but shall exclude paved surfaces, parking areas, or buildings of any kind. Pathways and trails may occupy a perimeter setback Area, and such space may be used for storm water management, snow storage, and/or drainage systems.” [Village of Alanson, Mich., Zoning Ordinance, art. XI, §1106(1) at 34, <http://www.villageofalanson.com/services/planning-zoning-department/>] Designated Open Space does not have to be managed in a natural condition, and allowable uses in the open space are not restricted to low impact uses.

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** Specifically require that applicants receive approval for all applicable county, state, and federal permits (such as soil erosion control, wetlands, inland lakes and streams, etc.) prior to, or as a condition for receiving a Village zoning permit.

**SUGGESTED ACTION:** Approved Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses.

**SUGGESTED ACTION:** The Village should also consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.



*Inland Waterway, Alanson*

## Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 12, WEAK

Shoreline protection efforts in Alanson could be improved – and should be, as a priority, given the economic importance of clean water to the community. Two of the most effective ways that local governments can protect water quality is to require setbacks from the water’s edge, and require a shoreline protection strip of native vegetation between the water and the upland land use, also called a vegetative buffer.

As noted in the Literature Review, shorelines are vital transition zones between land and water. Natural shorelines benefit lake and river ecosystems by providing habitat and improving water quality. These benefits are diminished when shoreline vegetation is removed for development, but they can be recovered by planting vegetative buffer strips using a variety of native species.

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider establishing shoreline setbacks for new development to limit impacts on the waters in the Village. Also consider requiring a shoreline protection strip immediately adjacent to lakes, streams, and other water bodies. To be most effective, the shoreline protection strip should be maintained in native vegetation.

**SUGGESTED ACTION:** Restrict boat repair and maintenance activities in marinas to clearly marked areas to prevent contaminants and debris from falling into the water and limit the spread of invasive species.

**SUGGESTED ACTION:** Require marina fueling stations to have spill containment equipment that is stored in a clearly marked location. Also require a spill contingency plan, and post emergency phone numbers in a prominent location. Finally, signs of leakage or spillage should be investigated immediately, and undertake cleanup in accordance with applicable best management practices.

## Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 7, WEAK

Impervious surfaces, such as streets, roofs, sidewalks, etc., generate much more stormwater runoff than natural forested, or even agricultural, land uses. That polluted runoff discharges directly into lakes and streams from pavement and rooftops, and includes bacteria from pet and animal wastes, fertilizer, oil and grease, sediment, heavy metals, salt, etc.

Additionally, impervious surfaces limit opportunities for rainwater to naturally percolate into the soils. This reduces the ability for contaminants to be removed from stormwater runoff, before it flows into lakes, rivers, and wetlands. The more a local unit of government can do to reduce impervious surfaces, the better for water quality.

There are many opportunities to reduce impervious surfaces through a Zoning Ordinance. A community can increase the retention or restoration of native vegetation in riparian areas and in open spaces, and install simple and effective solutions, ranging from rain barrels and rain gardens, to engineering approaches that treat stormwater that has traveled across impervious surfaces, before it discharges into the water.

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** Establish lot coverage limits in all zoning districts to limit impervious surfaces throughout the Village. Consider limiting the percent lot coverage to 15% of the total lot. Provide incentives for using Low Impact Development (LID) techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.

**SUGGESTED ACTION:** Consider reducing parking space dimensions and setting them as a maximum. Also consider reducing the number of required parking spaces and setting the number as a maximum number, as opposed to a minimum.

### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 3, WEAK

Stormwater runoff from buildings, driveways, parking lots, streets, and other impervious surfaces is a major source of pollutants to northern Michigan's waterways. Local governments can do much to reduce stormwater runoff as part of their zoning ordinance.

Stormwater management areas and facilities, whether on-site or off-site, are not required by the Village Ordinance to be designed, constructed, and maintained to prevent flooding and protect surface and ground water quality. It also does not require that all stormwater management systems be regularly evaluated and maintained, nor prohibit stormwater from exiting the property after any potential exposure to harmful sources.

### Stormwater Management: RECOMMENDATIONS

**SUGGESTED ACTION:** Address stormwater management design and construction in the Village. Create stormwater runoff control standards, such as limiting the velocity of discharge. Consider adding review of stormwater BMPs to the Site Plan review section of the Zoning Ordinance.

**SUGGESTED ACTION:** Require that all stormwater management systems be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters waters of the Village.

**SUGGESTED ACTION:** The Village should prohibit stormwater from exiting the property after exposure to any harmful sources.

### Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

All properties that are located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff.

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.

### Soil Erosion and Sediment Control: RECOMMENDATIONS

**SUGGESTED ACTION:** The Zoning Code should be updated to explicitly require County approval of SESC measures before granting zoning permits.

## Sewer/Septic

POSSIBLE SCORE: 24

TOTAL SCORE: 5, WEAK

Chapter four of the Village Master Plan states, “Large areas of the community are served by a public sanitary sewer system.” The Master Plan also includes a map of the “areas of the Village receiving sewage treatment services.” (Village of Alanson, Mich., Master Plan, Ch. 4, 4-1 - 4-3, map 5)

In the Zoning Code, sewer and septic are addressed this way: “Per requirements of the County Sanitary Code or any applicable Village, State or Federal requirements, for water and/or sanitary sewage.” (Village of Alanson, Mich., Zoning Ordinance, art. XI, §1604 at 64, <http://www.villageofalanson.com/services/planning-zoning-department/>)

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

## Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 0, MISSING

The benefits of wetlands are numerous. They provide excellent wildlife and bird habitat, help control flooding, and protect water quality by absorbing stormwater runoff. Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated. Local governments can support wetland protection through zoning and by requiring wetland permits from state and federal agencies, prior to granting local zoning permits.

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider amending the Ordinance to make it clear that permits are required for any state or federally regulated wetlands in the Village, before any permit on a wetland parcel is issued, regardless of the zoning district. An applicant should be required to demonstrate that disturbing the wetland does not require a state or federal permit.

**SUGGESTED ACTION:** Consider establishing a wetland setback of 25’ similar to shoreline setbacks, to help protect wetlands in the Village.

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, providing habitat, and minimizing flooding, it is beneficial to educate citizens on the importance of protecting wetlands.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 10, ADEQUATE

Groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important. Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work.

Site Plan Review is required in Alanson to ensure there are no unnecessary threats posed to groundwater availability by new or redevelopment proposals. Article XXIX requires a proposal to show: “Expected demands on community services, and how these services are to be provided, to specifically include: ...volume of water consumption related to ground water reserves or community system capacity...” (Village of Alanson, Mich., Zoning Ordinance, art. XXIX, § 1906(b), at 82, <http://www.villageofalanson.com/services/planning-zoning-department/>)

The Alanson Site Plan Review process also addresses groundwater quality protection: “Statements relative to the impact of the proposed development on soil erosion, shoreline protection, wildlife habitat ...water pollution (ground and surface), noise and the scale of development in terms of the surrounding environment.” Id.

### Groundwater and Wellhead Protection: RECOMMENDATIONS

**SUGGESTED ACTION:** The Zoning Ordinance should prohibit both direct and indirect discharge of hazardous substances to groundwater without appropriate approvals/permits.

**SUGGESTED ACTION:** If not already in place, protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in regular coordination with Local Emergency Planning Committee efforts.

## Other

POSSIBLE SCORE: 48

TOTAL SCORE: 32, ADEQUATE

The Other category is not applicable to the Village of Alanson. The checklist evaluation score reflects this. We have no recommendations for this element.

## Conclusion

We applaud the water protection measures that exist. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*Straits of Mackinac*

## SECTION III: Analysis

### Chapter 9 Village of Mackinaw City

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#### Introduction

The breathtaking Village of Mackinaw City has an unusual geographic location that straddles two counties. As noted in the Master Plan: “The Village encompasses 3.2 square miles, and the land area is divided between two geographic townships. The eastern portion is 0.6 square miles in size and consists of Sections 7 and 18 of T39N-R3W (Mackinaw Township in Cheboygan County). The western portion is 2.6 square miles in size and is made up of Sections 11, 12, 13 and 14 of T39N-R4W (Wawatam Township in Emmet County).” [Village of Mackinaw City, Mich., Master Plan, Ch. 1, Location and History, at 1-1 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

“The Village of Mackinaw City is a resort community located on the shores of the Straits of Mackinac at the tip of Michigan’s Lower Peninsula. Mackinaw City is a great place to live, work, and visit with beautiful scenic views of the Great Lakes, Mackinac Bridge, and countryside. The Village is host to over 1.2 million visitors each year who enjoy the Village’s scenic beauty, 100+ retail shops, exciting attractions, marinas, great restaurants, hotels, bed and breakfasts, and campgrounds.” (Village of Mackinaw City website, <http://www.mackinawcity.org/index.php>)

This chapter summarizes results of the Local Ordinance Gaps Analysis project for the Village. It summarizes the evaluation scores, makes recommendations and includes suggested actions. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request.

#### Evaluation Scores and Summary: Little Traverse Township

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 21, STRONG

The Village of Mackinaw City has a Master Plan, approved in 2011. It states that “[t]he Village is located within the Great Lakes’ watershed. The major surface water resources in Mackinaw City are Lake Michigan and Lake Huron.” [Village of Mackinaw City, Mich., Master Plan, Ch. 3, Water Resources, at 3-3 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

Chapter three states that “[t]he major surface water resources in Mackinaw City are Lake Michigan and Lake Huron. Within the Village there are 2.3 miles of Lake Michigan shoreline, and 1.8 miles of Lake Huron shoreline. There are no inland lakes or rivers within the Village limits, however there are three ponds in the east and central portion of the Village... Both groundwater and surface water are vital resources within the Village of Mackinaw City.” Id.

The first goal of the Natural Resources section of the Master Plan is: “Protect sensitive natural resources from inappropriate development. [Its objective is to] [r]equire natural feature inventories for new developments near sensitive natural resource areas; Establish setbacks from natural features including wetlands; Limit density of development permitted with environmentally sensitive areas; Consider potential for groundwater contamination as part of rezoning and special use decisions.” [Village of Mackinaw City, Mich., Master Plan, Ch. 11, Natural Resources, at 11-5 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

The second goal is: “Enhance future development through incorporation of natural features. [The objective is to] [l]ink natural features and open spaces to create a greenway system; Encourage development that preserves open space and lake views; Establish landscape standards that encourage the use of vegetation that compliments existing natural areas.” Id.

The third goal is: “Preserve open spaces, viewshed, natural beauty and critical environmental areas. [Its objectives are to] [i]dentify sensitive environmental areas and viewsheds and target them for public purchase or establishment of private conservation easements; Establish standards that minimize disruption of natural site topography and drainage; Incorporate incentives for open space and viewshed preservation into zoning and subdivision control requirements.” Id.

The final goal is: “Increase public awareness of environmental impacts of development. [The objective is to] [e]ducate landowners on techniques for reducing nutrient run-off and erosion from everyday activities and on appropriate landscaping in areas adjacent to the lakeshore and other environmentally sensitive areas.” Id. This is a very good recommendation.

### Master Plan Components: RECOMMENDATIONS

**SUGGESTED ACTION:** In the next update of the Master Plan, the Village should consider calling for minimizing impervious surfaces in new construction and redevelopment projects, to reduce stormwater runoff and improve infiltration.

### Basic Zoning Components

POSSIBLE SCORE: 54

TOTAL SCORE: 37, STRONG

The Village’s Zoning Ordinance includes major components needed for strong water protections. For example, it has a fee system to cover costs to the community for review of proposal applications or appeals, including any professional reviews. The Zoning Ordinance states that “[f]ees shall be charged for the issuing of such zoning permits... listed on the Permit and Application Fee Schedule held by the Village Clerk and Zoning Administrator or Community Development Director.” [Mackinaw City, Mich., Zoning Ordinances, art. XXIV, § 24-109(H), at 113, <http://www.mackinawcity.org/ordinances-39/>]

It also has methods in place for enforcement. Article XXIV states that “[b]uildings or structures erected, altered, razed, or converted, or uses carried on in violation of any provision of this Ordinance are declared to be a nuisance per se... any and every violation of the provisions of this ordinance; the responsible parties of the land/building shall be guilty of a misdemeanor...” [Mackinaw City, Mich., Zoning Ordinances, art. XXIV, § 24-102(A)-(B), at 107-108, <http://www.mackinawcity.org/ordinances-39/>]

The Zoning Ordinance also requires a pre-application or pre-construction meeting for new development or redevelopment proposals. Article XXIII states that “[p]reapplication Conference with Planning Commission for Concept Review. Prior to formal application submission for a special use permit for a proposed planned development, the developer/applicant shall be required to make a presentation to the Planning Commission in order to discuss initial design concepts and the application of said concepts to the land in question.” [Mackinaw City, Mich., Zoning Ordinances, art. XXIII, § 23-102(Q), at 93, <http://www.mackinawcity.org/ordinances-39/>]

The Village proposal review process is also coordinated with the receipt of other applicable County, State, and/or Federal permits. For example, required coordination on septic systems is cited below, as is the effort to coordinate on wetland permits. Also: “The site plan shall be reviewed by the Planning Commission and other appropriate bodies as heretofore designated with a recommendation for its approval or disapproval and any conditions the Planning Commission or other appropriate bodies feel should be imposed.” [Mackinaw City, Mich., Zoning Ordinances, art. IV, § 4-117(F), at 47, <http://www.mackinawcity.org/ordinances-39/>]

Site Plan Review, Article IV, requires the plan to include “Significant environmental features such as wetlands, shoreline, streams, wood lots, existing trees and vegetation.” Additionally, “In order that building, open space and landscaping will be in harmony with other structures and improvements in the area: ... Recreation and open space areas shall be provided in all multiple family residential developments.” [Mackinaw City, Mich., Zoning Ordinances, art. IV, § 4-117(D)(15), at 46; § 4-117(E)(3), at 47, <http://www.mackinawcity.org/ordinances-39/>] The site plan Review process does not require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

The Village Zoning Ordinance also includes Planned Unit Development (PUD) provisions, which require inclusion of a minimum Open Space threshold. Article XXIII states that “[a] minimum of twenty five (25) percent of the land developed in any planned unit development project shall be reserved for common greenspace and recreational facilities for the residents or users of the area being developed.” [Mackinaw City, Mich., Zoning Ordinances, art. XXIII, § 23-102(I)(1), at 91, <http://www.mackinawcity.org/ordinances-39/>] Allowable uses in the open space are not restricted to low impact uses.

Finally, flexible site design criteria or incentives are available to encourage developers to include open space or cluster design provisions. See Mackinaw City, Mich., Zoning Ordinances, art. XXIII, § 23-102(E), at 90, <http://www.mackinawcity.org/ordinances-39/>.

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** The Site Plan Review process should require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

**SUGGESTED ACTION:** Allowable uses in the open space should be restricted to low impact uses.

#### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 21, ADEQUATE

Two of the most effective ways for a local government to protect water quality through zoning is to require setbacks from the water’s edge, and require a shoreline protection strip. Both of these measures also protect shoreline habitat. The shoreline protection strip, also called a vegetative buffer zone, requires native vegetation between the water and the upland land use.

The only real shorelines in the Village of Mackinaw City are along the coasts of Lake Huron and Lake Michigan. The Zoning Ordinance addresses setbacks this way: Article XXII states that “[r]ear yard setback of all waterfront parcels within the B2 District between Barbara Street and the Village limits shall be forty (40) feet from the ordinary high water mark (579.8 International Great Lakes Datum) as established by P.A. 247 of 1955.” [Mackinaw City, Mich., Zoning Ordinances, art. XXII, § 22-102(K), at 87, <http://www.mackinawcity.org/ordinances-39/>]

There is not a requirement in the Ordinance, however, for a shoreline protection strip of native plant species.

The Emmet County portion of the Village is covered by the County’s *Phragmites* Control Ordinance for the Lake Michigan shoreline. Emmet County passed an “[o]rdinance to Control and eradicate *Phragmites* along the Lake

Michigan shoreline in accordance with Sec 10 of 1941 PA 359, as amended, by providing for the appointment of a *Phragmites* administrator, inspection and reports; by providing for the designation of *Phragmites* eradication zones for *Phragmites* treatment, using procedures intended to comply with Federal and State due process requirements before including private property in such zones; by providing for the required permit application for such treatment; and by providing for payment of permit fees and other costs.” [Emmet County, Mich., Zoning Ordinance, no. 10-2 (2010), <http://www.emmetcounty.org/uploads/Phragmites.pdf>]

The Village does minimally regulate marinas using the Marina Commercial District. See Mackinaw City, Mich., Zoning Ordinances, art. XIX, §§ 19.01-.03 at 81, <http://www.mackinawcity.org/ordinances-39/>.

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** Maintaining native vegetation along the shoreline is critical to preserving water quality and providing wildlife habitat. Shoreline protection strip provisions should be required in all shoreline districts in the Village, with some exception. In the exception areas, however, low cost and effective methods can and should be used to mitigate the impacts of polluted stormwater runoff directly into the city lakes and streams.

**SUGGESTED ACTION:** Encourage a minimum depth of 30 feet for all Shoreline Protection Strips. Require the maintenance and re-establishment of native vegetation and prohibit the use of invasive species.

**SUGGESTED ACTION:** Restrict boat repair and maintenance activities in marinas to clearly marked areas to prevent debris from falling into the water and prevent the spread of invasive species.

**SUGGESTED ACTION:** Require marina fueling stations to have spill containment equipment that is stored in a clearly marked location. Also require a spill contingency plan, and post emergency phone numbers in a prominent location. Finally, signs of leakage or spillage should be investigated immediately, and undertake cleanup in accordance with applicable Best Management Practices (BMPs).

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 7, WEAK

Impervious surfaces prevent infiltration of stormwater, and that significantly alters the quantity, quality and rate of stormwater entering surface waters. Conversely, pervious surfaces, such as unpaved ground, slow the movement of stormwater, allowing sediments, nutrients and other contaminants to infiltrate rather than flowing directly into the receiving water body.

Because impervious surfaces limit opportunities for rainwater to naturally percolate into the soils, it reduces the opportunity for contaminants to be removed from stormwater runoff, before it flows into lakes, rivers, and wetlands. The more a local unit of government can do to reduce impervious surfaces, the better for water quality.

The Master Plan includes this positive note: “[T]he Village may incorporate [Leadership in Energy and Environmental Design] recommended site improvement standards such as pervious surfaces and other low-impact design features to reduce stormwater run-off.” [Village of Mackinaw City, Mich., Master Plan, ch. 9, Building Design and Rehabilitation, at 9-2 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

The Zoning Ordinance does partially address these concerns, using Open Space. Article IV states that “[d]evelopment occurring within the RM, B1, B2, MR, MRS, BC, MC, and CR Districts shall require a minimum of twenty-five (25) percent of parcel to be landscaped open space, also called greenspace.” [Mackinaw City, Mich., Zoning Ordinances, art. IV, § 4-114, at 40, <http://www.mackinawcity.org/ordinances-39/>]

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** The Zoning Ordinance should allow more flexibility to reduce the number of parking spaces constructed, if warranted by the proposed development. Further, it should also require some portion of proposed parking lots to be planted with trees/vegetation within the parking lot paving. Finally, allow the location of bioretention, rain gardens, filter strips and swales in parking lots, required setback areas, and common areas, as appropriate.

**SUGGESTED ACTION:** Provide incentives for using LID techniques to mitigate the impacts of impervious surfaces.

### Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 14, ADEQUATE

Closely related to impervious surfaces is the topic of stormwater runoff and management. Local governments can do much to reduce polluted stormwater runoff as part of their zoning ordinance, and they should. Stormwater runoff from buildings, driveways, parking lots, streets, and other impervious surfaces is a major source of pollutants to northern Michigan’s waterways.

The Village of Mackinaw City does address stormwater runoff. As noted in the Master Plan, “The Village has a stormwater collection and drainage system for many of the Village streets as shown in Figure 4-4. There are 16 outfall points, with four to Lake Michigan and 12 to Lake Huron. The outfall sizes range from 12" diameter to 30" diameter, and there are also two box culverts that empty to Lake Huron. The Village has also utilized leaching basins in lieu of storm sewer for portions of the northeast residential streets. The majority of the storm drainage system is controlled by the Village, however, Michigan Department of Transportation (MDOT) has jurisdiction on I-75 drainage and a portion of the most recently constructed discharge point is private, serving the Mackinaw Crossings. One discharge point handles the overflow from Dry-dock Lake.” [Village of Mackinaw City, Mich., Master Plan, Ch. 4, Community Services, Facilities, and Organizations, at 4-6 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>].

Also, the Village General Ordinance states that “[n]o unauthorized person shall uncover, make any connection with or opening into, use, alter or disturb any storm sewer or appurtenance thereof without first obtaining a written permit from the Village Superintendent. All costs and expense incident to the installation and connection to the storm drain shall be borne by the property owner. Plans for all connections to the storm drain shall be submitted to the Village Superintendent before construction is undertaken.” [Mackinaw City, Mich., General Ordinances, part. 23, Ch. 25.210, § 10, (1)-(3), <http://www.mackinawcity.org/ordinances-39/>]



Additionally, “All permits for operations in or affecting watercourses or wetlands shall be referred to the Village engineer who shall report back to the Council as to what effect the proposed operation may have on the subject property, adjacent properties, other properties in the watershed or any public properties, including streets, sewers, parks, drains, etc. He shall also evaluate whether adequate provision has been made for flooding and spring melt-offs.” [Mackinaw City, Mich., General Ordinances, part. 35, Ch. 35.358, § 8, <http://www.mackinawcity.org/ordinances-39/>]

### **Stormwater Management: RECOMMENDATIONS**

**SUGGESTED ACTION:** Consider adding review of stormwater BMPs and other water quality protections to Site Plan review.

#### **Soil Erosion and Sediment Control**

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

The Village of Mackinaw City requires a permit or site plan approval prior to earth changing actions adjacent to water features, wetlands, or storm drains. The General Ordinance Part 35 notes a permit is needed “to regulate and control changes in the man-made or natural terrain including those which affect watercourses, wetlands or drains.” [Mackinaw City, Mich., General Ordinances, part. 35, Ch. 35.350, <http://www.mackinawcity.org/ordinances-39/>. See also Mackinaw City, Mich., General Ordinances, part. 35, Ch. 35.364, § 14, <http://www.mackinawcity.org/ordinances-39/>]

All properties that are located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff.

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.

We have no recommendations for this element.

#### **Sewer/Septic**

POSSIBLE SCORE: 24

TOTAL SCORE: 9, ADEQUATE

The Village has a delineated Sewer Service Area that has been mapped. Additionally, it is expected that residences and businesses with septic systems address siting and permitting issues with the Health Departments of either Emmet or Cheboygan County, depending on the septic location. Chapter four of the Master Plan states that “[t]he existing water and sewer distribution system is mapped in Figure 4-2 and 4-3. Currently, outlying areas not served by the existing municipal water and sewer systems must rely on individual wells and private on-site septic systems. Appropriate location and permitting of these systems is handled by the appropriate District Health Department.” [Village of Mackinaw City, Mich., Master Plan, Ch. 4, Water and Sewer Systems, at 4-2, 4-3 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

Additionally, the General Ordinance states, “Where a public sanitary sewer or combined sewer is not available under Section 2, Subsection 4, the building sewer shall be connected to a private sewage disposal system as approved by the District Public Health Department.” [Mackinaw City, Mich., General Ordinances, part. 25, Ch. 25.203, § 3(1), <http://www.mackinawcity.org/ordinances-39/>]

### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

#### Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 8, ADEQUATE

As noted in the Village Master Plan, the benefits of wetlands are numerous. “Residents of Michigan are becoming more aware of the value of wetlands. Beyond their aesthetic value, wetlands improve water quality of lakes and streams by filtering polluting nutrients, organic chemicals and toxic heavy metals. Wetlands are closely related to high groundwater tables and serve to discharge or recharge aquifers. Additionally, wetlands support wildlife, and wetland vegetation protects shorelines from erosion.” [Village of Mackinaw City, Mich., Master Plan, Ch. 3, Water Resources, at 3-7 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

There is no general setback requirement for development near wetlands but Article XXIII, the Zoning Ordinance requirements for PUDs, includes: “All sensitive natural features such as drainageways, streams, wetlands, lands with 100 yr flood plains, land on slopes of 12% or > and stream / river banks shall remain unencumbered by residential building structures.” [Mackinaw City, Mich., Zoning Ordinances, art. XXIII, § 23-102(J)(4), at 46, <http://www.mackinawcity.org/ordinances-39/>]

Mackinaw City is very specific about requiring state and federal wetland permits, where appropriate. For example, the Master Plan notes, “Existing wetlands areas are found primarily in the undeveloped portions of the Village, most notably in areas immediately west of I-75. Wetlands which meet statute criteria under Michigan's Wetland Protection Act are regulated by the State and require a permit before draining, filling, dredging or construction.” [Village of Mackinaw City, Mich., Master Plan, Ch. 3, Water Resources, at 3-7 (2011), <http://www.mackinawcity.org/plans-and-reports-40/>]

Additionally, in order to prevent the creation of unbuildable lot splits that consist of mostly wetlands, the General Ordinance states that “[u]nless a division creates a parcel which is acknowledged and declared to be ‘not buildable’ under Section 8 [17.058] of this Ordinance, all divisions shall result in ‘buildable’ parcels containing sufficient ‘buildable’ area outside of unbuildable wetlands, flood plains and other areas where buildings are prohibited there from, and with sufficient area to comply with all required setback provisions, minimum floor area, off-street parking spaces, on-site sewage disposal and water well locations (where public water and sewer service is not available), and maximum allowed area coverage of buildings and structures on the site.” [Mackinaw City, Mich., General Ordinances, part. 17, Ch. 17.055, § 5(H), <http://www.mackinawcity.org/ordinances-39/>]

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, providing habitat, and minimizing flooding, it is beneficial to educate citizens on the importance of protecting wetlands.

**SUGGESTED ACTION:** Per the Village Master Plan recommendations, consider establishing a wetland setback of 25’ to help protect wetlands in Mackinaw City.

## Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 15, Strong

As noted earlier in this book, the Michigan State Wellhead Protection Program assists local communities to protect their water sources, if they use ground water for their drinking water supply systems. There are two types of plans that can be submitted for approval. The first is a Source Water Protection Area, which designates plans that are done for community well fields that do not test positive for tritium, a radioactive isotope of hydrogen. If the tritium test is positive, a Wellhead Protection Area plan is done, which is a more extensive process. The Village of Mackinaw City is one of nine communities in Emmet County that have taken part in this program.

“Our water comes from four groundwater wells. These wells are located throughout the village... In 2004 the state approved the Village of Mackinaw City’s ‘Wellhead Protection Plan’. The 4 production wells... obtain ground water from an aquifer that would be characterized as moderately high susceptibility to contamination. The State performed an assessment of our source water in 2003.” [Annual Drinking Water Quality Report, Village of Mackinaw City, January 1, 2011 through December 31, 2011; <http://www.mackinawcity.org/water-quality-reports-88/>]

The General Ordinance states that “[i]t shall be the duty of the Mackinaw City Water Department to cause inspections to be made of all properties served by the public water supply where cross connection with the public water supply is deemed possible. The frequency of inspections and re-inspections based on potential health hazards involved shall be as established by the Water Department and as approved by the Michigan Department of Environmental Quality.” [Mackinaw City, Mich., General Ordinances, part. 25, Ch. 25.152, § 2, <http://www.mackinawcity.org/ordinances-39/>]

We have no additional recommendations for this element.



*French Farm Lake*

**Other**

POSSIBLE SCORE: 48

TOTAL SCORE: 24, ADEQUATE

The Village participates in the National Flood Insurance Program (Federal Emergency Management Agency Community Status Book Report Michigan, Communities Participating in the National Flood Program, CID No. 260675, <http://www.fema.gov/cis/MI.pdf>).

Also noted above was Ordinance language regarding development of floodplain by PUDs [Mackinaw City, Mich., Zoning Ordinances, art. XXIII, § 23-102(J)(4), at 46, <http://www.mackinawcity.org/ordinances-39/>].

We have no further recommendations for this element.

**Conclusion**

We applaud the strong water protection measures that exist in the Village of Mackinaw City. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*Village of Pellston*

## SECTION III: Analysis

### Chapter 10 Village of Pellston

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#### Introduction

This chapter is devoted to the community affectionately known as the “Icebox” of Michigan. In 1933, Pellston recorded the State of Michigan's record low temperature, -53° F! “With temperatures in Pellston well below zero for an average of around 40 days each winter, and beginning each November averaging the coldest temperatures in the state, it continues to be one of the coldest places in the nation.” (Village of Pellston website, <http://www.pellstonmi.com/icebox.htm>)

Interestingly, the major water resource of Pellston contributes to these frigid conditions. “The record lows and the continuous cold streaks in Pellston are caused by a unique geography, as the village sits in a basin of sand between two vast semi-circular hill ranges. As the Maple River passes thru the basin, evaporation causes dense daytime cloud-cover, reflecting much of the sun’s heat away from the valley. As night falls and the air cools, those low-level clouds disperse, allowing most of the remaining heat to radiate up and out of the basin.” Id.

The West Branch of the Maple River does more than keep Pellston cold, however; it is also a rich trout stream, attracting anglers in addition to river enthusiasts. Many tourists are attracted to the Village because it is very close to several area ski resorts. “Also, the many railroad grades that came into Pellston in the early 1900's for the lumber mills are now some of the longest and best snowmobile trails in all of Michigan’s Lower Peninsula, allowing a rider to go from Mackinaw City to Harbor Springs and beyond.” Id. It is easy for tourists to reach Pellston – it is also home to the convenient regional airport.

This chapter reviews results of the Local Ordinance Gaps Analysis project for the Village of Pellston. It summarizes the evaluation scores, makes recommendations, and includes suggested actions. In accordance with the Literature Review, each Critical Element below is scored and ranked. The Project Evaluation and Analysis section of the Introduction to this book describes the scoring and ranking, and the entire completed checklist is available upon request.

#### Evaluation Scores and Summary: Village of Pellston

##### Master Plan Components

POSSIBLE SCORE: 30

TOTAL SCORE: 24, STRONG

The Master Plan is hot off the presses; updated in 2012 and adopted in January 2013. The Village website notes in the Documents Tab that additional postings are forthcoming. We hope that the Master Plan will be included, to make it more accessible to citizens, businesses, and visitors; it should be. It took a lot of work, and has included some very good information regarding water resource protection.

As noted above, the major water resource of the Village is the West Branch of the Maple River, and the Plan includes a map of its location. The Village of Pellston Master Plan does not specifically identify the watershed(s) in which the community is located. [Village of Pellston, Mich., Master Plan, Ch.1, Introduction, at 5 (2012)].

One Village goal is to “Protect Natural Resources” by acting “[t]o preserve, protect and maintain natural resources for the enjoyment of residents, visitors and future generations.”

Included under this goal are some basic objectives, critical to water protection:

1. Protect groundwater and surface water resources from contamination, by incorporating protection measures into zoning and other ordinances, in cooperation with Emmet County and the State of Michigan.
2. Utilize Best Management Practices to regulate and minimize stormwater discharge into the Maple River.
3. Encourage land use patterns that protect natural features and water resources.
4. Update Village Zoning Ordinance to protect all natural resources in the Village.
5. Work in conjunction with other local, county, regional, state and federal officials to monitor environmental issues both in the village and nearby.
6. In order to reduce the amount of pollution which may be released from these systems, residents should refrain from disposing of certain chemicals such as ammonia, bleach, and other hazardous substances in their septic systems, and perform regular system maintenance.
7. Require environmental site review for all proposed industrial developments.

Another Village goal is: “To preserve, protect and maintain environmentally sensitive areas, open space and public parks for the enjoyment of residents, visitors and future generations.” [Village of Pellston, Mich., Master Plan, Ch. 2 (B), at 9; (D), at 10 (2012)]

Objectives for this goal include: “Protect groundwater and surface water resources from contamination, by incorporating protection measures into zoning and other ordinances, in cooperation with Emmet County and the State of Michigan.”

### **Master Plan Components: RECOMMENDATIONS**

**SUGGESTED ACTION:** Post the new Master Plan on the website to allow easy access for residents, businesses, and visitors.

**SUGGESTED ACTION:** The next time the Master Plan is updated, consider including the watershed(s) in which the community is located; identification and protection of Wildlife corridors; and acknowledging the importance of well-constructed and maintained road stream crossings on the quality of stream and water resources.

### **Basic Zoning Components**

POSSIBLE SCORE: 54

TOTAL SCORE: 31, ADEQUATE

The Zoning Ordinance for the Village is enacted: “pursuant to the authority conferred by the Public Acts of the State of Michigan... made and provided for the purpose of promoting and protecting the public health, safety, peace, comfort, convenience, and general welfare of the inhabitants of the Village of Pellston, by protecting and conserving the character and social and economic stability of the residential, commercial, industrial and other use areas; by securing the most appropriate use of land; preventing overcrowding of the land and undue congestion of population; providing adequate light, air and reasonable access, all in accordance with a comprehensive plan, now therefore[.]” (Village of Pellston, Mich., Zoning, Preamble, at 7, <http://www.pellstonmi.com/zoningpdf.html>)

It includes a fee system to cover costs to the community for review of proposal applications or appeals, and has methods in place for enforcement. “Fees for inspection and issuance of permits or copies thereof required or issued under the provisions of this Ordinance may be collected by the Zoning Administrator in advance of issuance...” (Village of Pellston, Mich., Zoning, art. 22, § 22.5, at 106, 108, <http://www.pellstonmi.com/zoningpdf.html>)

Importantly, the Village proposal review process is coordinated with the receipt of other applicable County, State, and/or Federal permits. The Ordinance states that the applicant will be informed that “this permit does not do away with the necessity for permits showing conformity with the Building Code, Sanitary Code, and other requirements of the County of Emmet and State of Michigan, and that no construction shall be commenced until these other legal requirements have been fully met.” [Village of Pellston, Mich., Zoning, art. 22, § 22.3(3), at 107, <http://www.pellstonmi.com/zoningpdf.html>]

The Zoning Ordinance does include Site Plan Review, which is required to indicate all existing natural features. “The Site Plan Review Committee shall approve a site plan if it determines that...3) the proposed project will be compatible with adjacent uses of land, the natural environment, and the capacities of public services and facilities affected by the proposed project...” (Village of Pellston, Mich., Zoning, art. 23, § 23.4 at 121-22, <http://www.pellstonmi.com/zoningpdf.html>)

The Site Plan Review process does not require developers to consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

The Ordinance also includes Planned Unit Development (PUD) provisions, which require the inclusion of a minimum open space threshold. It does not require the Open Space to be managed in a natural condition, nor restricted to low impact uses. The Zoning Ordinance notes that “[a] minimum of twenty five percent (25%) of the land area of the Planned Unit Development devoted to multiple-family residential use shall consist of common open space.” [Village of Pellston, Mich., Zoning, art. 15, § 15.2(7), at 58, <http://www.pellstonmi.com/zoningpdf.html>]

### Basic Zoning Components: RECOMMENDATIONS

**SUGGESTED ACTION:** Open Space should be required to be managed in a natural condition, and allowable uses in the Open Space should be restricted to low impact uses.

**SUGGESTED ACTION:** The Village should also consider a requirement that developers consult with the Michigan Department of Environmental Quality about Threatened or Endangered Species on site.

#### Shorelines

POSSIBLE SCORE: 60

TOTAL SCORE: 41, STRONG

Two of the most effective ways to protect and maintain water quality through zoning are building setbacks, and the establishment of vegetated buffers, or shoreline protection strips. Pellston has created a Greenbelt Area for the Village that addresses both of these important techniques for water health. Given that the key water resource in the jurisdiction is the Maple River, this is a very important approach to shoreline protection.

First, the Village Zoning Ordinance requires a minimum shoreline setback from the Maple River to minimize harmful runoff and erosion. The Ordinance states that “[t]he Greenbelt Area shall include all of the land and water, 100 feet either side of and parallel to the center line of the Maple River.” (Village of Pellston, Mich., Zoning, art. 14, § 14.2, at 57, <http://www.pellstonmi.com/zoningpdf.html>)

Additionally, the Ordinance requires riparian buffers: “No buildings shall be erected, constructed, or located within the Greenbelt Area. With the exception of tree removal for the purpose of building erection in conformity with the above restriction, no vegetation or trees of any kind shall be removed from the Greenbelt Area. This requirement, however, shall not be interpreted so as to prohibit selective tree cutting (with Village Council permission) to remove dangerous trees or other tree and shrub removal that may prevent The Greenbelt Area from being retained in a healthful, growth condition.” [Village of Pellston, Mich., Zoning, art. 14, § 14.3(1)-(2), at 57, <http://www.pellstonmi.com/zoningpdf.html>]

### Shorelines: RECOMMENDATIONS

**SUGGESTED ACTION:** The Ordinance should require native plant species in riparian buffer zone, and invasive plants should be prohibited from being used.

### Impervious Surfaces

POSSIBLE SCORE: 33

TOTAL SCORE: 10, WEAK

Impervious surfaces – streets, roofs, sidewalks, etc. – generate much more stormwater runoff than natural forested, or even agricultural, land uses. That polluted runoff discharges directly into the Maple River from pavement and rooftops, and includes bacteria from pet and animal wastes, fertilizer, oil and grease, sediment, heavy metals, salt, etc.

To reduce impervious surfaces, a community should increase the retention or restoration of native vegetation in riparian areas and in Open Spaces, and install simple and effective solutions, ranging from rain barrels and rain gardens, to engineering approaches that treat stormwater that has traveled across impervious surfaces, before it discharges into the water.

The Zoning Ordinance only partially limits impervious lot coverage. The Table on page 56 is a Schedule of Regulations, but it does not indicate flexible site design criteria or incentives to reduce impervious surfaces or mitigate stormwater impacts, in exchange for a larger building footprint. On a positive note, the maximum percent of lot coverage in Scenic Resource Areas is 10%. (Village of Pellston, Mich., Zoning, art. 13, tbl. 1, at 56, <http://www.pellstonmi.com/zoningpdf.html>)

The Ordinance does not specify how setbacks can be used, except in the case of the Scenic Resource District. There, the Ordinance specifies, “This additional setback shall maintain not less than 80% of its area as natural vegetation and forest cover.” This is a good approach for maintaining pervious grounds that allow infiltration of area stormwater runoff (Village of Pellston, Mich., Zoning, art. 7, § 7.5, at 42, <http://www.pellstonmi.com/zoningpdf.html>).

### Impervious Surfaces: RECOMMENDATIONS

**SUGGESTED ACTION:** To reduce impacts from impervious surfaces, consider the use of perforated curbs (allows water to flow into swales), invisible curbs (flush with road surface), or open swales in future street projects, instead of curb and gutter. These techniques help reduce stormwater runoff, protecting surface water resources.

**SUGGESTED ACTION:** Allow reductions in the size of parking and loading areas when appropriate for water quality protection, or encourage use of grass parking areas or pervious pavers.

**SUGGESTED ACTION:** Establish impervious surface lot coverage limits in all zoning districts to cap impervious surfaces at 15% of the total lot. Consider providing incentives for using Low Impact Development (LID) techniques to mitigate the impacts of impervious surfaces, in exchange for a larger building footprint.



## Stormwater Management

POSSIBLE SCORE: 27

TOTAL SCORE: 1, WEAK

Soil Erosion and Sedimentation Control is covered by Emmet County for the Village of Pellston, but stormwater control is not. However, the Village Zoning Ordinance does address some stormwater issues. For example, PUDs are required to include the “[l]ocation and dimensions of proposed streets, alleys, easements and storm water control areas...” and “Final Engineering: Complete and detailed engineering which shows the design of the sanitary sewer, water, storm water control, flood control, and street facilities including specifications.” [Village of Pellston, Mich., Zoning, art. 15, § 15.19, (2)(a), (vii), (xi), (xiii), at 64-65; § 15.19(3)(f), at 67, <http://www.pellstonmi.com/zoningpdf.html>]

The Ordinance also states that “private road[s] shall be constructed in a manner determined adequate by the Qualified Licensed Engineer to provide effective storm water drainage and to prevent run-off onto adjacent property.” [Village of Pellston, Mich., Zoning, art. 3, § 3.10(3)(k), at 28, <http://www.pellstonmi.com/zoningpdf.html>]

### Stormwater Management: RECOMMENDATIONS

**SUGGESTED ACTION:** Consider adding review of stormwater Best Management Practices and other water quality protections in the Site Plan review.

**SUGGESTED ACTION:** Require stormwater management systems to be regularly evaluated and properly maintained, to ensure that no discharge of polluted runoff enters the Maple River and adjacent waters.

**SUGGESTED ACTION:** The Village should prohibit stormwater from exiting the property after exposure to any harmful sources.

### Soil Erosion and Sediment Control

POSSIBLE SCORE: 18

TOTAL SCORE: 18, STRONG

All properties that are located near streams, wetlands, or drainage ways have the potential to erode and cause sedimentation to nearby waters. At the state level, Part 91 of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended, addresses Soil Erosion and Sedimentation Control (SESC). From Part 91, a state program was implemented to regulate the pollution of Michigan waters, due to improper construction site management practices, including improper stormwater runoff.

Counties are mandated to administer and enforce Part 91, and Emmet County has two state-recognized agencies that do so: The Soil Erosion Control Officer and the County Road Commission. If any project is within 500 feet of a lake or stream, or if a project disturbs more than one acre of earth, applicants are required to contact the County's Soil Erosion Control Officer for a permit.

We have no recommendations for this element.

### Sewer/Septic

POSSIBLE SCORE: 24

TOTAL SCORE: 0, MISSING

“There is no municipally supplied water and /or sewer service in the village of Pellston.” [Village of Pellston, Mich., Master Plan, Ch. 9 (C), at 54 (Proposed)]

#### Sewer/Septic: RECOMMENDATIONS

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

**SUGGESTED ACTION:** Consider the benefits of enacting a “point of transfer” septic inspection ordinance, working in coordination with the County, other municipalities, and the Health Department.

### Wetlands

POSSIBLE SCORE: 21

TOTAL SCORE: 0, MISSING

The Village of Pellston protects wetlands by coordination with the state. As noted earlier, the Ordinance states that applicants will be notified that “this permit does not do away with the necessity for permits showing conformity with the Building Code, Sanitary Code, and other requirements of the County of Emmet and State of Michigan, and that no construction shall be commenced until these other legal requirements have been fully met.” [Village of Pellston, Mich., Zoning, art. 22, § 22.3(3), at 107, <http://www.pellstonmi.com/zoningpdf.html>] This is a very important and helpful step that local governments can take to protect wetlands in their jurisdiction.

The benefits of wetlands are numerous. They provide excellent wildlife and bird habitat, help control flooding, and contribute to water quality protection by absorbing stormwater runoff. Although Michigan has a statewide wetland protection statute, not all wetlands are covered and not all activities that could impact wetlands are regulated. In addition to requiring wetland permits from state and federal agencies, prior to granting local zoning permits, local governments can support wetland protection through zoning tools.

### Wetlands: RECOMMENDATIONS

**SUGGESTED ACTION:** Given the important role that wetlands play in protecting water quality, it is beneficial to educate citizens on the importance of protecting wetlands.

**SUGGESTED ACTION:** Consider establishing a wetland setback of 25' similar to shoreline setbacks, to help protect wetlands in the Village.

#### Groundwater and Wellhead Protection

POSSIBLE SCORE: 18

TOTAL SCORE: 9, ADEQUATE

Groundwater is the primary source of drinking water for nearly all Northern Michigan residents. Protecting groundwater resources from contamination is vitally important. Discharges to groundwater are regulated by the state under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA) 1994 PA 451, and Part 22 Rules. Any proposed discharges should be prohibited until required state permits are received by the applicant. Storage of hazardous material is also regulated under Part 5 Rules issued for Part 31. This includes Pollution Incident Prevention Plans, which can be efficiently coordinated with Local Emergency Planning Committee work. The Village addresses groundwater protection in a few important places.

The Village addresses groundwater protection in one important place. For PUDs: "Each project shall be designed to have a minimal adverse effect on the environment, as documented by the environmental impact statement if one is required. Special emphasis shall be placed on maintaining the quality of ground water, streams, and rivers. Trees shall be preserved wherever feasible." [Village of Pellston, Mich., Zoning, art. 15, § 15.8, at 60, <http://www.pellstonmi.com/zoningpdf.html>]

#### Groundwater and Wellhead Protection: RECOMMENDATIONS

**SUGGESTED ACTION:** If direct or indirect discharges to groundwater are proposed, use site plan review or some other ordinance provision to prohibit this, until appropriate approvals or permits are obtained from the state.

**SUGGESTED ACTION:** If not already done, protect groundwater from potential contamination by requiring Pollution Incident Prevention Plans for storage of hazardous materials, in regular coordination with Local Emergency Planning Committee efforts.

#### Other

POSSIBLE SCORE: 48

TOTAL SCORE: 32, ADEQUATE

The Other category is not applicable to the Village of Pellston. The checklist evaluation score for this section reflects this. We have no recommendations for this element.

### Conclusion

We applaud the strong water protection measures that exist in the Village of Pellston. We also thank you for your time and attention in reading this chapter, and hope that our recommendations are helpful. However, if anything is unclear, please be sure to let us know. If you have any questions related to this project, please contact Tip of the Mitt Watershed Council at 231.347.1181.



*Maple River*



**DOCUMENT REVIEW CHECKLIST  
for  
LOCAL ORDINANCE GAPS ANALYSIS**

**CATEGORIES:**

- Master Plan
- Basic Zoning
- Shorelines
- Impervious Surfaces
- Stormwater
- Soil Erosion and Sediment Control
- Sewer/Septic
- Wetlands
- Groundwater and Wellhead Protection
- Other Relevant Elements

**SCORING:**

For each "yes" answer, score 3 points.  
 If the answer is "yes, partially" score 2 points and explain in Comments section.  
 If the answer is "yes, minimally" score 1 point and explain in Comments section.  
 If the answer is "no" award 0 points.

Each section allows for Additional Remarks that support the scoring or the awarding of *+ bonus points*, or penalties taken using *- bonus points*. The Bonus Points system is included to enable relevant adjustments. This is to allow for unexpected circumstances, such as the suggested ordinance language does not apply, or is inappropriate for some reason. The intent is to recognize that every jurisdiction does not necessarily need every ordinance section included here, for a variety of reasons. It exists to ensure jurisdictions are not unfairly ranked or perceived in these kinds of circumstances.

If the Bonus Points system is used because that resource protection effort does not apply in the jurisdiction due to geography, only points from the "adequate" range can be used; there is no assumption of the value of imagined language, just an avoidance of penalizing the jurisdiction in this survey for something that does not apply. Using the Bonus Points system for anything else is flexible, since it is designed to allow for the unexpected; the only requirement is to use the existing scoring options and justify the addition or subtraction of points using the narrative space.

**DISCLAIMER:** *This research is not intended as legal advice. All local governments are encouraged to consult legal counsel before adopting any resolution or ordinance.*

*Additionally, many jurisdictions have been reviewed here, but this is a snapshot in time using ordinances adopted as of May 2009. We caution you to be sure the current plans and ordinances have not changed since this review was completed.*

V.7-30-11

*Name of Jurisdiction:* \_\_\_\_\_

*Date Completed:* \_\_\_\_\_

*Name of Reviewer:* \_\_\_\_\_

<b>I. Master Plan</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b> <i>NOTE: ANSWER EITHER QUESTION #1 OR #2, NOT BOTH.</i>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
1. Does Master Plan exist? <i>(If yes, note when scheduled for review again in Comments section)</i> <b>OR</b>		
2. If no Master Plan, is one currently being drafted? <i>(If yes, note relevant deadlines in Comments section)</i>		
3. Does the Master Plan specifically identify the <b>watershed(s)</b> in which the community is located?		
4. Does the Master Plan have a complete <b>inventory of lakes, rivers, and wetlands</b> , with maps of their locations? Does it identify and map <b>groundwater recharge</b> areas?		
5. Does the jurisdiction's Master Plan have a specific and focused <b>goal</b> or statement of intent to <b>protect water</b> resources? If yes, note it in Comments section.		
6. Does the Master Plan include goals for community acquisition or conservation of <b>Open Space</b> to protect <b>surface water, ground water, and wetlands</b> ?		
7. Does the Master Plan identify <b>stormwater management</b> as an important community policy? <sup>1</sup>		
8. Does the Master Plan call for minimizing <b>impervious surfaces</b> in new construction and redevelopment projects to reduce stormwater runoff and improve infiltration? <sup>2</sup>		
9. Does the Master Plan include identification and protection of <b>Wildlife corridors</b> ?		
10. Does the Master Plan identify and call for preservation of undisturbed <b>Natural Areas</b> and/or <b>Natural River designations</b> for surface water and ground water?		
11. Does the plan acknowledge the importance of well-constructed and maintained <b>road stream crossings</b> on the quality of stream and water resources?		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b> <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION I</b>		
(QUESTIONS 1 & 2 COUNT AS ONE - ANSWER IS ONE OR THE OTHER) <b>TOTAL POINTS POSSIBLE</b>		<b>30</b>
<b>30-21=strong 20-11=adequate 10-0=weak</b>		

<b>II. Basic Zoning Elements</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>Zoning Ordinance: Administrative</b>		
1. Does Zoning Ordinance have a statement of <b>purpose</b> or intent that includes protection of water and/or natural resources?		
2. Does it include a <b>fee system</b> to cover costs to the community for review of proposal applications or appeals, including any professional reviews? <sup>3</sup>		
3. Does Zoning Ordinance have methods in place for <b>enforcement</b> , including a clearly defined process for inspections and correction of violations? <sup>4</sup>		
4. Is Zoning Ordinance proposal review process <b>coordinated</b> with the receipt of other applicable County, State, and/or Federal <b>permits</b> ?		
5. Does it require a <b>pre-application or pre-construction meeting</b> for new development or redevelopment proposals?		
6. Does the Zoning Ordinance include requirements for <b>environmental assessment</b> , at the expense of the applicant, for proposals that include a land area of five acres or more, or building over 50,000 sq ft? <sup>5</sup>		
<b>Zoning Ordinance: Site Plan Review</b>		
7. Does the Zoning Ordinance require Site Plan Review?		
8. Is the Site Plan required to indicate all existing <b>natural features</b> ?		
9. Does the Site Plan Review process require a <b>Soil Erosion and Sedimentation Control Plan</b> , or coordination with County regulations?		
10. Does Site Plan Review process include <b>open space</b> provisions? <sup>6</sup>		
11. Does the site plan review process require developers to consult with the Michigan Department of Environmental Quality about <b>Threatened or Endangered Species</b> on site? <sup>7</sup>		
<b>Zoning Ordinance: PUD</b>		
12. Does ordinance include Planned Unit Development ( <b>PUD</b> ) provisions? <sup>8</sup>		
13. Do PUDs require inclusion of a <b>minimum open space</b> threshold?		
<b>Zoning Ordinance: Open Space</b>		
14. Are <b>flexible site design criteria</b> or <b>incentives</b> available to encourage developers to include <b>open space</b> or cluster design provisions? <sup>9</sup>		
15. Does the open space have to be <b>managed</b> in a <b>natural condition</b> ? <sup>10</sup>		

16. Are allowable uses in the open space restricted to <b>low impact uses</b> ? <sup>11</sup>		
17. Is open space required to be protected through a <b>conservation easement</b> or other similar mechanism? <sup>12</sup>		
<b>Zoning Ordinance: Special Districts</b> 18. Does Zoning Ordinance include sensitive area protections, such as <b>Natural Rivers</b> designations where appropriate? <sup>13</sup>		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b> <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
		<b>BONUS POINTS (+ OR -)</b>
		<b>TOTAL POINTS SECTION II</b>
		<b>TOTAL POINTS POSSIBLE</b>
		<b>54</b>
<b>54-37=strong; 36-19=adequate; 18-0=weak</b>		

<b>III. Shorelines</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<p><b>Shorelines: Setbacks</b> <i>Great Lakes Shoreline</i></p> <p>1. If the community has a Great Lakes Shoreline, does it use an <b>Overlay District</b>, or <b>other tools</b>, to protect the shoreline with <b>setbacks</b>? <i>SCORE: 3 points 100'; 2 points 75-99'; 1 point less than 75'</i></p>		
<p>2. Does the <b>Overlay District</b> use a <b>resource-based variable boundary approach</b>, mapping all important shoreline resources, and establishing a boundary line of at least 200 feet? <b>OR</b> Does it use a <b>fixed-distance boundary line approach</b>, drawn parallel to the shoreline or ordinary high water mark, at a fixed-distance of 500 feet?<sup>14</sup></p>		
<p>3. For a Great Lakes Shoreline, does the Zoning Ordinance delineate a separate minimum <b>setback</b> and/or other protection measures for <b>dunes</b> and <b>high risk erosion</b> areas?<sup>15</sup></p>		
<p>4. If so, are <b>key definitions included</b> for: the Ordinary High Water Mark, foredune crests, steep bluffs, mature forested vegetation, and principle shoreline structures?<sup>16</sup></p>		
<p><i>Inland Lakes and Streams</i></p> <p>5. Does the Zoning Ordinance require a <b>minimum</b> shoreline <b>setback of 25'</b> for <b>inland lakes and streams</b>, specifically to minimize harmful runoff and erosion?<sup>17</sup> <i>[NOTE: Establishing the width of a setback so it is effective depends on the type and sensitivity of the natural feature and the expected impacts of surrounding land uses. In general, the wider the setback, the more protection it provides.]<sup>18</sup></i> <i>SCORE: 3 points 75'; 2 points 50-74'; 1 point 25-49'</i></p>		
<p><b>Shorelines: Protection Strips</b></p> <p>6. Does Zoning Ordinance require <b>riparian buffers</b>, a minimum of 30' deep, on <b>Inland Lakes and Streams</b>?<sup>19</sup></p>		
<p>7. Does Zoning Ordinance specify the <b>degree of vegetation which may be removed</b> in the riparian buffer zone, to be more effective in curbing runoff pollution, providing for wildlife habitat, and preserving natural scenic beauty?<sup>20</sup></p>		
<p>8. Does it specify the use of <b>native plant species</b> in the riparian buffer zone?<sup>21</sup></p>		

9. Are <b>invasive</b> and <b>exotic</b> plants <b>prohibited</b> from being used? <sup>22</sup>		
10. Does the community provide for treatment to control and manage <b>Phragmites</b> on the Great Lakes shoreline, as well as where it appears on other riparian shorelines and community lands?		
<b>Shorelines: Density</b> 11. Does Zoning Ordinance regulate <b>dock lot minimum frontage</b> , including allowances for legal nonconforming structures? <sup>23 24</sup>		
12. Does Zoning Ordinance regulate the size of <b>docks</b> allowed on inland lakes or streams or rivers, so as not to interfere with the <b>rights of other waterfront owners</b> or <b>negatively affect</b> the character of the <b>natural shoreline</b> ? <sup>25</sup>		
13. Does it regulate the number of <b>motor crafts</b> and <b>rafts allowed</b> per dock, using specific dimensions? <sup>26</sup>		
14. Does Zoning Ordinance regulate the <b>types of structures</b> or <b>dwelling units</b> that are <b>allowed</b> per every 100' of <b>waterfront</b> access to inland lakes or streams or rivers?		
<b>Shorelines: Keyhole/Funneling</b> 15. Does the Zoning Ordinance include keyhole prevention provisions by placing restrictions on the size and type of multi-boat launch and docking sites? <sup>27</sup>		
<b>Shorelines: Road Ends</b> 16. Does the Zoning Ordinance regulate Road Ends terminating at the edge of navigable waters, to ensure the right of public access does <b>not include</b> : the ability to install private docks or boat hoists for the overnight mooring of boats, or the right to use public road ends for lounging, sunbathing or picnicking? <sup>28</sup>		
<b>Shorelines: Marinas</b> 17. Does the community regulate marinas using <b>special land use</b> provisions or other tools? <sup>29</sup>		
18. If yes, does it ensure marinas do not <b>obstruct navigation</b> or otherwise interfere with <b>public rights</b> in navigable waters? <sup>30</sup>		
19. Does it restrict <b>boat repair and maintenance</b> activities to clearly mark areas to prevent debris from falling into the water and <b>prevent invasive species</b> ? <sup>31</sup>		
20. Does it require <b>fueling stations</b> to have <b>spill</b> containment equipment that is stored in a clearly marked location? Does it require a spill contingency plan, and posting <b>emergency</b> phone numbers in a prominent location? Are signs of leakage or spillage required to be <b>investigated</b> immediately, and undertake cleanup in accordance with applicable <b>best management practices</b> ? <sup>32</sup>		
ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -) <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION III</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>60</b>
<b>60-41=strong; 40-21=adequate; 20-0=weak</b>		

<b>IV. Impervious Surface Reduction</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>Impervious Surface Reduction: Lot Coverage</b>		
1. If rural, low density area, does Zoning Ordinance limit <b>impervious lot coverage (15% maximum</b> includes all impervious surfaces not just the house)? <sup>33</sup>		
2. Are there <b>limits</b> on the extent of <b>lawn area</b> for residential lots in rural areas? <sup>34</sup>		
3. Does Zoning Ordinance allow <b>flexible lot coverage standards</b> to allow creative approaches that limit impervious surfaces (for both single lots and larger developments; rural or urban)? <sup>35</sup>		
4. Does Zoning Ordinance allow for relaxation of front yard setbacks to <b>reduce driveway lengths</b> (and overall site imperviousness)? <sup>36</sup>		
5. Does Zoning Ordinance allow location of bioretention, rain gardens, filter strips and swales in <b>required setback areas</b> and <b>common areas</b> ? <sup>37</sup>		
<b>Impervious Surface Reduction: Parking Lots</b>		
6. Does Zoning Ordinance allow flexibility to reduce the number of <b>parking spaces</b> constructed, if warranted by the proposed development? <sup>38</sup>		
7. Does Zoning Ordinance require some portion of proposed <b>parking lots</b> to be planted with <b>trees/vegetation within</b> the parking lot <b>paving</b> ? <sup>39</sup>		
<b>Impervious Surface Reduction: Roads</b>		
If community has jurisdiction over roads or allows private roads: <sup>40</sup>		
8. Are streets to be designed with the <b>minimum</b> required pavement width needed to support travel lanes, emergency, maintenance and service vehicles ( <b>18-22' for low traffic roads</b> )?		
9. Are <b>right-of-way</b> widths <b>minimized</b> to avoid mass clearing and grading ( <b>less than 45'</b> )?		
10. <b>CUL-DE-SACS:</b> Do cul-de-sacs require the inclusion of a landscaped area? Are the minimum radii of cul-de-sacs no more than 35'? Are hammerheads allowed instead of cul-de-sacs, to encourage more creative solutions to drainage?		
11. <b>CURB AND GUTTER:</b> If curb and gutter is used, are perforated curbs (allows water to flow into swales) or invisible curbs (flush with road surface) required? Are the use of open swales allowed instead of curb and gutter?		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b> <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION IV</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>33</b>
<b>33-23=strong; 22-12=adequate; 11-0=weak</b>		

<b>V. Stormwater Management<sup>41 42</sup></b> <b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
Criteria	Citation and Comments note any comments and citation	Points
<b>Stormwater: Construction and Redevelopment</b>		
1. Does the community <b>regulate stormwater</b> , either as part of the Zoning Ordinance or separately?		
2. Does the stormwater ordinance require <b>review by</b> the <b>county</b> drain commissioner and county soil and sedimentation program? <sup>43</sup>		
3. Are <b>stormwater management areas and facilities</b> , whether on-site or off-site, required to be designed, constructed, and maintained to <b>prevent flooding</b> and <b>protect surface and ground water quality</b> ? <sup>44 45</sup>		
4. Is the <b>design</b> of any stormwater management system required to be <b>based</b> upon a <b>25-year frequency, 24-hour duration</b> storm event? <sup>46</sup>		
5. Does the stormwater ordinance require <b>runoff</b> leaving the site to be <b>controlled</b> to a <b>non-erosive velocity</b> , both during and after construction? <sup>47</sup>		
6. Does it <b>prohibit direct discharge</b> of stormwater into natural watercourses, including lakes, ponds, rivers, streams and wetlands? <sup>48</sup>		
7. Does it prohibit stormwater from exiting the property after <b>exposure to harmful sources</b> ? <sup>49</sup>		
8. Does the Zoning Ordinance <b>limit land disturbance</b> and <b>grading</b> ? <sup>50</sup>		
9. Does ordinance require that all stormwater management systems be regularly <b>evaluated</b> and <b>maintained</b> ? <sup>51</sup>		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b> <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION V</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>27</b>
<b>27-19=strong; 18-10=adequate; 9-0=weak</b>		



<b>VII. Sewer/Septic <sup>61</sup></b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>Sewer: Master Plan</b>		
1. Is it appropriate for this community to have a delineated Sewer Service Area? <sup>62</sup>		
2. Has the Sewer Service Area been mapped, including sewers that currently exist, areas that will be sewerred in the future, and areas that will not be sewerred? <sup>63</sup>		
3. Is existing infrastructure inventoried for age and condition? Is a maintenance and replacement schedule provided in the Master Plan? <sup>64</sup>		
4. Does the Master Plan require the community to have a program to identify sanitary sewer or septic systems that are seeping into the storm water system, surface waters or groundwater? <sup>65</sup>		
<b>Sewer: Ordinance</b>		
5. Is the Sewer Service Area map used in zoning decisions? <sup>66</sup>		
<b>Septic Systems</b>		
6. Does the Zoning Ordinance require that a septic system be located at least 100' from a wetland or open water feature, and specify a minimum isolation distance from all nearby wells? <sup>67</sup>		
7. Does the Zoning Ordinance enforce periodic inspection of septic tanks by an authorized inspector? Is there a point of sale inspection requirement?		
8. Are regulations that pertain to septic systems coordinated with the County Health Department regulations?		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b>		
<i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION VII</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>24</b>
<b>24-17=strong; 16-9=adequate; 8-0=weak</b>		

<b>VIII. Wetlands<sup>68</sup></b> <b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>Wetlands Protection: Zoning/Local Ordinance</b> 1. Has the community adopted a local wetland ordinance that protects <b>isolated wetlands less than five acres</b> in size? Has <b>DEQ been notified</b> about this ordinance, as required by state law?		
2. Does the local wetland ordinance also cover isolated wetlands <b>under two acres</b> in size, and if so, does it include the special conditions required by state law?		
3. Does the Zoning Ordinance require a building <b>setback requirement from wetland</b> areas (at least 20-30')? <sup>69</sup>		
4. Does the Zoning Ordinance require a <b>naturally vegetated buffer area</b> adjacent to wetlands? <sup>70</sup>		
5. Does the local wetland ordinance require <b>mitigation</b> within the <b>same watershed</b> that <b>replaces the functions and values lost</b> by the wetlands lost by development? <sup>71</sup>		
6. Are there sufficient <b>penalties</b> (minimum and maximum fine amounts) for <b>violations</b> of the wetlands ordinance, and are <b>enforcement</b> methods in place?		
7. In order to <b>prevent</b> the creation of <b>unbuildable lot splits</b> that consist of mostly wetlands, is the minimum shoreline lot frontage <b>at least 65'</b> for <b>sewered</b> lots, and at least <b>100'</b> for <b>unsewered</b> lots? <sup>72</sup>		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b> <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION VIII</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>21</b>
<b>21-15=strong; 14-8=adequate; 7-0=weak</b>		

<b>IX. Groundwater<sup>73 74</sup> and Wellhead<sup>75</sup> Protection</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>Groundwater Protection</b>		
1. Is <b>Site Plan Review required</b> to ensure there are no unnecessary threats posed to groundwater by new or redevelopment proposals? Are there additional requirements for site plan submittals in <b>groundwater recharge areas</b> ? <sup>76</sup>		
2. Does the Zoning Ordinance <b>prohibit</b> both direct and indirect <b>discharge of hazardous substances</b> to groundwater without appropriate approvals/permits? <sup>77</sup>		
3. Are groundwater protection requirements for <b>mining</b> operations included in the Zoning Ordinance?		
<b>Wellhead Protection</b>		
If the community has <b>municipal well fields</b> , have they done the following:		
4. Developed a wellhead protection program or plan, required that it be <b>implemented</b> , and require <b>periodic updates</b> ?		
5. <b>Restricted high-risk land use</b> activities in wellhead protection areas, or use an <b>overlay district</b> to add additional development standards for wellheads in those areas?		
6. Completed and maintain a comprehensive <b>inventory of potential threats</b> to groundwater?		
<b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b>		
<b>BONUS POINTS (+ OR -)</b>		
<b>TOTAL POINTS SECTION IX</b>		
<b>TOTAL POINTS POSSIBLE</b>		<b>18</b>
<b>18-13=strong; 12-7=adequate; 6-0=weak</b>		

<b>X. Other Relevant Elements</b>		
<b>3 = Yes; 2 = Yes, partially with Comments; 1 = Yes, minimally with comments; 0 = missing; N/A= not applicable</b>		
<b>Criteria</b>	<b>Citation and Comments</b> note any comments and citation	<b>Points</b>
<b>FLOODPLAINS</b>		
1. Does the community participate in the National Flood Insurance Program?  <i>[Communities participate in NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally-backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation is voluntary.<sup>78</sup>]</i>		
2. If yes, does is there ordinance language that regulates floodplain development?		
3. Does the community coordinate their efforts to protect the floodplain with adjoining communities and the County?		
4. Do the community's floodplain regulations provide for assessing the impacts of flood management projects on water quality?		
5. Do the floodplain regulations provide for adding BMPs to existing projects?		
6. Is there a variable width, naturally vegetated buffer that encompasses the 100 year floodplain area?		
<b>HIGH RISK EROSION AREAS, STEEP SLOPES<sup>79</sup></b>		
7A. Does the community have high risk erosion areas and/or steep slopes, protected by a DEQ approved HREA, an overlay zone, or other ordinance?		
7B. If yes, are all structures required to be set back at least 75 feet from the top of the bluff or the erosion area?  3 POINTS FOR 75'; 2 POINTS 74-50'; 1 POINT UNDER 50'		
8. Is the ordinance language to regulate high risk erosion areas based on structure setbacks from the bluffline? OR Is the ordinance language based on structure setbacks from the erosion hazard line? <sup>80</sup>		
9. Are the required and unique HREA definitions included in the ordinance, and sufficiently integrated to ensure that there is no conflict between them and other ordinance definitions?		
10. If no HREA overlay district or ordinance in place, does the zoning ordinance include performance standards designed to minimize soil and vegetative disruptions in HREA or steep slope areas?		
11. Is all HREA development subject to special use permits or site plan review?		

<p><b>CRITICAL DUNES<sup>81</sup></b>                  12. Does the community have critical dunes? If so, has the local government assumed administration of Part 353, with DEQ approval, to protect them?</p>		
13. If no assumption of Part 353, does the community require setbacks from the crest of the foredune?		
14. If no assumption of Part 353, does an overlay district exist on the Great Lakes coastal shoreline to add land use considerations to increase protection for critical dunes?		
15. If no assumption of Part 353, does the community have land division guidelines and/or subdivision control in place to protect the critical dunes?		
16. Does site plan review limit impervious surfaces, allow for raised structures, and prohibit vegetation removal in critical dune areas?		
<p><b>ADDITIONAL REMARKS, INCLUDING BONUS POINTS (+ OR -)</b>  <i>N/A ITEMS SHOULD BE ACCOUNTED FOR BY:</i></p>		
		<b>BONUS POINTS (+ OR -)</b>
		<b>TOTAL POINTS SECTION X</b>
		<b>TOTAL POINTS POSSIBLE</b>
		<b>48</b>
<p><b>48-33=strong; 32-17=adequate; 16-0=weak</b></p>		

## RESULTS WORKSHEET

CATEGORY	POSSIBLE SCORE	TOTAL SCORE	COMMENTS
I. Master Plan <b>30-21=strong</b> <b>20-11=adequate</b> <b>10-0=weak</b>	30		
II. Basic Zoning Elements <b>54-37=strong</b> <b>36-19=adequate</b> <b>18-0=weak</b>	54		
III. Shorelines <b>60-41=strong</b> <b>40-21=adequate</b> <b>20-0=weak</b>	60		
IV. Impervious Surface Reduction <b>33-23=strong</b> <b>22-12=adequate</b> <b>11-0=weak</b>	33		
V. Stormwater Management <b>27-19=strong</b> <b>18-10=adequate</b> <b>9-0=weak</b>	27		
VI. Soil Erosion and Sediment Control <b>18-13=strong</b> <b>12-7=adequate</b> <b>6-0=weak</b>	18		
VII. Sewer/Septic <b>24-17=strong;</b> <b>16-9=adequate;</b> <b>8-0=weak</b>	24		
VIII. Wetlands <b>21-15=strong</b> <b>14-8=adequate</b> <b>7-0=weak</b>	21		
IX. Groundwater and Wellhead Protection <b>18-13=strong</b> <b>12-7=adequate</b> <b>6-0=weak</b>	18		
X. Other Relevant Elements <b>48-33=strong</b> <b>32-17=adequate</b> <b>16-0=weak</b>	48		

**Notes**

<sup>1</sup> SEMCOG, the Southeast Michigan Council of Governments, 2002. "Storm Water Management," 1. *Opportunities for Water Resource Protection in Local Plans, Ordinances, and Programs*

<sup>2</sup> SEMCOG, 2002. "Impervious Surface Reduction," 6.

<sup>3</sup> Planning and Zoning Center Inc., 2003. "Appendix Q: Fee Collection Information". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>4</sup> SEMCOG, 2002. "Development Review Process, Construction," 57.

<sup>5</sup> Planning and Zoning Center Inc., 2003. "Appendix P: Environmental Assessment Requirements". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>6</sup> Planning and Zoning Center Inc., 2003. "Appendix U: Groundwater Protection". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>7</sup> Van Buren County, MI. *Document Review for Water Resource Protection*, 7. Retrieved from: [http://www.vbco.org/downloads/mp\\_zo\\_review\\_checklist.pdf](http://www.vbco.org/downloads/mp_zo_review_checklist.pdf)

<sup>8</sup> Planning and Zoning Center Inc. (Benzie County, MI), 2003. "Appendix T: Cluster Development and Planned Unit Development Examples". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>9</sup> Van Buren County, MI. *Document Review*, 5.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Tip of the Mitt Watershed Council, 1997. "Appendix R: Sensitive Areas Protection". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>14</sup> Michigan Land Use Institute, 2001. "Appendix S: Shoreline Protection". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments.*

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> County of Macomb, Michigan, 2008. "VI: Natural Feature Setback pp 6.4-6.9". *Model Environmental Ordinances*, 6.2. Retrieved from: [http://www.macombcountymi.gov/planning/PDF\\_Files/Model%20Ord.%20Chapters/06-Setback%20Ordinance%201-14-04.pdf](http://www.macombcountymi.gov/planning/PDF_Files/Model%20Ord.%20Chapters/06-Setback%20Ordinance%201-14-04.pdf)

<sup>18</sup> Ibid.

<sup>19</sup> Michigan State University Extension, Home\*A\*Syst chapter 6, "Managing Shoreline Property to Protect Water Quality." Retrieved 2009 from: <http://www.uwex.edu/farmasyst/states/mishore.html>

<sup>20</sup> University of Wisconsin Extension Lakes, University of Wisconsin Stevens Point (UWSP) College of Natural Resources. Lake Classification Fact Sheet Series, #5 "Shoreline Buffer Zones and Setbacks". Retrieved 2009 from [http://www.uwsp.edu/cnr/uwexplakes/factsheets/fs\\_5.pdf](http://www.uwsp.edu/cnr/uwexplakes/factsheets/fs_5.pdf)

<sup>21</sup> Van Buren County, MI. *Document Review*, 7.

<sup>22</sup> Ibid.

<sup>23</sup> Whittier T.R., Paulsen S.G., Larsen D.P., Peterson S.A., Herlihy A.T., and Kauffman P.R. 2002. Indicators of ecological stress and their extent in the population of Northeastern lakes: a regional scale assessment. *Bioscience* 52(3): 235-247.

<sup>24</sup> Standing, B. H., Bernthal, T. W., and S. A. Jones. 1997. *Shoreland Zoning Resource Guide: An Annotated Model Shoreland Zoning Ordinance*. Wisconsin Department of Natural Resources.

<sup>25</sup> University of Wisconsin Extension Lakes, University of Wisconsin Stevens Point (UWSP) College of Natural Resources. Shoreland Management and Lake Classification Fact Sheet Series, #11 "Managing Piers and Wharves". Retrieved 2009 from: [http://www.uwsp.edu/cnr/uwexplakes/factsheets/fs\\_11.pdf](http://www.uwsp.edu/cnr/uwexplakes/factsheets/fs_11.pdf)

<sup>26</sup> Standing, et al.

<sup>27</sup> Kohl, Secrest, Wardle, Lynch, Clark & Hampton, 1994. "Appendix I: Sample Keyhole Development Regulations". Ardizzone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*.

<sup>28</sup> Stefan J. Scholl, Northern Michigan Real Estate Blog, 2006. "Public Road End Controversy." Retrieved 2009 from <http://buyersbroker.biz/blog/2006/04/public-road-end-controversy.html>

<sup>29</sup> Planning and Zoning Center Inc., 2003. Ardizzone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*. Part III Local Planning and Zoning, Other Zoning Considerations: Special Land Uses, Part III-9. Accessed online: [http://www.michigan.gov/documents/deq/lwm-czm-ftg-part3\\_266084\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-czm-ftg-part3_266084_7.pdf)

<sup>30</sup> University of Wisconsin Extension Lakes, Fact Sheet #11 "Managing Piers and Wharves"

<sup>31</sup> Genesee/Finger Lakes Regional Planning Council, City of Canandaigua Blank Assessment Form, [http://www.gflrpc.org/Publications/LocalLaws/Assessment/Blank\\_Assessment\\_Form.pdf](http://www.gflrpc.org/Publications/LocalLaws/Assessment/Blank_Assessment_Form.pdf)

<sup>32</sup> Ibid.

<sup>33</sup> Van Buren County, MI. *Document Review*, 3.

<sup>34</sup> Ibid.

<sup>35</sup> SEMCOG, 2002. "Impervious Surface Reduction," 8.

<sup>36</sup> Van Buren County, MI. *Document Review*, 3.

<sup>37</sup> Ibid.

<sup>38</sup> SEMCOG, 2002. "Impervious Surface Reduction," 7.

<sup>39</sup> Van Buren County, MI. *Document Review*, 2.

<sup>40</sup> Ibid., 2-3

<sup>41</sup> SEMCOG, the Southeast Michigan Council of Governments, 2009. "Appendix H: Model Ordinances". *Michigan Low Impact Development Manual* pp. 477-497. Retrieved from: [http://www.semco.org/uploadedfiles/Programs and Projects/Water/Stormwater/LID/LID Manual appendixH .pdf](http://www.semco.org/uploadedfiles/Programs%20and%20Projects/Water/Stormwater/LID/LID%20Manual%20appendixH.pdf)

<sup>42</sup> Tip of the Mitt Watershed Council, 1997. "Appendix H: Sample Stormwater Ordinance". Published in: Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*.

<sup>43</sup> Planning and Zoning Center Inc., 2003. Appendix U, 3.

<sup>44</sup> Tip of the Mitt Watershed Council, 1997. Appendix H, 2.

<sup>45</sup> Planning and Zoning Center Inc., 2003. Appendix U, 5.

<sup>46</sup> Tip of the Mitt Watershed Council, 1997. Appendix H, 2.

<sup>47</sup> Ibid.

<sup>48</sup> Tip of the Mitt Watershed Council, 1997. Appendix H, 4.

<sup>49</sup> Planning and Zoning Center Inc., 2003. Appendix U, 5-6.

<sup>50</sup> SEMCOG, 2002. "Storm Water Management Standards," 2.

<sup>51</sup> Ibid.

<sup>52</sup> Environmental Protection Agency, 2007. "Erosion and Sediment Control: Model Ordinance Language". *Model Ordinances to Protect Local Resources*. Retrieved from: <http://www.epa.gov/owow/nps/ordinance/mol2.htm#ml2>

<sup>53</sup> Michigan Department of Environmental Quality, 2003. "Appendix G: Sample Soil Erosion and Sedimentation Control Ordinance". Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*.

<sup>54</sup> SEMCOG, 2002. "Soil Erosion and Sedimentation Control (ESC)," 16.

<sup>55</sup> Ibid.

<sup>56</sup> Michigan Department of Environmental Quality, 2003. Appendix G.

<sup>57</sup> SEMCOG, 2002. "Soil Erosion and Sedimentation Control (ESC)," 16.

<sup>58</sup> SEMCOG, 2002. "Soil Erosion and Sedimentation Control (ESC)," 16.

<sup>59</sup> Ibid, 17.

<sup>60</sup> Van Buren County, MI. *Document Review*, 4.

<sup>61</sup> Environmental Health Regulations for Benzie County Health Department Authority, Jurisdiction, Purpose and General Definition. Chapter 2; Articles I-IX. <http://www.bldhd.org/publications/benziecode.pdf>

<sup>62</sup> SEMCOG, 2002. "Sanitary Sewer Planning and Infrastructure," 20.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Van Buren County, MI. *Document Review*, 12.

<sup>66</sup> SEMCOG, 2002. "Sanitary Sewer Planning and Infrastructure," 20.

<sup>67</sup> Van Buren County, MI. *Document Review*, 21.

<sup>68</sup> Michigan Department of Environmental Quality and Huron River Watershed Initiative, 2003. "Appendix E: Sample DEQ Wetland Ordinance". Published in: Ardizzone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*.

<sup>69</sup> Van Buren County, MI. *Document Review*, 6.

<sup>70</sup> Ibid.

<sup>71</sup> SEMCOG, 2002. "Wetland Preservation," 34.

<sup>72</sup> University of Wisconsin Extension Lakes, University of Wisconsin Stevens Point (UWSP) College of Natural Resources. Shoreland Management and Lake Classification Fact Sheet Series, #13, "Guiding Lake shore Development Through Lot Size and Side Yard Standards." Retrieved 2009 from: [http://www.uwsp.edu/cnr/uwexlakes/factsheets/fs\\_13.pdf](http://www.uwsp.edu/cnr/uwexlakes/factsheets/fs_13.pdf)

<sup>73</sup> Planning and Zoning Center Inc., 2003. Appendix U.

<sup>74</sup> EPA, 2006. *Model Ordinances to Protect Local Resources: Groundwater Protection Overlay District Example Ordinance*. Retrieved from: <http://www.epa.gov/owow/nps/ordinance/mol7.htm>

<sup>75</sup> The National Flood Insurance Program (NFIP\_ <http://fema.gov/plan/prevent/floodplain/index.shtm>

<sup>76</sup> Planning and Zoning Center Inc., 2003. Appendix U, 5.

<sup>77</sup> Ibid.

<sup>78</sup> Federal Emergency Management Agency (FEMA) website, "The National Flood Insurance Program accessed 2.3.2010 <http://www.fema.gov/about/programs/nfip/index.shtm>

<sup>79</sup> High Risk erosion areas (HREA) are shorelands of the Great Lakes and connecting waters where erosion has been occurring at a long-term average rate of one foot or more per year. Planning and Zoning Center Inc., 2003. Ardizzone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*, Part II-41.

<sup>80</sup> Planning and Zoning Center Inc., 2003. "Appendix K: Sample High Risk Erosion Areas Ordinance." Ardizzone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*.

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<sup>81</sup> Michigan has 270 linear miles of sand dunes created by sand, wind, and Great Lake water level fluctuations. They are prone to movement and erosion more than other geographic areas because sand is not a stable soil type, and various types of development can disturb dunes. Precautionary measures (elevated boardwalks, adequate setbacks) help minimize dune destruction. Planning and Zoning Center Inc., 2003. Ardizone, Katherine A. and Wyckoff, Mark A. 2003. *Filling the Gaps: Environmental Protection Options for Local Governments*, Part II-48 to 53.





*Cross Village*

## Additional Resources

### Master Planning & Basic Zoning

**Planning and Zoning Center (PZC)** at MSU, Online listing Michigan local governments with a master plan and/or zoning ordinance:

[www.pzcenter.msu.edu](http://www.pzcenter.msu.edu)

Link under “Resources”: over 200 plans and 200 zoning ordinances are listed including links to similar online lists in other states. The PZC also maintains online information resources, develops decision support systems and serves as an information/data clearinghouse to enhance city, village, township, county, regional and state planning efforts.

**Michigan Planning Guidebook: for Citizens and Local Officials**, MSU Planning & Zoning Center, 2008, by Wyckoff, Mark.

The guidebook describes the roles and responsibilities of the planning commission and legislative body under the new Michigan Planning Enabling Act, PA 33 of 2008, with clear direction on procedures and standards to guide decisions.

**Michigan Zoning Guidebook: for Citizens and Local Officials**, MSU Planning & Zoning Center, 2nd edition, 2008, by Wyckoff, Mark.

The guidebook describes the roles and responsibilities of all bodies under the Michigan Zoning Enabling Act, PA 110 of 2006, as amended by PA 12 of 2008, with clear direction on procedures and standards to guide decisions.

#### **Checklist 1F: What Should be in a Master Plan?**

Michigan State University Extension, Land Use Series, May 2008, by Solomon, Dean. 17 pages.

Can be found on the web at:

<http://web5.msue.msu.edu/lu/pamphlet/Bclsam/pamphlet1F%20PlanContents.pdf>

**Sample Approach to Update a Zoning Ordinance to Comply With Michigan Zoning Enabling Act of 2006.** Michigan State University Extension, Land Use Series, May 2008, by Schindler, Kurt H. 16 pages.

Can be found on the web at:

<http://web5.msue.msu.edu/lu/pamphlet/Bclsam/pamphlet9SampleZoneAmdMiZoneEnabAct.pdf>

### Sample Ordinances from within the Grand Traverse Bay Watershed

#### **Sample Vegetated Riparian Buffer Ordinances**

East Bay Township Zoning Ordinance: Article 4BR: Boardman River District Ordinance 406 Link:

<http://www.eastbaytwp.org>

Title: ARTICLE IV - DISTRICT STANDARDS - SECTION 406 BOARDMAN RIVER DISTRICT, BR (Similar language found in several other zoning ordinances within the area of the Boardman River designated as a Natural River)

East Bay Township Zoning Ordinance: Article 2: General Provisions; Mitchell and Baker Creeks Area Ordinance 219 Link:

<http://www.eastbaytwp.org>

Title: ARTICLE V - DIMENSIONAL REQUIREMENTS

Garfield Township Zoning Ordinance: Article 7: Section 7.5.7 Setback from Designated Wetlands Link:

[http://garfield-twp.com/downloads/sec7\\_5\\_5setbklakesrivers\\_streams.pdf](http://garfield-twp.com/downloads/sec7_5_5setbklakesrivers_streams.pdf)

(The section appears on this page of the zoning ordinance) [http://garfield-twp.com/downloads/sec7\\_5suppshorelandregs.pdf](http://garfield-twp.com/downloads/sec7_5suppshorelandregs.pdf)

#### **Sample Open Space/Cluster Development Ordinances**

East Bay Township Zoning Ordinance: Article 2: General Provisions, Open Space Preservation Section 225 Link:

[http://www.eastbaytwp.org/downloads/article\\_2.pdf](http://www.eastbaytwp.org/downloads/article_2.pdf)

East Bay Township Zoning Ordinance: Article 2: General Provisions, Residential Cluster Subdivisions Section 226 Link:

[http://www.eastbaytwp.org/downloads/article\\_2.pdf](http://www.eastbaytwp.org/downloads/article_2.pdf)

Whitewater Township Zoning Ordinance:

Article 31: Planned Unit Development

See also: <http://www.whitewatertownship.org/>

(Purpose is to preserve open space; minimum open space requirement of 50 percent of development)

#### **Sample Ground Water Protection and Septic System Maintenance Ordinances**

East Bay Township Zoning Ordinance: Article 2: General Provisions, Ground Water Protection

Standards Section 220 Link: <http://www.eastbay-twp.org/> (Similar language found in several other local zoning ordinances)

Long Lake Township: Septic System Time of Transfer Ordinance  
Link: <http://www.longlaketownship.com/planning/tot-septic-ord-final-10-31-08.pdf>  
Title: Long Lake Township - Grand Traverse County Michigan - Ordinance 107 - INSPECTION OF ON-SITE SEWAGE DISPOSAL SYSTEMS AT THE TIME OF PROPERTY TRANSFER ORDINANCE

#### **Sample Private Roads Ordinance**

Whitewater Township Private Road Ordinance No. 32 Link: [http://www.whitewatertownship.org/downloads/private\\_road\\_ord.pdf](http://www.whitewatertownship.org/downloads/private_road_ord.pdf)

Whitewater Township Road Plan  
See also: <http://www.eastbaytwp.org/>

#### **Sample Off-Street Parking Ordinance**

Whitewater Township Zoning Ordinance: Article 34, Section 34.30, Parking Lot and Loading Area Requirements and Article 33, section 33.40, Off-Street Parking Areas Link: [www.whitewatertownship.org/downloads/article\\_xxxiv.pdf](http://www.whitewatertownship.org/downloads/article_xxxiv.pdf) and [www.whitewatertownship.org/](http://www.whitewatertownship.org/) (For stormwater management and landscaping requirements)

#### **Sample Tree Planting Ordinance**

Blair Township Zoning Ordinance: Article 16, Section 16.05.3b, General Site Landscaping Link: [www.blairtownship.org](http://www.blairtownship.org) (See page 67 of the ordinance)

#### **Sample Site Plan Review Ordinance**

Whitewater Township Zoning Ordinance: Article 25: Site Plan Review  
Link: [http://www.whitewatertownship.org/downloads/article\\_xxv\\_amend\\_55.pdf](http://www.whitewatertownship.org/downloads/article_xxv_amend_55.pdf)  
Filename: ARTICLEXVAmend 55-whitewater-twp-site-plan-review.pdf (Includes language about stormwater management and preservation of natural vegetation)

#### **Sample Wetland Ordinance**

Forest Home Township Zoning Ordinance: Article 5: Wetlands Overlay District  
Link: [www.forestthometwp.com/zoning/Articles\\_04\\_through\\_06.htm](http://www.forestthometwp.com/zoning/Articles_04_through_06.htm)

#### **Sample Supporting Documents**

Long Lake Township Community Forestry Plan Link: <http://www.longlaketownship.com/forestry/longlaketwn.html> Link to Table of Contents: <http://www.longlaketownship.com/forestry/contents.html> Files in folder: LongLakeTwp-Community ForestryPlan (all are in HTML format) Long Lake Township Natural Features Inventory Link: <http://www.longlaketownship.com/planning/long-lake-nfi-final-report.pdf>

Whitewater Township Road Plan  
See also: <http://www.eastbaytwp.org/>(Supporting information for township road ordinance)

### **Other Model Ordinance Resources**

#### **Tip of the Mitt Watershed Council**

The Watershed Council has numerous Model Ordinances available for your use on a variety of topics. These ordinances are featured by the Michigan DEQ in a variety of places, including the widely used book, Filling the Gaps: Environmental Protection Options for Local Governments. If you need help with a Model Ordinance, please contact us and we can send them to you electronically: (231) 347-1181

#### **Michigan DEQ – Local Wetland Ordinance webpage**

Link: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687-24312--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687-24312--,00.html)

#### **Macomb County Model Environmental Ordinances**

<http://www.macombcountymi.gov/>

#### **Michigan Township Association, Open Space Preservation Provisions**

Link: <http://michigantownships.org/zoning.asp>

#### **Land Information Access Association, Model Zoning Policies and Ordinances**

Includes floodplain standards, private road ordinance, resource protection overlay, steep slope development standards, stormwater management, tree preservation standards, and wetlands/natural features setbacks Link: <http://www.partnershipsforchange.cc/>

**Oakland County Planning & Economic Development Services, Environmental Stewardship Services, Planning Tools for Natural Resource Protection**

Includes sample and model ordinances for natural area protection; wetland, floodplain, and water-course protection; natural features setback/ buffer; woodland protection; native vegetation; stormwater protection; groundwater protection; surface water protection; erosion & sediment control; reduction of impervious surfaces; and reduction of phosphorous/fertilizers. Link: <http://www.oakgov.com/>

**Low Impact Development and Best Management Practice Resources**

A Natural Solution: An Introduction to Low Impact Development for Commercial and Residential Applications in the Grand Traverse Region  
Link: [http://www.gtbay.org/downloads/low\\_impact\\_development\\_guidebook\\_small\\_3.pdf](http://www.gtbay.org/downloads/low_impact_development_guidebook_small_3.pdf)

**Better Site Design: A Handbook for Changing Development Rules in Your Community**

Filename: ELC\_BSDpart1.pdf Link to Part 2: [http://www.cwp.org/Resource\\_Library/Center\\_Docs/BSD/ELC\\_BSDpart2.pdf](http://www.cwp.org/Resource_Library/Center_Docs/BSD/ELC_BSDpart2.pdf) Filename: ELC\_BSDpart2.pdf

**Michigan DEQ Best Management Practices Design Manuals webpage**

Link: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3682\\_3714-118554--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-118554--,00.html)

**Guidebook of Best Management Practices for Michigan Watersheds (Introduction)** Link: [http://www.michigan.gov/documents/deq/deq-wb-nps-Intro\\_250601\\_7.pdf](http://www.michigan.gov/documents/deq/deq-wb-nps-Intro_250601_7.pdf)

**Guidebook of Best Management Practices for Michigan Watersheds (Entire)**

Link: [http://www.michigan.gov/documents/deq/deq-wb-nps-WholeGuidebook\\_250602\\_7.pdf](http://www.michigan.gov/documents/deq/deq-wb-nps-WholeGuidebook_250602_7.pdf)

**State of Michigan Environmental Protection Resources:**

**Michigan Department of Natural Resources and Environment (DNRE) website home page**

<http://www.michigan.gov/deq>

**Filling the Gaps: Environmental Protection Options for Local Governments**

Written by Katherine Ardizzone, NOAA Coastal Management Fellow for DEQ (2001-2003), and Mark Wyckoff, FAICP and President of Planning & Zoning Center, Inc. This book was created to equip local officials with important information to consider when making local land use plans, adopting new environmentally focused regulations, or reviewing proposed development. As of January 2011, it is in the process of being updated. It is in electronic form and can be downloaded at this website: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3677\\_3696-73358--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3677_3696-73358--,00.html)

**Michigan DNRE Forest, Land and Water Management website**

<http://www.michigan.gov/dnr/0,1607,7-153-30301---,00.html>

**Michigan's Waters website**

<http://www.michigan.gov/dnre> - Click the link on the left that says "Water": "DNRE Water Programs establish water quality standards, assess water quality, provide regulatory oversight for all public water supplies, issue permits to regulate the discharge of industrial and municipal wastewaters, monitor State Water resources for water quality, the quantity and quality of aquatic habitat, the health of aquatic communities, and compliance with state laws."

**Inland Lakes and Streams website**

<http://www.mi.gov/dnreinlandlakes>  
"The Inland Lakes and Streams Program is responsible for the protection of the natural resources and the public trust waters of the inland lakes and streams of the state. The program oversees activities including dredging, filling, constructing or placement of a structure on bottomlands, constructing or operating a marina, interfering with natural flow of water or connecting a ditch or canal to an inland lake or stream."

**Surface Water website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3682---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3682---,00.html) "DNRE is committed to protecting and preserving Michigan's water resources. There are several programs in place which support this goal. These include non-point source pollution, septage, storm water, and sanitary and combined sewer overflow."

**Nonpoint Source Pollution website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3682\\_3714---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714---,00.html)

“Michigan’s Nonpoint Source Program assists local units of government, non-profit entities, and numerous other state, federal, and local partners to reduce nonpoint source pollution statewide. The basis of our program is watershed management and our program works with stakeholders to develop and implement plans to protect the watersheds of the state. We look forward to working with you to protect and improve Michigan’s water resources.”

**Water Management website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3684---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3684---,00.html)

“Water Management Activities that may have potential impacts to the public trust, riparian rights, or may impair or destroy the waters or other natural resources of the state, including inland lakes and streams, the Great Lakes, wetlands, and groundwater, are regulated by DNRE. Information on the DNRE permit processes and water resource related databases and digital maps is provided.”

**Aquatic Invasive Species website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3677\\_8314---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314---,00.html)

**Coastal Management Program website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3677\\_3696---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3677_3696---,00.html)

“Michigan’s Coastal Management Program was developed under the federal Coastal Zone Management Act and approved in 1978. Since then, the Program has assisted organizations in protecting and enhancing their coastal areas, funded studies related to coastal management and helped to increase recreational opportunities in Michigan’s Great Lakes coastal area.”

**Drinking Water website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3675---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3675---,00.html)

“DNRE has primary enforcement authority in Michigan for the Federal Safe Drinking Water Act under the legislative authority of the Michigan Safe Drinking Water Act. As such, the division has regulatory oversight for all public water supplies, including approximately 1,500 community water supplies and 11,000 non-community water supplies. In addition the program regulates

drinking water well drilling. Michigan has more households served by private wells than any other state, with approximately 25,000 domestic wells drilled per year. DNRE also investigates drinking water well contamination, and oversees remedial activities at sites of groundwater contamination affecting drinking water wells.”

**Water Quality Monitoring website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3686---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3686---,00.html)

“DNRE has several water quality monitoring programs that assist in keeping all of Michigan’s water clean.” These include beach water and inland lakes monitoring.

**Wetlands Protection website**

[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687---,00.html)

“Michigan’s wetland statute, Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, defines a wetland as “land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh.” The definition applies to public and private lands regardless of zoning or ownership.”

**Soil Erosion and Sedimentation Control Program website**

[http://www.michigan.gov/deq/0,1607,7-135-3311\\_4113---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3311_4113---,00.html)

“Soil Erosion and Sedimentation Control Program was implemented to regulate the pollution of Michigan waters by improper construction site management practices. Special provisions for all development sites where there will be a disruption in the site land cover is required.”

**Clean Water Fund website**

[http://www.michigan.gov/deq/0,1607,7-135-3307\\_3515-93611--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3307_3515-93611--,00.html)

“The purpose of the Clean Water Fund is to implement DNRE’s surface water quality monitoring plan and to implement water pollution controls.”

**Surface Water Quality Monitoring Projects**

“The legislation for the Clean Water Fund stated that the highest priority for the Fund would be the monitoring strategy; therefore, \$45 million of the \$90 million was set aside to implement the

monitoring strategy. Implementation of the monitoring strategy is being done using both grants and direct contracts to vendors.”

#### **Water Pollution Control Projects**

“The other half of the Clean Water Fund is intended to implement water pollution control activities, which, under the Clean Water Fund administrative rules, were identified as the following:

- Providing state match to establish and implement the conservation reserve enhancement program (CREP) in Michigan. The administrative rules established a \$5 million limit on the CREP and that obligation has been met.
- Implementing water quality protection or improvement activities in approved watershed management plans that are required under a NPDES voluntary storm water permit.
- Implementing water quality protection or improvement recommendations in approved watershed plans that place a strong emphasis on protecting high quality waters.

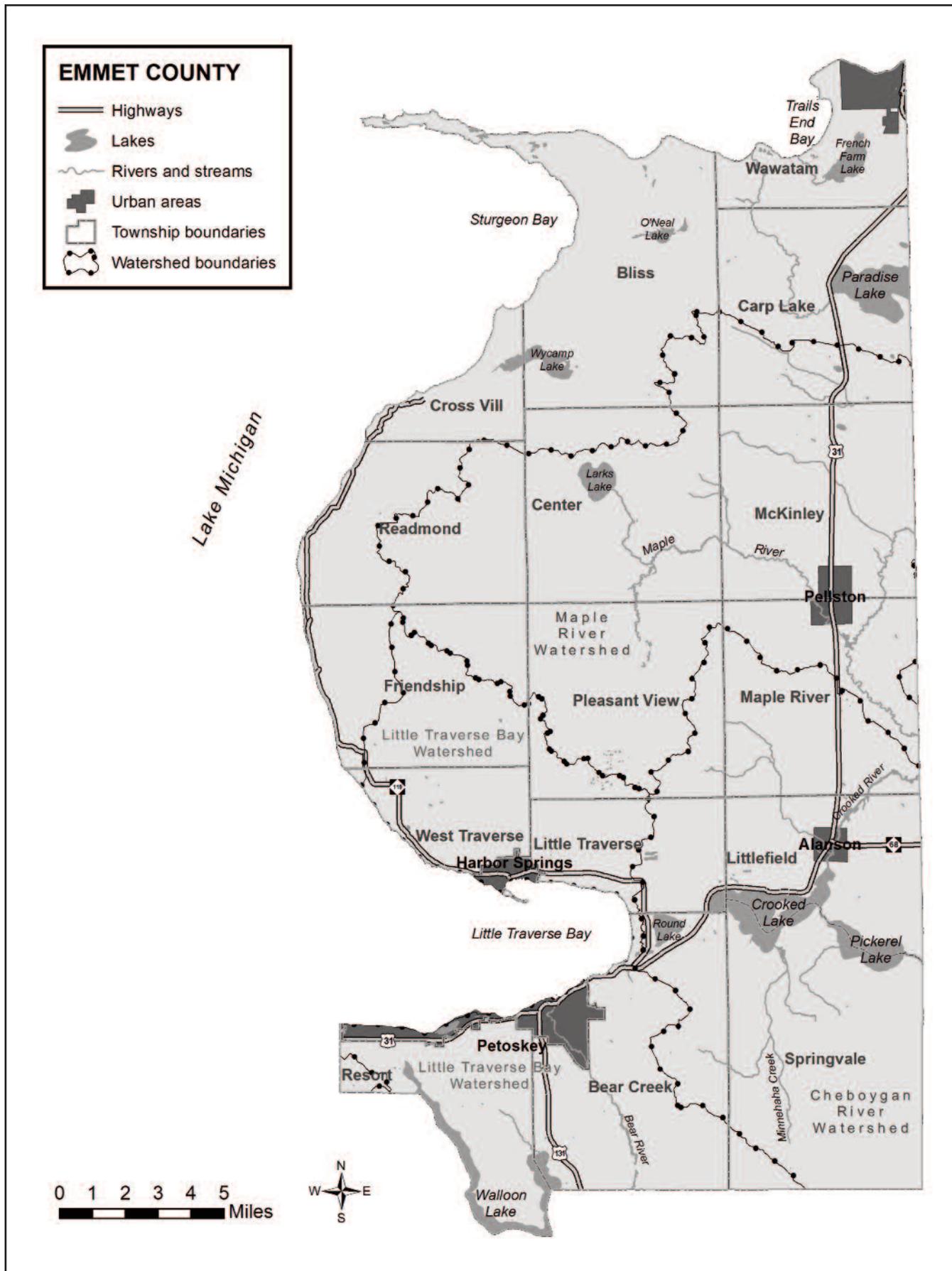
- Implementing water quality recommendations in RAPs and LaMPs, other than those involving contaminated sediments.
- Implementing programs to identify and require the correction of illicit connections to storm sewer systems.
- Identifying failing on-site septic systems.
- Implementing corrective measures to correct failing on-site septic systems.
- Locating and plugging abandoned wells.”

#### **Natural Rivers Program website**

[http://www.michigan.gov/dnr/0,1607,7-153-30301\\_31431\\_31442---,00.html](http://www.michigan.gov/dnr/0,1607,7-153-30301_31431_31442---,00.html)

“Michigan citizens are fortunate to be surrounded by more than 36,500 miles of rivers and streams, 12,500 miles of which are classified as cold water trout streams. We are also fortunate that Michigan has many programs focused on the protection and enhancement of those river resources”.







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Herrington-Fitch Family Foundation  
The Watershed Center Grand Traverse Bay  
Burt Lake Preservation Association  
Elk-Skegemog Lakes Association  
Lake Charlevoix Association  
Pickerel-Crooked Lakes Association  
Three Lakes Association  
Michigan Environmental Council  
Petoskey-Harbor Springs Area Community Foundation



[www.watershedcouncil.org](http://www.watershedcouncil.org)