***Executive Summary***

 The Watershed Management Plan for the Little Manistee River Watershed is the result of a multi-year effort led by a Steering Committee formed under the auspices of the Little Manistee Watershed Conservation Council. The plan is financed through local contributions, and supported by a broad range of partners who are credited along with Steering Committee members in the introductory material to this document.

The Plan is intended to protect surface water quality by preventing or reducing non-point source pollution during the 10-year period from 2019 through 2029. It is constructed as a living document which may be amended – or extended into additional years – through action by the LMWCC.

The LMWCC chose the Alliance for Economic Success, of Manistee, as the fiscal agent for the project, and Networks Northwest, of Traverse City, to retain consultants for research and drafting of the Plan.

The Steering Committee oversaw the planning process through a series of public meetings and was charged with reviewing the several drafts and approving the final document for submission to the Michigan Department of Environmental Quality and the United States Environmental Protection Agency. Armas Soorus and Joyce Durdel, both of LMWCC, led the plan development team. Consultants contracted by Networks Northwest were Ed Hoogterp and Scott Gest.

The Little Manistee Watershed is designated by the United States Geological Survey’s 10-digit Hydrologic Unit Code, 0406010306. It encompasses 134,000 acres in Manistee, Lake, Mason and Wexford counties in Michigan’s Lower Peninsula.

The Little Manistee River is recognized as an extremely high quality coldwater trout stream. Genetic material harvested annually from the river’s population of wild steelhead trout supports a hatchery system that supplies waterways in Michigan and adjacent states.

In addition to the river and its tributaries, the Little Manistee Watershed includes 28 named lakes. Land cover data shows more than 90 percent of the Watershed is in forest or other natural land covers.

Just over 50 percent of the Little Manistee Watershed is in public ownership through the United States Forest Service or the Michigan Department of Natural Resources. The area is sparsely populated with an estimated 3,700 residents distributed among one village and portions of 16 townships. Notably, seven of the 16 townships lack any zoning ordinance to regulate development in the watershed or river corridor.

The regional economy is dominated by outdoor recreation, including fishing, paddlesports, motorized and non-motorized trails, and generalized touring. Fewer than half the dwellings in the watershed are used for year-round occupation, with the remainder held primarily for seasonal or occasional use, according to the 2010 United States Census.

Soils in the watershed are primarily course sands and gravels. Those soils allow quick infiltration of rainfall and snowmelt, contributing to rapid recharge of groundwater aquifers. Since the course soils have limited filtering capacity, they also pose a concern that materials on the surface – including fertilizers, pesticides and petroleum products – could potentially leach deeply in the earth and contaminate the aquifers.

Groundwater is a key resource in this watershed: It maintains the temperature and flow rates of the prime coldwater streams; and residents rely entirely on groundwater for drinking water supplies.

The LMWCC embarked on the planning process with the intent of preserving the coldwater resources and natural character of the watershed. In an online survey conducted during the WMP process, most respondents gave high ratings to water quality in the Little Manistee watershed. Fishing, enjoying scenic beauty, and canoeing/kayaking were ranked as the most important activities related to the surface water resources. A majority of respondents in the non-scientific survey indicated support for some level of zoning.

The Steering Committee approved the following set of goals, which are presented in Chapter 1 of the document along with specific objectives related to each goal

**Goal 1: Develop an educational component to inform and engage the public in long-term water-quality protection efforts and the potential impacts of land use and development.**

**Goal 2: Ensure use of Best Management Practices to preserve and enhance the outstanding cold water resources in the Little Manistee River Watershed**

**Goal 3: Preserve and improve water quality and the aquatic environment to meet or exceed all applicable state and federal standards and locally desired conditions.**

**Goal 4: Protect the natural character of the watershed, while maintaining the economic and lifestyle benefits that accompany a high-quality natural environment.**

**Goal 5: Support efforts of governmental and citizen organizations to implement programs for protection and enjoyment of the watershed’s natural features.**

Most of the surface waters in this watershed are of such high quality that they exceed state and federal clean-water standards. Taken together, the goals are seen as an effort to preserve that status through a long-term program of educating the public, enabling Best Management Practices (BMP’s) for land use, monitoring water quality indicators and responding rapidly to any emerging threats.

The first two chapters of the document contain information about the planning process and the characteristics of the watershed.

Chapter 3 presents a general pollution inventory, including estimates of pollutants in stormwater runoff and on-site wastewater systems.

Chapter 4 describes the specific stressors of greatest concern in this watershed.

 Potential threats include: Sediment; thermal issues; excess nutrients; invasive species; bacterial and parasitic pathogens; and to a lesser extent agricultural chemicals and oil and gas products. These potential pollutants must be monitored and in some cases managed or reduced in order to protect the water.

Local Volunteers and the Michigan Department of Environmental Quality have compiled a long record of monitoring water quality parameters. The Plan would continue those efforts, while adding thermal monitoring on the cold water streams, and instituting a system of groundwater monitoring.

In addition to an overall monitoring strategy, the Plan designates six critical sites where water quality is likely to be threatened by non-point source pollution in the near future.

The critical areas described in Chapter 4 are: The Luther dam area; the MDNR Weir; Syers Lake and Creek; Cool Creek/Stronach Creek; road stream crossings; and streambank erosion sites.

These critical areas currently meet standards for the “designated uses” defined by MDEQ. However the sites are considered to be at risk of deterioration unless careful management is applied.

The Plan also cites several priority issues for protection and increased attention. They are: Stream ecology and habitat; inland lakes; groundwater; and rustic and natural character of the watershed.

Chapter 5 of the document contains a multi-page table listing 13 categories of implementation tasks necessary to reach the goals and objectives of the plan. The overall cost of implementation over the 10-year period is estimated to be approximately **$7.1 million**. More than half of that total ($4.2 million) would be required to correct erosion and fish-passage issues that result from the aging infrastructure of bridges and culverts that carry roads across the Little Manistee and tributaries.

Other major anticipated costs include $453,000 to address shoreline and streambank issues and $1 million for long-term land protection activities. The listed costs are considered to be broad estimates. Accomplishing the tasks will require some combination of local funding and grant support.

The WMP creates a long-term monitoring strategy with numerous sites to be sampled for water quality on a regular schedule (Chapter 6). As a respected and established steward of the watershed’s natural resources, the LMWCC is given responsibility to coordinate monitoring and information sharing. The Plan recommends that the LMWCC seek grant funding to support a part-or full-time paid staff person to work with the implementation process, with a Conservation District or other project partner acting as employer of record.

The LMWCC Board of Directors is committed to review and update the plan at the organization’s annual meeting and retreat.

A vital element of the WMP is the continuing information and education component (Chapter 7). This plan will focus on three areas: Land use education to communicate options for protecting water quality and the area’s natural character; limiting the introduction and spread of invasive species; and management of on-site wastewater treatment (septic and drain-field) systems.

The Little Manistee River Watershed is somewhat unusual in that its location extends across the service boundaries of counties, planning regions, conservation districts, land conservancies and invasive species networks. Because of that, it is essential that the LMWCC and partners work diligently to coordinate planning and natural resource protection activities. That coordination has been well established through the public meetings and participation in the WMP process. It will be continued through implementation and monitoring of the plan.

The stakeholders who have taken a role in creation of the WMP are committed to work together to preserve the Watershed’s outstanding resources.