



Manitou Creek- Fish Lake Drain Watershed-Based Plan





INTRODUCTION:

Why a Watershed-based Plan?

Water is elemental to our lives. Plants and animals, including humans, are largely composed of water, and generally require clean water to survive. Our communities, food systems, energy sources, and countless products that we consume every day are dependent upon water. Despite this dependence, water is often taken for granted until it negatively affects us, usually due to short supply, inundation, or pollution.

This watershed-based plan specifically addresses water-related issues in communities within the Manitou Creek-Fish Lake Drain watershed. Clean and abundant water, healthy lakes and streams, and safety from flood hazards are important to residents and business and therefore play a significant role in the quality of life, health, and economic vitality of our communities. Clean and healthy watersheds are assets that make communities more desirable for residents and businesses; however, flooding can damage property and result in local economic impacts. Lakes and streams in the watershed are destinations for

Your actions help to:

- keep water in streams, wetlands and lakes clean
- reduce the impacts of flooding
- protect and enhance natural resources
- maintain "green" and "grey" infrastructure
- increase awareness of watershed issues and opportunities

watershed residents as well as tourists and provide important amenities for all residents and businesses in the watershed and the lakes streams, wetlands, and other water resources support a variety of water-dependent species that are critical to local ecosystems.

Water generally does not flow according to political boundaries. Consequently, we recognize the watershed

as the appropriate scale to address most water resource issues, which often involve multiple political jurisdictions. The watershed planning process brought together numerous watershed stakeholders to provide input towards the management and enhancement of water resources in the watershed.

This watershed-based plan utilizes the most up-to-date sources of information available as well as historical data to provide a comprehensive summary of existing watershed conditions and trends. It recommends actions stakeholders can take to protect resources that are in good condition and restore those that have been degraded. As a resident, landowner, business, or community official, your actions make a difference.

What's a Watershed?

A watershed is an area of land drained by a river, stream, or other body of water. If rain or snowmelt is not intercepted by vegetation or does not infiltrate into the soil, it may flow over the land to a low spot in the landscape, often a body of water or wetland.



Manitou Creek-Fish Lake Drain Watershed-Based Plan Goals

- Five goals were developed for watershed plan recommendations and are related to:
- 1) water quality;
 - 2) stormwater management, flood risk, and flood damage;
 - 3) natural resource management;
 - 4) watershed education and outreach, and
 - 5) watershed coordination and partnerships.

AT A GLANCE:

Manitou Creek-Fish Lake Drain Watershed

The Land

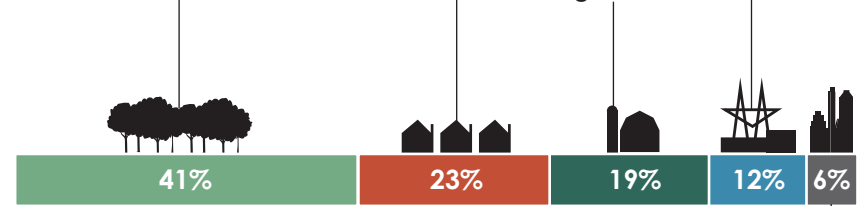
40 miles of rivers and streams
4,300 acres of wetlands
25 lakes

The Manitou Creek-Fish Lake Drain Watershed-Based plan covers 49 square miles in Lake County, Illinois. This watershed is part of the much larger Fox River watershed, which covers 2,654 square miles in Illinois and Wisconsin, and is part of the Mississippi River Basin. The watershed consists of two smaller "subwatersheds": Manitou Creek and Fish Lake Drain.

What's in the watershed:

Open space

Natural open space areas are comprised largely of water resources, prairies, savannas, and woodlands



Commercial, Industrial, Government/Institutional, and Office/Research Parks together encompass about 6% of the total watershed area but may have substantial impacts on water resources, particularly where these uses are geographically concentrated.

The entire Fox River Basin is 2,654 sq. miles



The Manitou Creek-Fish Lake Drain Watershed Based Plan is an "umbrella" plan developed by SMC, in that it includes updates to the previously completed Manitou Creek and Fish Lake Drain watershed plans.

THE WATERSHED: A SPECIAL PLACE

The natural landscape of the watershed was formed by the retreat of a continental ice sheet more than 10,000 years ago and geological processes that have occurred since. This resulted in moraine ridges at the watershed divide, erosion of stream valleys, and formation of the numerous topographic depressions that give shape to the water resources and natural communities we see in the watershed today. The watershed has a diverse mix of land uses with relatively large areas of natural and recreational open space interspersed with residential neighborhoods, agricultural land uses, commercial districts, and employment centers. Natural areas store and cleanse stormwater, provide habitat for an array of plants and wildlife, including State Threatened and Endangered species, and offer myriad recreational opportunities.

The People

85,180 approximate population in 2020
14 municipalities
5 townships

OUR FINDINGS:

A System Under Stress

Many lakes in the watershed are impaired by nutrients and sediment pollution. Pollution enters water bodies through stormwater runoff from urban and agricultural lands, from the surrounding landscape, and from erosion of upland soils and streambanks. Some pollutants are likely legacy materials that are present in lake sediments from activities that occurred during past development and land use of the watershed. Harmful algal blooms in watershed lakes have been recorded in recent years.

Record flooding in the region in July of 2017 was accompanied by urban flooding in many areas outside of mapped flood hazard areas. Intense rainfall overwhelms older or undersized infrastructure. Wetland coverage is greatly reduced from its former extent and the capacity of wetlands to provide benefits such as flood water storage, uptake or retention of pollutants such as nutrients and sediment, and provision of baseflow to lakes and streams is correspondingly reduced. However, there are opportunities for wetland restoration in the watershed.



WHAT'S AT RISK IN THE WATERSHED?

The amount of impervious surface in the watershed is projected to increase in some areas. Increased imperviousness of the landscape results in a greater volume of stormwater runoff that must be detained or infiltrated to avoid an increase in downstream flood elevations. Additionally, impervious surfaces such as roads and parking lots are linked to urban pollutants such as chloride. If severe weather events (such as those that resulted in the July 2017 flood) become more frequent in the future, flooding in urban areas and along floodplains will be exacerbated. Similarly, more severe weather events, higher annual rainfall, and more erratic weather patterns will lead to increased erosion of streams and ravines.

Harmful algal blooms (HABs) have been documented in lakes in the watershed and steps should be taken to mitigate the causes and sources of HABs. Changes in weather patterns as well as phosphorus and sediment pollution will likely increase the occurrence of HABs if mitigation measures are not implemented.

Stressors

Specific watershed stressors include:

- **Nutrients and sedimentation/siltation** are likely causes of impairment in lakes.
- **Erosion** degrades water quality and aquatic habitat. Streambank and shoreline erosion damages or threatens property, infrastructure, and high-quality natural resources
- More monitoring is needed to determine the true extent of **water quality issues and impairments**, identify emerging threats or changes to water quality, and assess the results of watershed plan implementation.
- There are **hundreds of flood-prone structures**. Many structures affected by floods in 2017, as well as other flood events before or after, are outside of mapped flood hazard areas.
- Both **traditional and "green" stormwater infrastructure** may be insufficient for present and future runoff volume or need repair.
- **Stakeholders** are generally unaware of the watershed stressors or do not have the experience or resources necessary to take action.
- **More collaboration** among jurisdictions is needed to address many of the watershed problems and take advantage of watershed opportunities.



ARE YOU A WATERSHED STAKEHOLDER?

Watershed stakeholders that contributed to the planning process include municipalities, townships, county agencies, and the broader community of homeowner associations, businesses, non-profit organizations, institutions, and residents living, working or providing interest in the watershed.

10 in 10

TEN ACTIONS FOR STAKEHOLDERS TO TAKE IN THE NEXT TEN YEARS

- 1 Adopt the watershed-based plan and implement high priority actions**, including the allocation of funding for project implementation and maintenance.
- 2 Determine a lead watershed organization** to guide watershed plan implementation, implement the education and outreach strategy, provide technical assistance to watershed stakeholders, and coordinate multi-partner projects.
- 3 Municipalities and counties work collaboratively and proactively** to mitigate flood problem areas.
- 4 Utilize low-impact development and stormwater best management practices** in new development and retrofit/maintain existing development to reduce and filter stormwater runoff from impervious areas.
- 5 Restore wetlands**, as opportunities are as abundant in the watershed as anywhere in Lake County.
- 6 Stabilize the worst “severe” eroding streambanks and shorelines** using techniques that improve water quality and aquatic habitat.
- 7 Develop and implement a watershed monitoring strategy** to provide a more complete temporal and geographic picture of water quality in the watershed.
- 8 Reduce the amount of chloride in runoff** by implementing winter maintenance “de-icing” best practices and providing educational trainings and materials.
- 9 Reduce the risk of harmful algal blooms** by reducing sediment and nutrients in runoff and addressing internal nutrient loading and sediment resuspension in lakes.
- 10 Reduce flood damage** including property, infrastructure, and natural areas from depressional and riverine flooding in the watershed.

The **Manitou Creek-Fish Lake Drain Watershed-Based Plan** was completed following guidance from the Illinois Environmental Protection Agency and U.S. Environmental Protection Agency. Funding for this plan was provided, in part, by the Illinois Environmental Protection Agency through Section 319 of the Clean Water Act, and the Lake County Stormwater Management Commission.



STORMWATER MANAGEMENT COMMISSION