



INTRODUCTION CHAPTER- Silver Creek / Sleepy Hollow Creek Watersheds

Introduction

A watershed is “the area that drains to a common waterway, such as a stream, lake, estuary, wetland, aquifer.”¹ Watershed planning is a ‘bottom-up’ collaborative approach that seeks to characterize existing conditions, identify and prioritize water resource issues and recommend strategies to help restore the beneficial uses of impaired waters, as well as to protect and maintain the quality of unimpaired or threatened waters. This approach also can be used to protect and/or restore groundwater, aquatic life, preserve open space, and protect recreational and economic opportunities.

Purpose

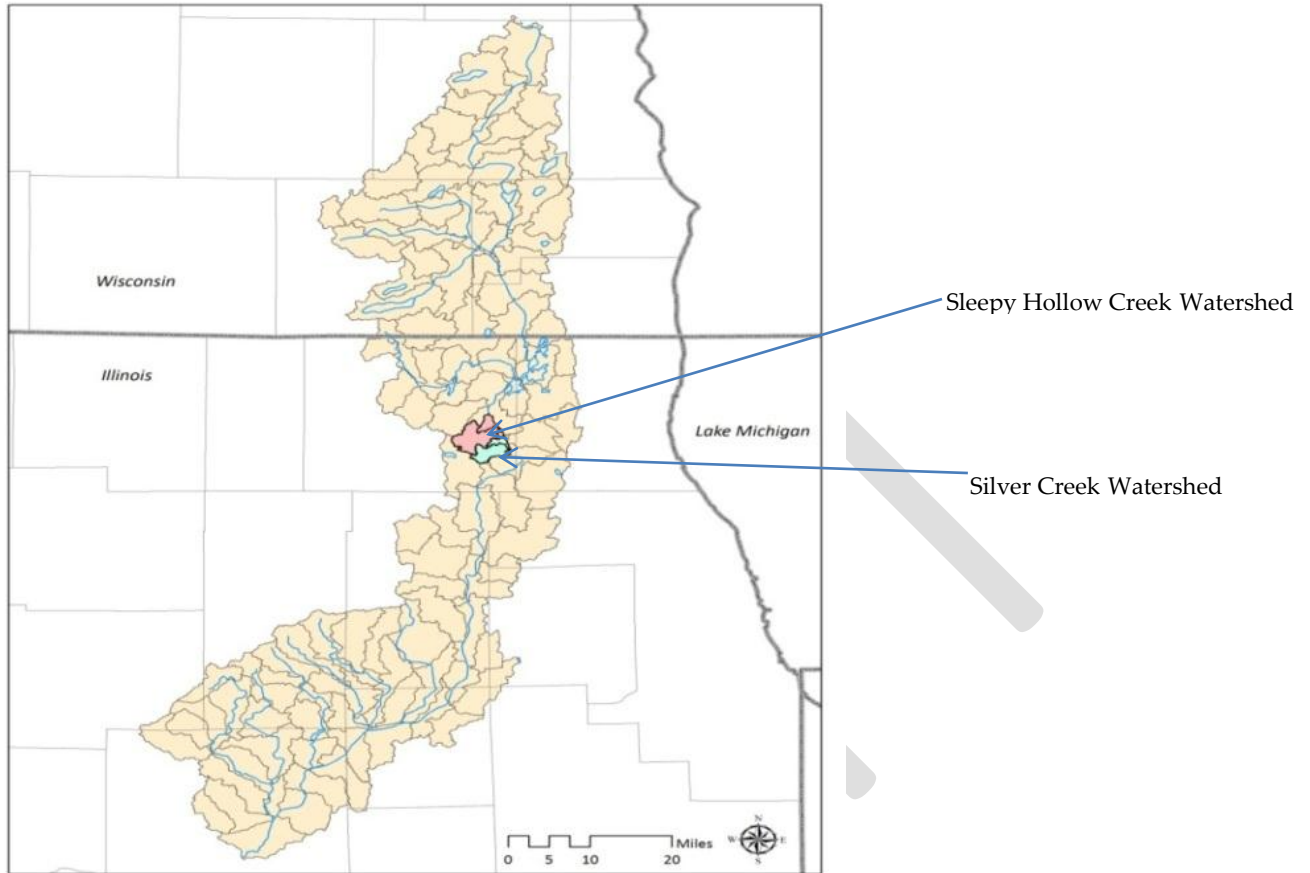
The plan has three main goals: first, to maintain/achieve healthy surface waters within both the Sleepy Hollow Creek and the Silver Creek Watersheds; second, to protect both the quality and quantity of groundwater; and third, to restore natural areas and increase native species diversity (*a complete list of goals and management objectives can be found in Appendix A*). For planning purposes, one watershed action plan was developed for both watershed planning areas. Both the Sleepy Hollow Creek and Silver Creek watershed planning areas drain to the Fox River (Figure 1) and are located in southeastern McHenry County. The Fox River watershed is a significant recreational resource. However, water quality within the Fox River has been adversely impacted by activities that are not protective of natural resources in the watershed. By working to protect the Sleepy Hollow Creek and Silver Creek watersheds, we can begin to help restore the health of our River.

Why You Should Become Involved

Watershed planning provides opportunities for residents of the watershed to work together to develop local solutions, support local sustainability initiatives, share information, use limited financial resources more effectively, and help raise public awareness on a compendium of water resource protection issues. These include improving stream and lake water quality, protecting groundwater, accessibility to high-quality recreational resources, clean drinking water, reducing soil erosion, flooding, economic development, management of stormwater, and protection of wildlife. By working together, residents can implement successful strategies to maintain and restore natural resources within their community.

¹ USEPA: <http://www.water.epa.gov/type/watersheds/index.cfm>

Figure 1 Fox River Basin



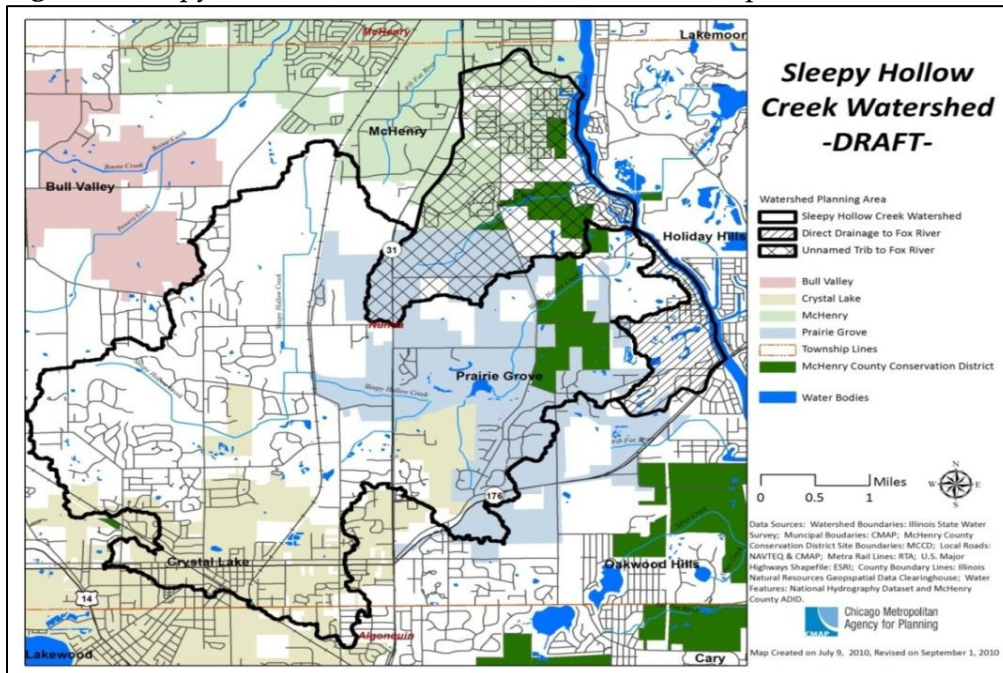
Sleepy Hollow Creek Watershed Planning Area

The Sleepy Hollow Creek (Hydrologic Unit Code)² watershed planning area is located in southeastern McHenry County and has a drainage area of approximately 19.86 square miles (Figure 2). There are 13.76 miles of stream located within the watershed. The watershed covers portions of the City of Crystal Lake and the City of McHenry, encompasses the majority of the Village of Prairie Grove, and borders the Village of Bull Valley, and includes Nunda Township and unincorporated McHenry County. The watershed drains into the Fox River and is located on the urban fringe of the Chicago metropolitan area.

² The U.S. is divided into drainage basins which are classified into units including: regions, sub-regions, accounting units, and cataloging units. Each unit is identified by a unique hydrologic code (HUC) that consists of two to eight digits based on the four levels of classification in the HUC system.

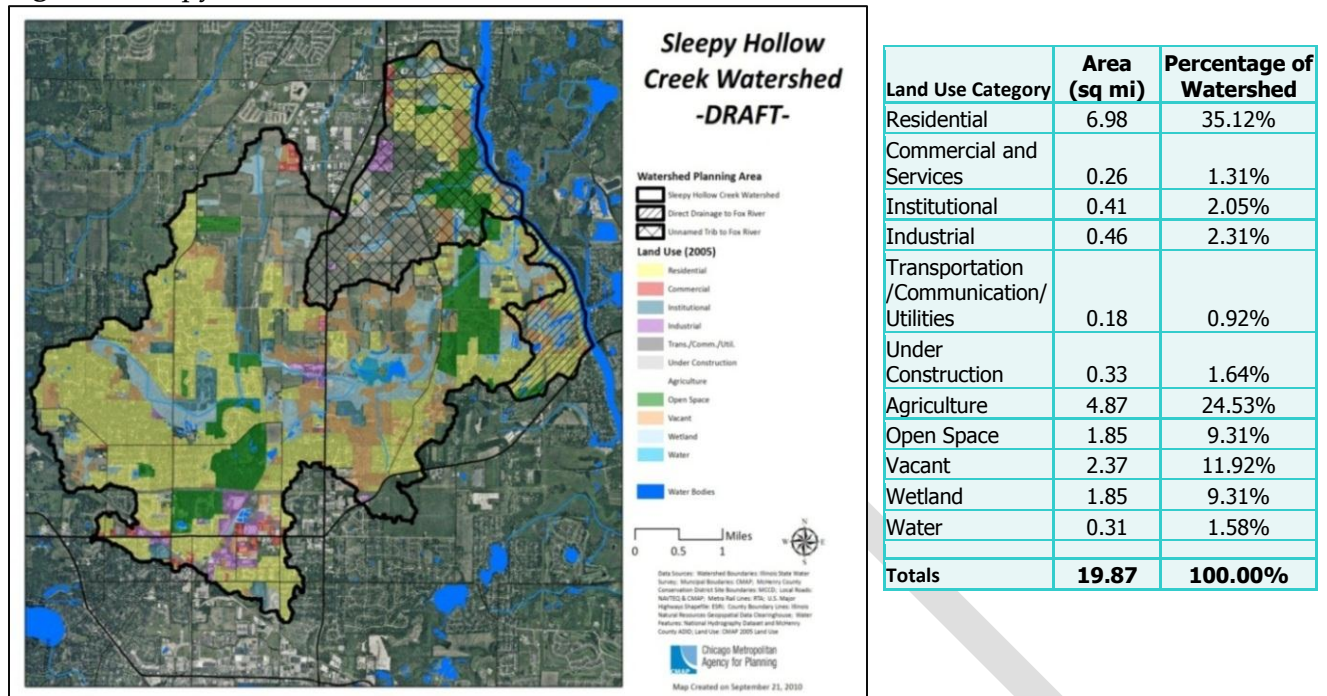
<http://water.usgs.gov/GIS/huc.html>

Figure 2. Sleepy Hollow Creek Watershed and its Municipalities



The top five watershed land uses in terms of area within the watershed are residential (35% and 6.98 square miles), agricultural (24% and 4.87 square miles), open space (9% and 1.85 square miles), industrial 2.31 % and 0.46 square miles), and commercial (1% and 0.26 square miles) (Figure 3). The McHenry County Conservation District's Stickney Run Conservation Area is located within the Sleepy Hollow Creek Watershed. Also within the planning area are two dedicated Illinois Nature Preserves, Wingate Prairie and Sterne's Fen, as well as Prairie Ridge Conservation Area (Crystal Lake Park District sites). The total population of the Sleepy Hollow Watershed is 12,121 and is based on 2001 Census data (U.S. Census Bureau, 2001)

Figure 3. Sleepy Hollow Creek Watershed Landuses



Silver Creek Watershed Planning Area

The adjoining Silver Creek Watershed (**Include HUC Code**) is located in southeastern McHenry County, Illinois, approximately 40 miles northwest of downtown Chicago. The planning area includes the Silver Creek, two other Fox River tributary streams totaling 6.7 miles, direct drainage areas to the Fox River and encompasses approximately 11 square miles. The total population in the watershed is approximately 10,235 (U.S. Census Bureau, 2001).

The watershed includes the Village of Oakwood Hills and portions of the Village of Prairie Grove, Cary, and the City of Crystal Lake, two townships (Nunda and Algonquin), and unincorporated McHenry County (Figure 4). The top five watershed land uses in terms of area are residential (~37%), conservation open space (~18%), agriculture (~11%), vacant forest/grassland (~9%), and commercial (~5%). Four lakes greater than 6 acres in size (West Lake, Lake Killarney, Silver Lake, and “Chalet Hills Lake”) as well as numerous ponds (including “Fel-Pro Pond”) lie within the watershed. (Lake Atwood may also lie within the watershed; additional field-truthing is needed.) McHenry County Conservation District’s Silver Creek, Fel-Pro RRR, and The Hollows conservation sites are with the Silver Creek Planning Area. A dedicated Illinois Nature Preserve, Oakwood Hills Fen (Village of Oakwood Hills site), is also within this planning area.

Figure 4. Silver “Prairie” and “Fel-Pro” Creek Watershed and its Municipalities

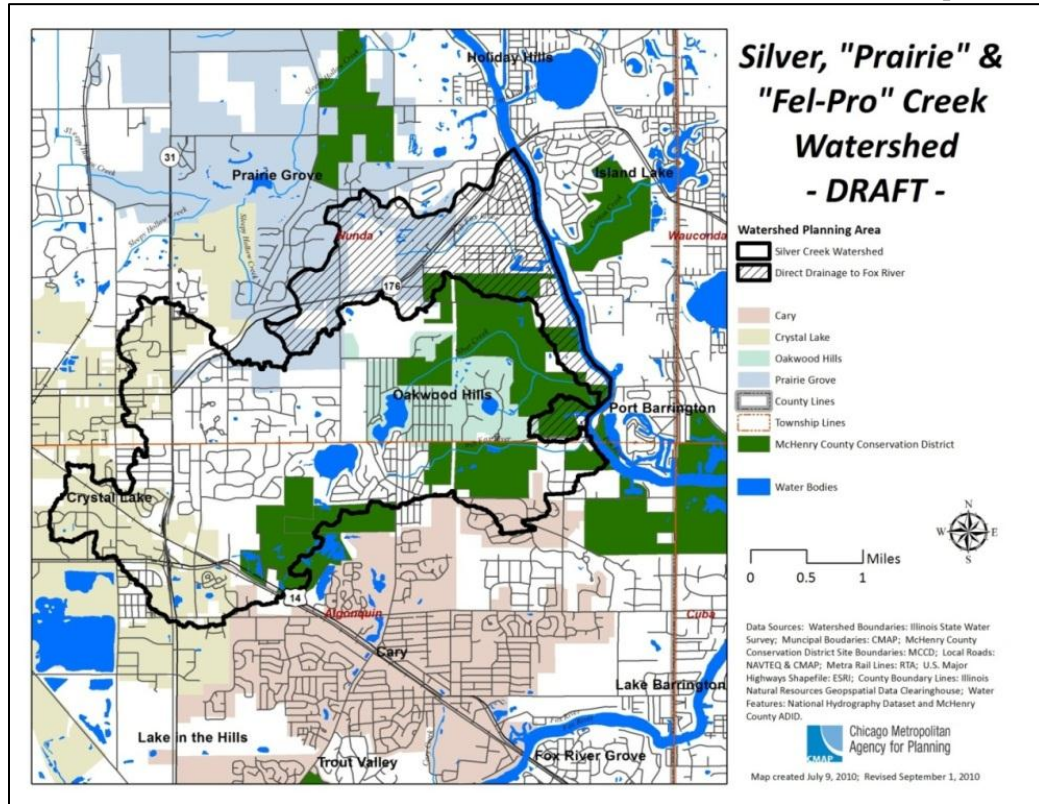
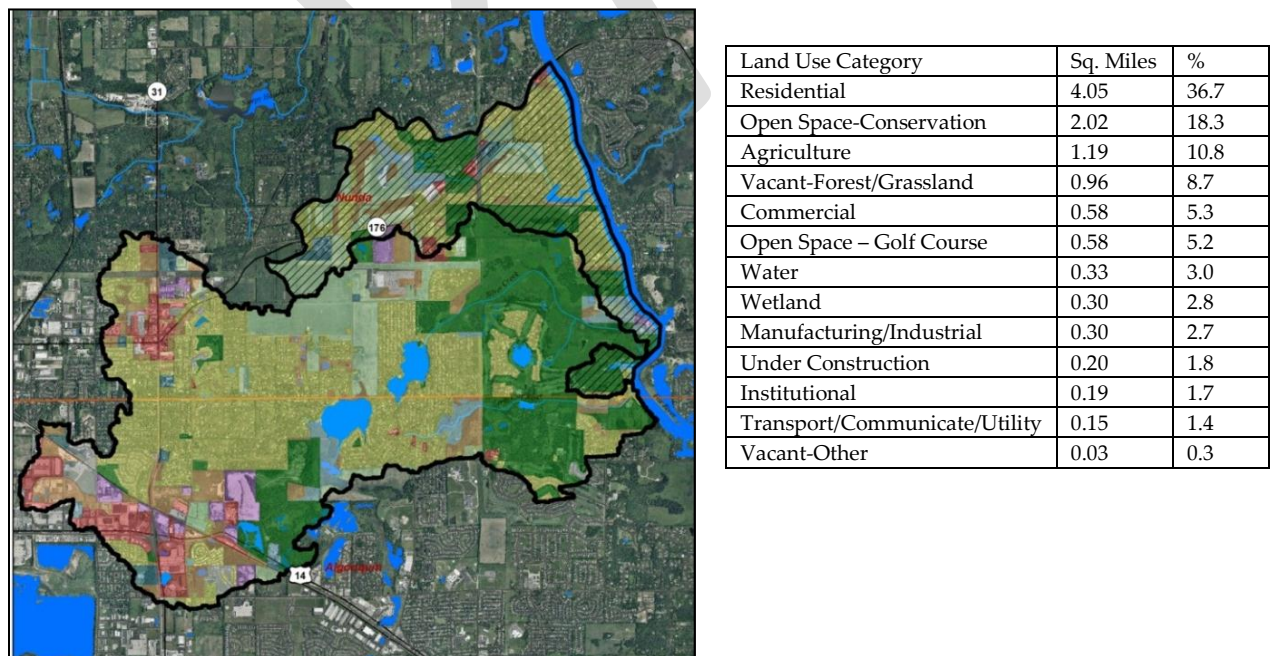


Figure 5. Silver “Prairie” and “Fel-Pro” Creek Watershed Landuses



Water Quality Conditions

Surface Water

The Creeks in these watersheds have not been assessed for water quality impairments by Illinois EPA. However, the segment of the Fox River into which the streams drain (DT-22) has been assessed. In the 2010 Illinois Integrated Water Quality Report and Section 303 (d) list³; this segment received non-support designation for aquatic life, fish consumption, and primary contact uses⁴. Aquatic life uses were impaired due to alteration in stream-side or littoral vegetative covers, chloride, copper, other flow regime alterations, sedimentation/siltation, and aquatic algae. Fish consumption use was impaired by PCBs, and primary contact use by fecal coliform. Collectively, potential causes of impairment were listed as highway/road/bridge runoff, impacts from hydrostructure flow regulation/modification, unknown sources, dam or impoundment, habitat modification other than hydromodification, and urban runoff/storm sewers.

Among the lakes in the planning areas, the only assessment conducted to date by Illinois EPA has been at Silver Lake for the fish consumption designated use, for which it is in non support due to mercury. Sources of impairment were listed as atmospheric deposition and unknown (IEPA, 2010). Silver Lake is on the 303(d) impaired water list for this cause of impairment.

Both Lake Killarney and Silver Lake are being monitored by Illinois EPA in 2010 under their Ambient Lake Monitoring Program (ALMP), and thus will be assessed for aquatic life use in the next *Integrated Report* to be released in 2012. Additionally, Silver Lake was monitored in 2009 and was monitored again in 2010 as part of the Tier 3 advanced program of the Illinois Volunteer Lake Monitoring Program (VLMP), the data from which can be used by Illinois EPA for 305(b) assessment and 303(d) listing purposes. Lakes Killarney and Atwood were monitored under the VLMP's Tier 1 basic program in 2010.

Groundwater

All of the communities in the watershed are dependent on groundwater for their drinking water sources. The 2010 draft *Integrated Report* indicates a range of good to fair drinking water use support for the Community Water Supply (CWS) ambient network wells within southeastern McHenry County. Impairments were generally caused by elevated chlorides or nitrates (IEPA, 2010b).

³ The Illinois Environmental Protection Agency releases the Illinois Integrated Water Quality Report to provide information to both citizens of Illinois and the federal government on the condition of groundwater and surface waters in the state. The report format is based on federal guidance for meeting requirements of the Clean Water Act. One main product of the report is the 303 (d) list, which lists waters that have been assessed and deemed "impaired" for the designated uses.

<http://www.epa.state.il.us/water/tmdl/303d-list.html>

⁴ *Primary contact* use is defined as – any recreational or other water use in which there is a prolonged and intimate contact with the water (where the physical configuration of the water body permits it) involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard, such as swimming and water skiing" (35 Ill. Adm. Code 301.355)

Watershed-Based Plan Components and Plan Guidance

The fundamental purpose of the watershed-based plan is to evaluate and recommend the best measures to help protect and maintain the beneficial uses in Sleepy Hollow Creek and Silver Creek's waters, and improving conditions enough that the segment of the Fox River into which the streams drain (DT-22) can be removed from the Illinois Section 303(d) list. The focus of this will be on recommendations to eliminate this cause as well as address the goals identified by both Sleepy Hollow and Silver Creek stakeholders.

The US EPA has identified 9 components that a watershed-based plan should incorporate, which are listed below.

1. Identify causes and sources of pollution that will need to be controlled to achieve pollutant load reductions estimated in the watershed plan.
2. Estimate pollutant reduction loads expected from following implementation of management measures described in #3 below.
3. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions estimated under #2 above and an identification of the critical areas where measures need to be implemented.
4. An estimate of the amount of technical assistance, associated costs, potential funding source and parties that will be relied upon to implement.
5. A public information/education component designed to change social behavior.
6. Develop a plan implementation schedule.
7. Develop a description of interim, measureable milestones.
8. Identify indicators that can be used to determine whether pollutant loading reductions are being achieved over time.
9. Develop a monitoring component to evaluate the effectiveness of the implementation efforts over time.

The plan should also address the regional criteria piloted in the Kishwaukee River Basin, completed by CMAP in 2008⁵, which are described below.

1. Develop a vision for watershed land use by evaluating the collection of local comprehensive plans and estimating the cumulative impact on future water quality.
2. Set target pollutant-load reductions for impaired waters taking into account both point- and nonpoint-source pollution ⁶ sources.

⁵ <http://www.cmap.illinois.gov/kishwaukee.aspx>

⁶ Nonpoint source pollution (NPS) generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. NPS is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters. It can include excess fertilizers, herbicides and insecticides from agricultural lands and residential areas, oil, grease and toxic chemicals from urban runoff and energy production, salt, pet wastes, faulty septic system, sediment from improperly management construction sites and eroding streambanks, and atmospheric deposition. <http://water.epa.gov/polwaste/nps/whatis.cfm>

3. Consider groundwater protection from both water quality and water quantity perspectives.
4. Compare municipal codes and ordinances against the US EPA developed Water Quality Scorecard.

In order to address the criteria listed above, a pollutant-load model created by the Illinois State Water Survey (ISWS) for the Fox River Study Group (FRSG) will be used. More information on this process can be found in Chapter X.

The Watershed Planning Process

Stakeholder/Planning Committee:

Stakeholders are defined as “a person (or group) who is responsible for making or implementing a management action, who will be affected by the action, or who can aid or prevent its implementation”⁷. The Sleepy Hollow and Silver Creek Stakeholder Committee is representative of various community leaders, residents, and local units of government, environmental groups, park districts, forest preserves, landowners, conservation districts, and special interest groups. This diverse group will provide input and increase public awareness of water resources issues within the watersheds and promote recommendations in the plan.

Project Lead

The Chicago Metropolitan Agency for Planning (CMAP) is the delegated authority for the region’s areawide water quality management plan and is obligated to outline management strategies for eliminating point- and nonpoint-source pollution, protecting groundwater, and managing wastewater throughout the seven-county region.⁸ CMAP facilitated monthly stakeholder meetings which guided the development of this plan and provided technical assistance that sought to protect and/or remediate water quality in the watersheds. CMAP developed a comprehensive watershed inventory of resources, both man-made and natural in the watersheds.

Watershed and Outreach Coordinators

The Environmental Defenders of McHenry County⁹ (EDMC) and the Fox River Ecosystem Partnership¹⁰ (FREP) are both partners involved in this watershed planning process. EDMC served as the watershed coordinator and was responsible for assembling local stakeholders

⁷ http://www.epa.gov/owow_keep/NPS/toolbox/print/stakeholderguide.pdf

⁸ NIPC, 1979 (as amended). Areawide Water Quality Management Plan. Volumes 1 and 2.

⁹ EDMC is a nonprofit environmental education and protection organization incorporated in 1971. Stream and groundwater protection, community planning and sustainable growth, recycling, and educational presentations are strong focuses of the group.

¹⁰ The Fox River Ecosystem Partnership (FREP) is a not-for-profit created in 1996, comprised of local governments, private businesses, not-for-profits and landowners in the Fox River Basin. FREP’s vision for the Fox River Basin “is to balance all the uses and demands on our natural resources while preserving and enhancing a healthy environment (<http://foxriverecosystem.org/index.htm>)

through advertisements with CMAP and FREP coordination and direct solicitation. FREP supported education and outreach efforts by upgrading their webpage highlighting watershed planning activities for Sleepy Hollow Creek and Silver Creek Watersheds.

Guide to What Follows

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