



MEMORANDUM

To: Sleepy Hollow Creek Watershed Planning Group

Date: September 2010

From: CMAP Staff

Re: Project charter for Sleepy Hollow watershed action plan

Watershed Planning

Chicago Metropolitan Agency for Planning

The Chicago Metropolitan Agency for Planning (CMAP)¹ is the delegated authority for the region's areawide water quality management plan.² Thus, CMAP is obligated to outline management strategies for eliminating point- and nonpoint-source pollution, protecting groundwater, and management of wastewater throughout the seven-county region. CMAP, as did the Northeastern Illinois Planning Commission before it, uses a collaborative watershed approach to planning that seeks to protect and/or remediate water quality.³ Water pollution prevention and groundwater protection is the shared responsibility of state and local governments (and individual farm operators, homeowners and businesses too for controlling agricultural nonpoint-source pollution and runoff from residential and business properties respectively.)⁴

CMAP entered into an agreement with the Illinois Environmental Protection Agency (IEPA)⁵ to complete four watershed-based plans within the Fox River basin, including the Sleepy Hollow watershed. Funding for these projects was provided by the IEPA through Section 604(b) of the Clean Water Act. The plan must meet certain requirements which are discussed below. The Environmental Defenders of McHenry County (EDMC) and the Fox River Ecosystem Partnership (FREP) are both partners in the planning process and have received grants from

¹ <http://www.cmap.illinois.gov/default.aspx>

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

³ A watershed planning approach often addresses other related natural resource (e.g. open space, habitat, etc.) or built-environment (flooding, stormwater, etc.) management issues in a complementary fashion. In so doing, a watershed plan can be multiobjective.

⁴ *Ibid* 6. Also: Illinois EPA, Bureau of Water. 1992 (as amended). Illinois Water Quality Management Plan.

⁵ <http://www.epa.state.il.us/water/>

CMAP. EDMC will serve as the watershed coordinator, convene local stakeholders and execute an outreach plan. FREP will support the outreach and education effort by upgrading their subwatersheds webpage, highlighting watershed planning activity in their e-newsletter – “Downstream” and hosting a Noon Network in each of the four watersheds. The planning process and watershed plans are to be completed by December 31, 2011.

This project adds to the body of watershed-based plans that have been or are being developed throughout Illinois to address both state and regional nonpoint source pollution prevention and water resource protection needs as well as provide more public education, involvement, outreach, and capacity building opportunities. Action items identified in the plan become eligible for state and federal funding to help local sponsors implement those items.

This project also builds upon the Fox River Ecosystem Partnership’s vision and strategies for the Fox River watershed as outlined in their *Integrated Management Plan for the Fox River Watershed in Illinois* (FREP, 1998).

The Fox River Basin

General Description

The Fox River is the third largest tributary of the Illinois River stretching 185 miles (115 miles in Illinois) from its headwaters near Waukesha, Wisconsin, to its confluence with the Illinois River in Ottawa. The Fox River Basin covers approximately 2,658 square miles of which 1,720 (65%) are in Illinois. The river basin includes portions of eleven Illinois counties including six (Cook, DuPage, Kane, Lake, McHenry, and Will) that are the most populated in the state and seven that are among the top ten fastest growing counties in Illinois (#1: Kendall, #2: Will, #3: Kane, #5: McHenry, #7: Grundy, #8: Lake, #9: DeKalb)⁶. An attraction for the population growth in the Fox River Basin is the abundance of recreational opportunities and high quality natural resources associated with the river and its tributaries. However, those same high quality resources are being lost or significantly impaired by historic land-use change and a type of development that is often inconsistent with sustainable land and water resources stewardship.

The Illinois portion of the Fox River Basin contains about 2,300 river and tributary stream miles and 406 lakes, many of the lakes glacially formed (IDNR, 1998). Perhaps the most noticeable of these lakes are in the Fox Chain O’ Lakes in northeastern Lake County, comprised of fifteen interconnected lakes with more than 7,500 surface acres of water. Four segments of the Fox River and fourteen glacial lakes are considered to be “biologically significant” with more than 150 state-threatened and endangered species found within the watershed (IDNR, 1997).

Water Quality Conditions

Agricultural and urban development within the Fox River watershed have resulted in hydrologic, water quality and direct impacts to the Fox River and its tributaries. The hydrologic and direct stream modification impacts have been compounded by invasion of nonnative vegetation that is unsuitable for bank stabilization and resulting in extensive streambank

⁶ U.S. Census Bureau, Population Estimates Program.2005.Internet Release Date: April 14, 2005.<http://www.census.gov/popest/counties>

erosion. This in turn adversely impacts water quality and results in impairment of aquatic habitat. In many areas the absence of deep rooted native riparian vegetation results in little or no filtering of surface or subsurface runoff from the watershed to the streams. Agricultural and urban runoff results in further degraded conditions.

The water quality of surface and groundwater resources is assessed throughout the state and is reported in the Illinois Environmental Protection Agency's (Illinois EPA) biannual Illinois Integrated Water Quality Report and Section 303(d) List (Integrated Report) (<http://www.epa.state.il.us/water/tmdl/303d-list.html>). In the 2010 draft Integrated Report, designated uses listed for the 17 Illinois EPA-identified segments of the Fox River are aquatic life, primary contact, secondary contact, fish consumption, and/or public water supply. All 17 segments were assessed for aquatic life use, with 14 considered nonsupport and three segments (one in the Upper Fox, two in the Lower Fox Basin) yielding full support. Causes of impairment include sedimentation/siltation, total suspended solids, total phosphorus, pH, certain organics pollutants such as (name some), and unknown causes. Impairment sources include urban runoff/ storm sewers, combined sewer overflows, municipal point source discharges, flow regulation/ modification, dams/impoundments, agriculture and crop-related sources, habitat modification, bank modification/destabilization, upstream impoundments, recreational pollution, and contaminated sediments. All 17 segments also were assessed for fish consumption use, and all were considered nonsupport due to PCBs and in some cases also mercury. Of the ten segments assessed for primary contact, three were considered full support and the other seven nonsupport. Causes of primary contact impairment were total fecal coliform bacteria from unknown sources. Two segments are used for public water supply, and one was considered full support and the other nonsupport (due to chloride) for that designated use. Per Illinois EPA's draft 2010 Section 303(d) List (IEPA, 2010a; Appendices A-2 and A-3), the entire Fox River within Illinois and all 10 lakes within the Fox Chain O'Lakes are 303(d)-listed waters. Additionally, 66 of the other 72 lakes that were assessed within the Fox River Basin are 303(d)-listed (for the aesthetic quality and/or fish consumption designated use), including Silver Lake for fish consumption use due to mercury.

For groundwater quality, a probabilistic monitoring network of community water supply (CWS) wells is monitored by Illinois EPA on a rotating basis. The 2010 draft Integrated Report (IEPA, 2010b) indicates a range of good to fair to poor drinking water use support for the CWS ambient network wells within northeastern Illinois. Increasing chloride concentrations are one of the particular concerns in northeastern Illinois sand and gravel and shallow bedrock aquifers.

Sleepy Hollow Creek Watershed Planning Area

Sleepy Hollow Creek watershed is located in southwest McHenry County and has a drainage area of approximately 19.86 square miles (Figure 1). The watershed covers a portion of the City of Crystal Lake, encompasses the majority of the Village of Prairie Grove and borders the City of McHenry and the Village of Bull Valley. The watershed drains into the Fox River which is located on the urban fringe of the Chicago metropolitan area. The land use in the Sleepy Hollow Creek watershed is comprised of residential uses (6.98 square miles), agricultural uses (4.87 square miles), 0.93 acres of McHenry County Conservation District holdings, and several

commercial and manufacturing sites scattered across the watershed. The total population of Prairie Grove is 960⁷, while Crystal Lake has a population of 38,000⁸.

No study or plans has been previously completed in the Sleepy Hollow watershed.

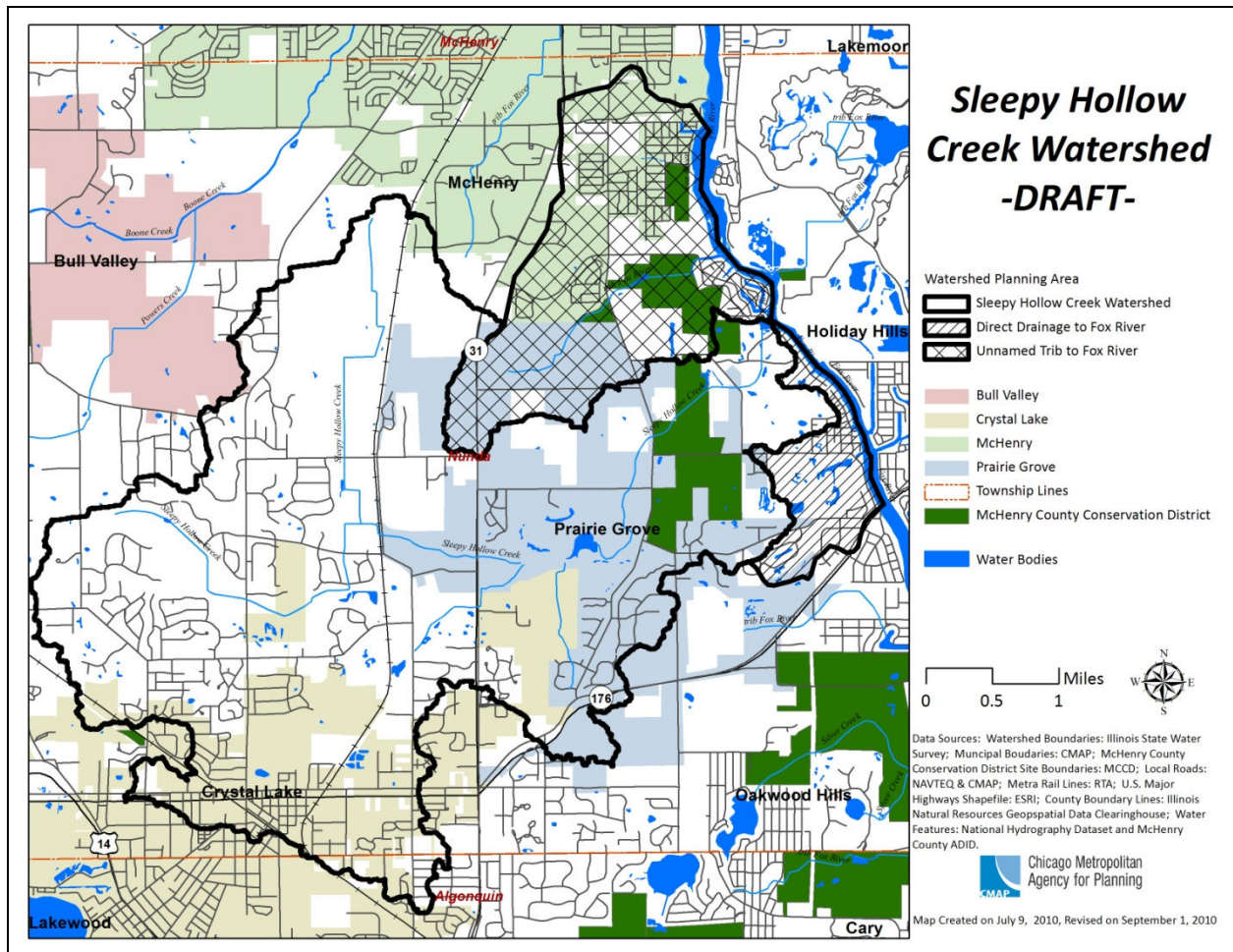


Figure 1: Watershed Planning Area

Current Water Quality Conditions

Surface Water

Sleepy Hollow has not been assessed for water quality impairments by the IEPA in its Draft 2010 Illinois Integrated Water Quality Report. However, the segment of the Fox River into which the stream drain (DT-22) has been assessed. The report determined that this segment was not in support of aquatic life, fish consumption, and primary contact uses. Potential causes of impairment for aquatic life include dissolved oxygen, pH, sedimentation/siltation, total suspended solids. Causes of impairment for fish consumption included polychlorinated biphenyls. The potential cause listed for primary contact is fecal coliform. Potential sources

⁷ http://www.cmap.illinois.gov/2030_forecasts.aspx

⁸ <http://www.cmap.illinois.gov/2030forecasts.aspx>

include impacts from hydrostructure flow, dam or impoundment, urban runoff/storm sewers, impacts from hydrostructure flow regulation/modification, other recreational pollution sources and unknown sources.

Groundwater

The Draft 2010 Illinois Integrated Water Quality Report indicates a range of good to fair to poor drinking water use support for the CWS network wells within southeast McHenry County. Impairments were generally caused by elevated chlorides or nitrates.

Watershed-Based Plan Components and Goals

The fundamental purpose of the watershed-based plan is to evaluate and recommend the best measures to help restore the beneficial uses of impaired waters, as well as to protect and maintain the quality of unimpaired or threatened waters. The long-term goal is to improve conditions enough so that impaired waters can be removed from the 303(d) list, and to keep unimpaired waters from becoming 303(d)-listed. Since Sleepy Hollow Creek has not been assessed and is therefore not included in the 303(d) list, the goal for this watershed-based plan is to prevent the creek from becoming listed.

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 2008⁹, which are described below.

⁹ <http://www.cmap.illinois.gov/kishwaukee.aspx>

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 sources.
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, CMAP will utilize a pollutant-load model created by the Illinois State Water Survey (ISWS) for the Fox River Study Group (FRSG). This model has delineated the Upper and Lower Fox River Basins into 31 sub-basins and 1 main branch of the Fox River. The model is a Hydrologic Simulation Program FORTRAN (HSPF) model which will simulate watershed loading and delivery and routing of nonpoint and point sources of pollution. The ISWS is collecting water quality samples to calibrate the model in late 2010.

All of the communities in the watershed are dependent on groundwater and river water for their drinking water sources. Current and future water demand issues also will also be important to consider in the plan. As population growth continues and reliance on sand and gravel and shallow bedrock aquifers increases, stream flows also may be affected, impacting surface water quality and stream, lake and wetland habitat.

Watershed Planning Process

Planning Partners

The Environmental Defenders of McHenry County (EDMC, formerly known as the McHenry County Defenders) was incorporated in 1971 as a nonprofit environmental education and protection organization. Today, five active issue committees (Climate Change, Land Use Planning, Natural Resources Preservation, Waste Reduction, and Water Resources Protection) lead events, tours, projects, and demonstrations of environmental interest, addressing issues facing the county. Stream and groundwater protection, community planning and sustainable growth, recycling, and educational presentations are strong focuses of the group.

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 environment¹⁰."

Planning Stakeholders

EDMC will be responsible for assembling local stakeholders through advertisements with CMAP and FREP coordination and direct solicitation. Stakeholders may include representatives from local governments, conservation and park districts, other bodies of government, local landowners, special interest groups, and other citizens that live in the watershed.

¹⁰ <http://foxriverecosystem.org/index.htm>

Plan Development

As the project lead, CMAP will be facilitating and providing technical assistance for the watershed-based plan. One of the tasks CMAP will be responsible for is leading stakeholder meetings, which will be held on a near-monthly basis. These meetings will direct the development of the watershed-based plan based on stakeholder input, best professional judgment, and the requirements enumerated above. CMAP will also compile a comprehensive watershed resource inventory which will include the natural, human and man-made resources in the watersheds. CMAP will be using an HSPF model to determine current pollutant loading in the watershed. This model will also be used to simulate pollutant-load reductions associated with plan recommendations. CMAP will be responsible for writing and publishing the plan.

Project Timeline

The project has somewhat of an expedited schedule therefore it is important to be cognizant of the project deadlines. The major project completion dates are listed below. As the project continues a more detailed schedule will be developed.

Activity	Completion Date	Responsible Partner
PowerPoint Presentation - Draft	Oct. 15, 2010	EDMC
PowerPoint Presentation - Final Draft	Dec. 27, 2010	EDMC
Planning Brochure - Draft	Dec. 15, 2010	EDMC
Planning Brochure - Final Draft	Feb. 25, 2011	EDMC
Planning Brochure - Printed	Mar. 1, 2011	EDMC
Watershed Poster - Draft	Mar. 15, 2011	EDMC
Watershed Poster - Final Draft	Apr. 28, 2011	EDMC
Watershed Display - Draft	Jun. 15, 2011	EDMC
Watershed Display - Final Draft	Sep. 1, 2011	EDMC
Watershed Recommendation Brochure - Draft	Oct. 15, 2011	EDMC
Watershed Recommendation Brochure - Final Draft	Dec. 15, 2011	EDMC
Watershed Recommendation Brochure - Printed	Dec. 29, 2011	EDMC
Draft Website Design	Dec. 1, 2010	FREP
Updates to Website	Ongoing	FREP
Noon Network	Dec. 31, 2011	FREP
Natural Resources Inventory	May 1, 2011	CMAP
Draft Plan & Executive Summary	Nov. 1, 2011	CMAP
Final Plan & Executive Summary	Dec. 31, 2011	CMAP

Plan Adoption

A watershed-based plan is an advisory document, but serves as the primary means for addressing nonpoint-source pollution. After decades of investments in wastewater treatment and policies to address other point-source discharges, nonpoint-source pollution has emerged as a focal point nationwide for improving water quality and meeting the goals of the Clean Water Act. After the plan has been completed, stakeholders that represent possible plan implementers will be asked to bring the plan to their respective organization. The plan should

then be adopted with a resolution to the effect that the organization supports collective implementation of the plan. CMAP staff will be available to make presentations to village boards or other governing bodies, but all stakeholders including elected officials should have been regularly apprised of the plan as the planning process progressed. There is precedent for formal adoption of watershed plans that CMAP and local stakeholders have produced: the three watershed plans developed within the Kishwaukee River Basin in 2008 were each adopted by resolution by the cities and counties involved.

Plan adoption does not mean that the policy recommendations of the plan automatically go into place. Ordinances may need to be revised, while local funding may need to be committed to projects through normal budgeting processes. Given the difficult fiscal situation that many implementers face, the plan has to be sensitive to the need to minimize local funding contributions. External funding is expected to cover some or most of the costs of projects in the short term implementation plan, and it is CMAP's intent to try to help secure funding for some implementation projects in the Sleepy Hollow watershed. However, the need for some local funding cannot be avoided. Ways of raising such revenue will be considered in the plan.

Plan Production

CMAP is responsible for producing a watershed based plan and an executive summary document per their IEPA contract. The final products will be available to the public on CMAP's website as well as the FREP website. While plans must address certain issues as described above, stakeholder input is critical in order that plans benefit from local knowledge, reflect local sentiment, and enjoy local buy-in (i.e., support).