

Community Assistance Planning Report No. 330

A RESTORATION PLAN FOR THE OAK CREEK WATERSHED

## Chapter 1

# INTRODUCTION

### 1.1 PURPOSE OF PLAN

The health of a river system is usually a direct reflection of the use and management of the land within its watershed. Human activities within a watershed affect, and are also affected by, surface water and groundwater quality and quantity and habitat conditions. In the Oak Creek watershed the effects of human activities on water quality often tend to overshadow natural influences. Oak Creek, its tributaries, and associated wetlands are important warmwater resources located in Milwaukee County in southeastern Wisconsin that have historically shown and continue to show signs of degradation. The problems of this watershed typify those found in areas experiencing changing land use patterns and water resource-related problems which have a direct effect on the property and general welfare of the residents of the watershed. The purpose of this plan is to provide a set of specific, targeted recommendations that can be implemented to address improvements for a set of watershed focus issues with the overall goal of restoring and improving the water resources of the Oak Creek watershed.

This watershed restoration plan was prepared in the context of the Southeastern Wisconsin Regional Planning Commission's (SEWRPC) regional water quality management plan update for the greater Milwaukee watersheds (RWQMPPU),<sup>1</sup> which was prepared in coordination with, and largely incorporates, the Milwaukee Metropolitan Sewerage District's (MMSD) 2020 facilities plan.<sup>2</sup> This plan builds upon the findings

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<sup>1</sup> SEWRPC Planning Report No. 50 (PR No 50), *A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds*, December 2007.

<sup>2</sup> Milwaukee Metropolitan Sewerage District, *MMSD 2020 Facilities Plan*, June 2007.

and recommendations of the 2007 SEWRPC RWQMPS to provide specific, targeted recommendations to address four focus issues: water quality, recreational access and use, habitat conditions, and targeted stormwater drainage and flooding issues. In addition, this plan addresses the status of the Oak Creek Mill Pond and the associated dam, considering their relationship to multiple focus issues. The applicable planning objectives, principles, and standards applied under the RWQMPS, and set forth in Chapter VII and Appendix G of SEWRPC PR No. 50,<sup>3</sup> are also adopted for use under this watershed restoration planning effort.

The Oak Creek watershed restoration plan is designed to assist local units of government, State and Federal agencies, nongovernmental organizations, and private landowners in identifying actions that will restore and benefit the natural assets of the watershed. By implementing the actions identified in this plan, results will be achieved that preserve, restore, and enrich the natural environment.

This watershed restoration plan has been prepared to meet the U. S. Environmental Protection Agency's (USEPA) nine minimum elements for a watershed-based plan (see USEPA Watershed Plan Requirements sections below). This plan is also designed to serve as a practical guide for the management of water resources within the Oak Creek watershed and for the management of the land surfaces that drain, directly and indirectly, to Oak Creek and its tributaries.

## **The Oak Creek Watershed**

The U.S. Geological Survey (USGS) has divided and subdivided the watersheds of the United States into successively smaller hydrologic units that are identified by unique hydrologic unit codes (HUCs). The Oak Creek watershed is classified as a HUC 12 watershed with the unique code of 04040020102. As shown on Map 1.1, the Oak Creek watershed encompasses about 27 square miles in Milwaukee County. The mainstem of the Creek originates in the City of Franklin and flows approximately 13.8 miles in a generally easterly direction through the Cities of Franklin, Oak Creek, and South Milwaukee to its confluence with Lake Michigan in the City of South Milwaukee. The Creek has two major tributaries—the North Branch of Oak Creek and the Mitchell Field Drainage Ditch. Both originate in the City of Milwaukee and flow in southerly directions to their confluences with the mainstem of Oak Creek in the City of Oak Creek. The North Branch of Oak Creek is approximately 5.8 miles long and is located in the western portion of the watershed. The Mitchell Field Drainage Ditch is approximately 3.3 miles long and is located in the north-central portion of the watershed.

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<sup>3</sup> SEWRPC Planning Report No. 50, *op. cit.*

The watershed is highly urbanized. Urban development comprises over half of the watershed area under existing conditions; however, agricultural and open lands are scattered throughout the watershed. Under planned 2050 land use conditions, it is forecasted that the watershed would be essentially completely developed in urban uses, except for primary environmental corridors, consisting predominately of woodlands, wetlands, and floodplain.

A number of problems have been identified in the Oak Creek watershed which restrict its potential uses and threaten its ecological integrity.<sup>4</sup> The mainstem of Oak Creek is considered impaired pursuant to the Federal Clean Water Act because of chronic toxicity to aquatic organisms related to an unidentified pollutant, chronic and acute toxicity to aquatic organisms related to concentrations of chloride that exceed applicable water quality criteria, and the presence of a degraded biological community due to high concentrations of total phosphorus. In addition, the Wisconsin Department of Natural Resources (WDNR) proposed in 2018 that the North Branch of Oak Creek be added to the State's list of impaired waters because of chronic and acute toxicity to aquatic organisms due to concentrations of chloride that exceed applicable water quality criteria. Surface waters in much of the watershed contain high concentrations of bacteria that indicate contamination with fecal material, especially during the months of May through October when many people are actively engaged in outdoor recreational activities. The Oak Creek watershed supports a very poor quality fishery. The fish community contains relatively few species of fishes, is trophically unbalanced, as the stream contains few or no top carnivores, and is dominated by fish species that are tolerant of degraded conditions. Streambed and streambank erosion occur in the mainstem and major tributaries of the Creek. Aquatic and terrestrial invasive species are present at many locations in the watershed and may be displacing native species and degrading habitat.

### **USEPA Watershed Plan Requirements**

In 1987, Congress enacted the Section 319 of the Clean Water Act which established a national program to control nonpoint sources of water pollution. Section 319 grant funding is available to states, tribes, and territories for the restoration of impaired waters and to protect unimpaired/high quality waters. Watershed plans funded by Clean Water Act Section 319 funds must address nine key elements that the USEPA has identified as critical for achieving improvements in water quality.<sup>5</sup> In addition, projects implemented using

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<sup>4</sup> *SEWRPC Technical Report No. 39, Water Quality Conditions and Sources of Pollution in the Greater Milwaukee Watersheds, November 2007.*

<sup>5</sup> *U.S. Environmental Protection Agency (USEPA), Handbook for Developing Watershed Plans to Restore and Protect Our Waters, USEPA 841-B-08-002, March 2008.*

Federal funds provided under Section 319 of the Clean Water Act must directly implement a watershed-based plan that the USEPA has determined to be consistent with the nine key elements. Thus, a finding of consistency with the nine key elements is a significant benefit to implementation of the Oak Creek watershed restoration plan in that it would make projects recommended under the plan eligible for Federal funding. The nine key elements from the USEPA Nonpoint Source Program and Grants Guidelines for States and Territories are as follows:

1. Identification of causes of impairments and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. Sources that need to be controlled should be identified at the significant subcategory level along with estimates of the extent to which they are present in the watershed.
2. Estimates of the load reductions expected from management measures.
3. Descriptions of the nonpoint source management measures that will need to be implemented to achieve load reductions in Element 2, and a description of the critical areas in which those measures will be needed to implement the plan.
4. Estimates of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement the plan.
5. An information and education component used to enhance public understanding of the plan and encourage the public's early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.
6. A reasonably expeditious schedule for implementing the nonpoint source management measures identified in the plan.
7. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.
8. A set of criteria that can be used to determine whether load reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.

9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under element 8.

## 1.2 PLANNING PROCESS

The Oak Creek watershed restoration plan was developed in response to a request from Milwaukee County, the City of South Milwaukee, and the MMSD. The planning effort was directed by Milwaukee County and the City of South Milwaukee and completed by SEWRPC staff. Funding for the planning effort was provided by MMSD, the City of South Milwaukee, Milwaukee County, the Fund for Lake Michigan, and SEWRPC.

### Focus Issues

Focus issues are those general themes related to the critical concerns of the watershed. An individual focus area reflects a set of issues and problems related to one another through some desired use or state that the public has for the resource. Thus, these focus areas constitute a linkage between conditions in the watershed and the use by the public of water resources.

The focus issues that this watershed restoration plan addresses are derived from two sources. First, they reflect the findings of the 2007 RWQMPU for the greater Milwaukee watersheds.<sup>6</sup> As previously noted, the RWQMPU identified several problems in the Oak Creek watershed that restrict potential uses of the resource and threaten its ecological integrity. Second, the focus issues reflect themes that emerged from a series of discussions by interested parties, including elected officials, State and local government staff, nongovernmental organizations, landowners, and residents.

The identification of focus issues related to the Oak Creek watershed began at two intergovernmental meetings convened in 2011 by Patricia Jursik, who at that time was the Milwaukee County Supervisor for a portion of the watershed. The results of those meetings are summarized in a January 10, 2012 SEWRPC staff memorandum entitled *Approaches to Addressing Water Resource-Related Issues in the City of South Milwaukee in the Oak Creek Watershed*. The staff memorandum identifies the following general issues of concern:

- Debris and sediment accumulations in the Oak Creek channel

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<sup>6</sup>SEWRPC Technical Report No. 39, *op. cit.*; SEWRPC Planning Report No. 50, *op. cit.*

- Streambank erosion
- City and County maintenance responsibilities within the Oak Creek channel
- Flooding of low-lying areas, such as the South Milwaukee High School athletic fields, and washouts of the foot bridge connecting the neighborhoods west of the High School/Middle School campus near Beech Street with the campus
- Sanitary sewer backups into basements
- The effects of land use changes throughout the watershed on sedimentation, streambank erosions, stormwater runoff, flooding, and sanitary sewer backups
- The condition of the Mill Pond dam impoundment along the Creek in the City of South Milwaukee
- Lake Michigan bluff stability at a location in Grant Park where significant bluff erosion is occurring<sup>7</sup>

Many of those issues were also raised during a January 8, 2015, meeting at South Milwaukee City Hall that was convened by South Milwaukee Mayor Erik Brooks and former Supervisor Jursik. Participants at this meeting included elected officials from Milwaukee County and municipalities located in the Oak Creek watershed; staff from Milwaukee County, municipalities located in the watershed, the MMSD, the WDNR, and SEWRPC; members of local nongovernmental organizations active in the watershed; representatives of potential funding agencies; and members of the public. Based on the input from those who attended the January 2015 meeting, the following four major focus issues emerged for this watershed restoration plan:

- Water quality
- Recreational access and use
- Habitat conditions

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<sup>7</sup> This bluff stability issue occurs at a locations outside of the Oak Creek watershed and, therefore, is not addressed under this plan.

- Targeted stormwater drainage and flooding issues

In addition, the plan will address the status of the Mill Pond impoundment and the associated dam due to their relationship to multiple focus issues.

### **Advisory Group**

The Oak Creek watershed restoration plan was developed through a collective effort on the part of a number of agencies and organizations under the overall direction of Milwaukee County and the City of South Milwaukee. The agencies and organizations involved include the City of Racine Public Health Department, the WDNR, Milwaukee County, the MMSD, the municipalities of the Oak Creek watershed, the Root-Pike Watershed Initiative Network (Root-Pike WIN),<sup>8</sup> and SEWRPC. The plan was developed under the guidance of the Oak Creek Watershed Restoration Plan Advisory Group. The Advisory Group was created specifically for the purpose of reviewing draft plan chapters during plan development. Its membership includes elected and appointed officials, agency personnel, and citizens knowledgeable in land and water resource matters. The membership of the Advisory Group is documented in Appendix A.

The Advisory Group met periodically over the course of the planning effort to provide input on the plan. Advisory Group meetings were held on February 7, 2018; November 14, 2018; \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_. The Advisory Group reviewed each chapter of the plan in draft form and provided comments and recommendations, which were addressed in the final plan.

### **Outreach to Stakeholders and the Public**

The planning effort included periodic watershed stakeholder meetings to update those interested in watershed issues of the progress on the plan and to present summaries of ongoing planning activities. Those meetings were held at locations within the watershed and were open to the public at large. Organizations and individual citizens with an interest in the watershed were notified using interested party lists developed by the Root-Pike WIN and others. Attendance at those meetings by members of the Advisory Group was encouraged.

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<sup>8</sup> The Root-Pike Watershed Initiative Network area of interest includes the Oak Creek, Pike River, and Root River watersheds and the Lake Michigan direct drainage area from the mouth of Oak Creek at Lake Michigan south to the Wisconsin-Illinois state line.

Presentations were made to the public at stakeholder meetings summarizing the content of draft chapters and reporting on progress. These meetings were held on April 12, 2016; August 30, 2016; April 26, 2017; March 8, 2018; December 13, 2018; \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_; \_\_\_\_\_.

A webpage describing the watershed restoration project was provided on the SEWRPC website.<sup>9</sup> This website could also be accessed through links on the Root-Pike WIN website. Copies of agendas and minutes from Advisory Group meetings and presentations, draft chapters of the plan report, and other materials related to the planning effort were placed on this webpage in downloadable form. The webpage also included a comment screen on which members of the public could ask questions and submit comments on the draft plan.

### **1.3 PLAN FORMAT AND ORGANIZATION**

This report documents a watershed restoration plan for the Oak Creek watershed. It is organized into six chapters.

Following this initial introductory chapter, Chapter 2 summarizes and describes the recommendations of the RWQMPS as they relate to the Oak Creek watershed, indicates how these recommendations relate to the focus areas of this plan, and evaluates the implementation status of the recommendations. It also sets forth an inventory and review of recent and ongoing watershed management programs and initiatives in the Oak Creek watershed that are related to the focus areas of this plan. This review describes those plans, programs, and initiatives that have recently been undertaken, or are currently ongoing, by State and local governments and private entities, with a view toward integrating those efforts that are consistent with, and complement, this plan's focus areas.

Chapter 3 presents information on the natural and man-made features of the watershed, including a description of the natural resource base and environmentally sensitive areas, land use data, and demographics. This characterization represents a refinement and updating of the inventories presented in the RWQMPS.<sup>10</sup>

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<sup>9</sup> This can be accessed at [www.sewrpc.org/SEWRPC/Environment/Restoration-Plan-Oak-Creek-Watershed.htm](http://www.sewrpc.org/SEWRPC/Environment/Restoration-Plan-Oak-Creek-Watershed.htm).

<sup>10</sup> SEWRPC Technical Report No. 39, *op. cit.*



Chapter 4 presents an inventory and analysis of those watershed characteristics most relevant to the four focus issues. This characterization includes discussion of physical conditions of the surface water system, existing surface water quality, and habitat and biological conditions in the Oak Creek watershed. In addition, the inventory includes analysis of data collected as part of two projects conducted in support of this planning effort. These projects include collection of water quality data by the City of Racine Public Health Department with assistance from staff at the University of Wisconsin-Parkside under a project funded by the Fund for Lake Michigan and collection of aquatic biological community data by the WDNR.

Chapter 5 provides a description of the goals and management objectives for the Oak Creek watershed restoration plan. These goals and objectives establish targets to be achieved through implementation of the watershed restoration plan and steps related to the focus issues that must be implemented to meet the long-term goals established in the RWQMPPU. Establishing targets breaks the long-term goals into manageable pieces, helps determine the specific steps necessary to achieve a goal, and facilitates the development of measures to track progress.

Chapter 6 presents the plan recommendations to guide activities for the restoration of the watershed. This chapter presents the management efforts selected to meet the targets identified in the previous chapter. For each recommended action, it also identifies the primary land uses that the action addresses and prioritizes those geographical areas and locations in the watershed where the action should be implemented. This chapter also presents strategies designed to assist the implementing entities in converting the plan into actions, policies, and programs and provides guidance on prioritizing the recommendations for implementation. Finally, the chapter identifies the agencies responsible for implementing elements of the plan, presents estimates of the resources—such as technical and financial assistance—required to implement elements of the plan, and identifies potential sources of such support.



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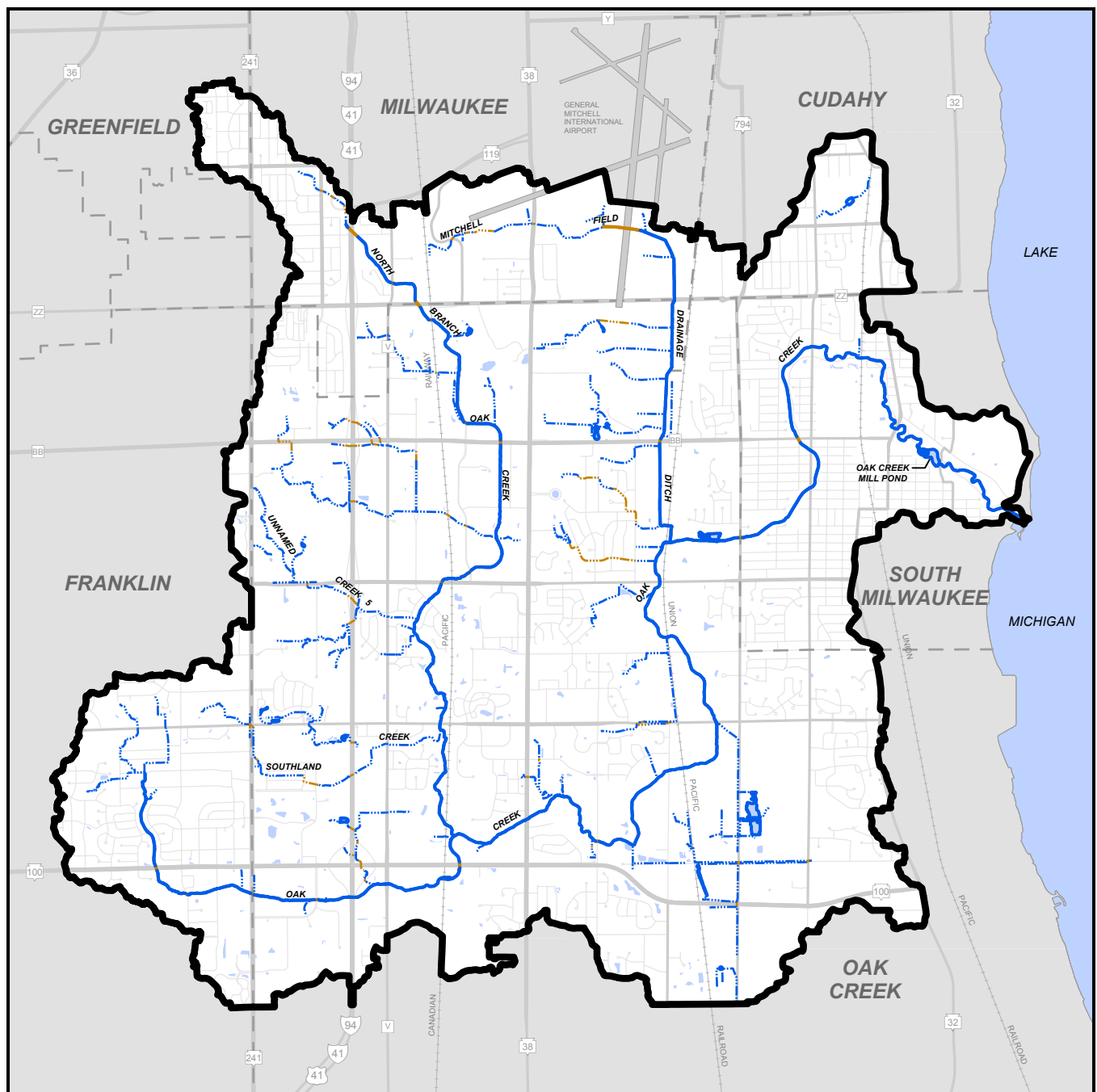
## **Chapter 1**







# **INTRODUCTION**

## **MAPS**



**Map 1.1**  
**The Oak Creek Watershed: 2018**



-  OAK CREEK WATERSHED BOUNDARY
-  PERENNIAL STREAM
-  PERENNIAL STREAM (ENCLOSED)
-  INTERMITTENT STREAM
-  INTERMITTENT STREAM (ENCLOSED)
-  SURFACE WATER

